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Community Eligibility Provision Evaluation

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List of Acronyms and Abbreviations

ADP	Average daily participation
CCD	National Center for Educational Statistics' Common Core of Data
CEO	Community Eligibility Option now known as CEP (see below)
CEP	Community Eligibility Provision
CITS	Comparative interrupted time series
CN	Child Nutrition
DCM	Direct Certification with Medicaid
ELL	English Language Learners
EN	Eligible Non-Participating
EP	Eligible Participating
ESEA	Elementary and Secondary Education Act of 1965
FDPIR	Food Distribution Program on Indian Reservations
FNS	Food and Nutrition Service
FPL	Federal poverty line
FRP	Free or reduced price
FSD	Foodservice director
FSMC	Foodservice management company
FY	Fiscal Year
HHFKA	Healthy, Hunger Free Kids Act of 2010
IOM	Institute of Medicine
ISP	Identified student percentage
LEA	Local Education Agency
MANOVA	Multivariate analysis of variance
NCES	National Center for Educational Statistics
NE	Near-Eligible
NSLA	National School Lunch Act
NSLP	National School Lunch Program
NSMP	Nutrient Standard Menu Planning
OVS	Offer vs. Serve
PEAR survey	Participation, enrollment, attendance and revenue survey
POS	Point of Sale
PPS	Probability proportional to size
PSM	Propensity score matching
PSUS	Private School Universe Survey
SBP	School Breakfast Program
SD	Standard deviation
SE	Standard error
SEA	State Education Agency
SFA	School Food Authority
SNAP	Supplemental Nutrition Assistance Program
SNDA	School Nutrition Dietary Assessment Study
SY	School Year
TANF	Temporary Assistance for Needy Families
USDA	United States Department of Agriculture
VSR	FNS Verification Summary Report (FNS-742)

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Executive Summary

Section 104(a) of the Healthy, Hunger Free Kids Act (HHFKA) of 2010 made the Community Eligibility Provision (CEP) available to Local Educational Agencies (LEAs) and schools in high poverty areas. Under the CEP, families are not required to submit applications for free or reduced-price (FRP) meals, and schools must provide free lunch and breakfast to all students. Schools are reimbursed for meals using a formula based on the percentage of students identified as eligible without an application (the identified student percentage, or ISP), using direct certification and other lists of eligible students. The potential benefits are to increase low income students' access to nutritious meals, and to reduce the administrative burden LEAs experience with the school meals programs.

The CEP is being phased in by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA) over a four-year period, beginning with three States selected to participate in the CEP during School Year (SY) 2011–12 (referred to hereafter as Year 1 States): Illinois, Kentucky, and Michigan. FNS chose four additional States for SY 2012–13 (Year 2 States): the District of Columbia, New York, Ohio, and West Virginia. FNS has selected four more States for SY 2013–14: Florida, Georgia, Maryland, and Massachusetts. The CEP will be available to all LEAs nationwide in SY 2014–15.

As mandated by the HHFKA, the CEP Evaluation examined the implementation and impacts of this new framework for providing free meals to all students in high-poverty schools. The overall purpose of the evaluation was to obtain a better understanding of:

- The acceptability of the Community Eligibility Provision to LEAs,
- The incentives and barriers for LEAs adopting the provision,
- Operational issues that State agencies encounter in administrating this provision, and
- Implications and impacts of opting for this provision, including impacts on:
  - NSLP and SBP participation and revenues
  - LEA and school administrative costs and staffing
  - Errors in certification for FRP meals, counting reimbursable meals, and claims for reimbursement
  - Meal quality and choices.

This Final Report presents the methods and results of the CEP Evaluation. It includes descriptive information on the implementation of the CEP from the State and LEA perspectives, and analytic findings on the factors affecting LEA participation in the CEP and its impacts on LEAs.

Study Design and Data

The study design included an Implementation Study and an Impact Study in the first seven CEP States. For the Implementation Study, the evaluation team collected State administrative data on the characteristics of all LEAs and schools in three categories: participating in the CEP, eligible but non-participating, and near-eligible. (To be eligible for the CEP, an LEA must have at least one school with an ISP of 40 percent or more. LEAs with an average ISP of 40 percent or more across all schools are eligible to participate in the CEP on an LEA-wide basis.) The study fielded a survey of 1,322 LEAs, including 360 participating, 671 eligible non-participating, and 291 near-eligible LEAs in the seven CEP States. In addition, State Child Nutrition Agency directors and staff were interviewed in 2012 and 2013 to obtain their perspectives on implementation successes and challenges. Finally, the evaluation team interviewed Title I directors in all 51 State Educational Agencies to gather data on programs using FRP meals data and how these programs might be affected by the elimination of FRP meals applications under the CEP.

The Impact Study collected and analyzed data on outcomes for matched samples of treatment (participating) and comparison (non-participating) LEAs. The two groups were matched on characteristics related to the likelihood that the LEA would take up the CEP, using propensity score matching techniques. All analyses used regression models to control for observed differences between treatment and control groups. To estimate impacts on NSLP and SBP participation and Federal reimbursements, the evaluation team collected and analyzed State administrative data from the fall months for SY 2009–10 through 2012–13 on 285 participating LEAs and 528 matched non-participating LEAs. For other impacts, the evaluation team conducted several data collections in a series of nested samples, including:

1. a web survey of 141 treatment and 105 comparison LEAs that collected non-Federal revenue data for SY 2009–10 through 2012–13 and qualitative data about changes in participation and operations;
2. two data collections in a sub-sample of 52 treatment and 48 comparison LEAs,
    a. interviews with LEA and school personnel on staffing and administrative costs, and
    b. reviews of a sample of direct certification and FRP meals application records for the analysis of impacts on certification errors; and
3. in a sub-sample of 27 treatment and 25 comparison LEAs (selected from the sub-sample described above), three more intensive data collections,
    a. observations of cashiers to collect data on errors identifying reimbursable meals,
    b. review of school and LEA records to obtain data on meal claiming errors, and
    c. self-reported data from foodservice managers in the sampled schools about foods and beverages offered for the NSLP and the SBP during a selected week.

All surveys and on-site data collection visits were conducted in the Winter and Spring of 2013.

Implementation Study Results

Three States—Illinois, Kentucky, and Michigan—and their LEAs began implementing the CEP in SY 2011–12, and continued operating the CEP in SY 2012–13. Four additional States, including the District of Columbia, New York, Ohio, and West Virginia, and their LEAs implemented the CEP in

SY 2012–13. Four more States—Florida, Georgia, Maryland, and Massachusetts—were well-positioned to implement during SY 2013–14 despite numerous challenges. The first seven implementing States identified, notified and recruited LEAs to participate. In turn, the LEAs learned about the CEP, made decisions about whether to implement and in which schools, and communicated with schools and the community. Some States and LEAs had already noticed increased meal participation, and according to States, LEAs were excited about the CEP. The first seven States reported that key challenges at the State level were (1) the limited time during initial implementation to understand the CEP, make decisions about participation, and implement it, and (2) understanding and addressing the implications of the CEP for educational programs that use individual student FRP meals certification data. At the LEA level, the most frequently reported barriers included financial concerns and uncertainty about the impacts of the CEP on NSLP and SBP participation. Equity issues and operational challenges (especially for LEAs with both eligible and non-eligible schools) were also important concerns. Addressing the timing and information issues for States is a relatively straightforward problem. However, telephone interviews with all 51 State Title I directors indicated that States routinely use FRP data for multiple education-related purposes, so the lack of such data under the CEP represents a widespread challenge.

Across the first seven States, a total of 420 LEAs and 2,312 schools participated in the CEP in SY 2012–13. On average, 32 percent of eligible regular and charter LEAs, and 29 percent of eligible schools, participated in the CEP. Participation rates for eligible regular and charter LEAs ranged considerably—from 24 percent in Michigan to 65 percent in West Virginia. Based on the number of near-eligible LEAs, it appears that the potential to increase the number of eligible LEAs was small in most States; only Illinois and Ohio had more than 50 near-eligible LEAs.

Among participating LEAs eligible to participate LEA-wide, 92 percent offered the CEP at all schools, and 97 percent of schools offered the CEP, on average. On the other hand, among participating LEAs that were not eligible LEA-wide, 53 percent offered the CEP at all eligible schools, and on average, 79 percent of eligible schools offered the CEP. (A school is eligible for the CEP if the LEA is eligible to participate LEA-wide, if the school has an ISP of 40 percent or more, or if the school is grouped with other schools so that the ISP for the group is 40 percent or more.)

Compared with eligible non-participating regular and charter LEAs, participating LEAs of these types had more students, on average, higher ISPs and FRP meals eligibility percentages, higher percentages of students in grades K–5, and higher percentages of students who are Black. Despite their larger average size, participating regular and charter LEAs were more often very small (with enrollments under 500 students); they also were more often urban and more often charter schools. These patterns were replicated in most (although not all) of the first seven States.

Four factors were significantly associated with CEP participation by LEAs: ISP, enrollment, State, and charter status. The odds of participation rose dramatically with each additional 10 percentage points in the ISP, especially between 40 and 70 percent. The odds of participation also increased for LEAs with larger numbers of schools. However, LEAs with below-average-size schools were more likely to participate, possibly because of differences in school-level eligibility. Although charter LEAs were more likely to participate than regular public LEAs, this finding was significant only in Ohio. The above relationships were observed *after* controlling for the other factors in the analytic model, so they may differ from the descriptive results (such as the participation rates by State computed without controlling for differences in LEA demographics). Evidence from State CN

interviews suggests that the differences by State and charter status may reflect how the CEP was implemented; differences in school-level eligibility may also have contributed to variation in participation across LEA types.

Impact Study Results

As discussed in Chapter 2, the Impact Study used a matched comparison design, and impact estimates were computed from differences in outcomes between the treatment group (participating LEAs and schools) and the comparison group (non-participating LEAs selected to be similar in likelihood of CEP take-up, and selected schools in these LEAs). Outcome data were drawn from State administrative records, a web survey, in-person interviews and other on-site data collection, with the largest samples devoted to the participation and revenue impacts.

While the impact estimates control statistically for known differences between the groups, there are some caveats to the findings, and the results must be interpreted with appropriate caution. These estimates, at best, measure the effect of the CEP on the specific group of LEAs that were observed: those that *chose* to participate in the first two years of availability in the Year 1 States (Illinois, Kentucky and Michigan) and those that *chose* to participate in the first year of availability in the three Year 2 States (New York, Ohio, and West Virginia). (The District of Columbia was excluded because the matched comparison design could not be used there.) These estimates do not generalize to LEAs in these States that are not comparable to the participating LEAs, nor to LEAs in other States. The matching and statistical controls do not account for potentially important, unmeasurable characteristics that determine the take-up decisions of LEAs, such as the perception that the LEA will benefit from adopting the CEP. Nevertheless, the study used the most rigorous and feasible methods to separate the impact of the CEP from the other factors that could have affected the outcomes of interest. The results for impacts on participation and revenues for NSLP and SBP are based on the strongest component of the evaluation, which uses a time-series of pre- and post-implementation data to strengthen the controls for differences in relevant characteristics between the treatment and control groups. Other impact results are based on a posttest-only comparison design and should be considered exploratory.

Judged by the confirmatory outcome selected for the evaluation, the CEP was clearly successful: it significantly increased student participation in NSLP and SBP, and Federal reimbursements per reimbursable meal for these programs were significantly greater among the LEAs that chose to participate. The CEP's impact on student participation in school meal programs was surprisingly consistent across programs, increasing participation by 5 to 9 percent (relative to the lunch and breakfast programs' participation in the matched comparison schools, after controlling for differences between the two groups). The CEP's impact on Federal reimbursements per meal was a significant increase of about 6 percent for the NSLP and 2 percent for the SBP. Total Federal revenue per student increased by 13.5 percent. On the other hand, the CEP did not appear to have an impact on any of type of non-Federal revenue. Taken together, the finding of increased Federal funding and the lack of evidence that other revenues significantly declined suggest that the CEP did not have an adverse overall effect on LEA foodservice revenues, and may have produced a net gain for participating LEAs.

The CEP requires LEAs to offer the SBP, and it was available in all schools in nearly all participating LEAs and non-participating LEAs that are likely to take up the CEP. Study data did not indicate that

the CEP had an impact on availability of the SBP. After controlling for differences between groups, participating LEAs used traditional line service less often at breakfast and served breakfast in the classroom more often, as is recommended to increase SBP participation (USDA, 2013e) but complicated to implement under conventional meal counting and claiming procedures. Participating LEAs were less likely to offer a choice of foods at breakfast. The reduction in choice of foods may be linked to the greater use of in-classroom breakfast.

As expected, CEP participation appeared to reduce time spent by school and LEA staff on distributing and processing applications for free or reduced-price meals, verifying income of free/reduced price students, and meal payment collections and accounting. The combined savings for these activities were 68 minutes per student per year, representing labor cost savings of about $29 per student per year. The CEP had no impact on the staff time and costs associated with direct certification. On the other hand, the CEP appeared to increase the staff time and cost of counting and claiming reimbursable meals from less than 30 minutes per student per year to almost an hour, offsetting half of the savings in other activities. Possible reasons for this result include: increased participation in school meal programs, and new (and sometimes more manual) meal counting and claiming procedures. It is too early to tell whether the increased time for meal counting and claiming reflects an early implementation challenge, and adaptation to the new procedures and planned automation by States might reduce this impact over time. On the other hand, the CEP could produce net savings in meal counting and claiming costs in the long run, if schools could reduce the complexity and cost of automated systems for meal counting and payments. Treatment and comparison schools did not differ in the total time and cost spent on administrative tasks overall or for any category of worker. Descriptive data from interviews and surveys suggest that, for the majority of LEAs, the CEP did not require LEAs to increase staff, the time spent on meal counting and claims was not a concern, and the CEP made it easier for LEAs to break even or at least had no impact on the foodservice bottom line.

The CEP reduced the overall rate of certification errors and had little or no impact on errors in counting meals (at the cashier level) and claiming meals for reimbursement. The CEP did not appear to affect errors in direct certification, which are rare. The CEP eliminated application processing errors that, in the comparison schools, resulted in approximately 6.6 percent of applicants having the wrong certification level (too high or too low). The CEP also eliminated procedural errors in application processing that, in the comparison schools, affected 20.2 percent of approved applicants and 16.9 percent of denied applications. Procedural errors (such as missing certification documents or incomplete applications) do not necessarily result in certification errors but indicate a lack of integrity in the process. The CEP had no significant impact on cashier error in identifying reimbursable meals, despite concerns that increased participation might lead to more error by speeding up service lines. One measure of meal claiming error was significantly higher in participating schools, but there was no impact on overall meal claiming error. The primary reason for errors in claims submitted for CEP schools to the State was that the LEA used the wrong claiming percentage, and usually the claiming percentage used was lower than the LEA was entitled to use. This problem might be readily addressed through training or through claims processing by the State (which may have corrected some or all of the detected errors in claiming percentages). The baseline levels of claiming error in the NSLP and SBP appear to be quite small, at least in the sample, so the lack of a positive impact from the CEP is not a reason for concern.

For a broad range of meal quality outcomes, there was no evidence that the CEP had a significant impact. The methods used by the study to assess meal quality emulated, to extent practical, the

methods used by FNS and State Agencies to measure compliance with the meal component standards. However, the study simplified the approach to assessing schools' compliance with meal component standards in order to reduce burden on participating schools. Therefore the research team did not have access to all of the information States routinely use for this purpose. While the study's simplified methods allowed objective comparisons of CEP and non-CEP schools on meal components, the study results should not be interpreted as representing the same results FNS or State agencies would generate when they assess compliance with NSLP standards. The study's approach likely resulted in a more conservative assessment of school meals.

At lunch, CEP schools tended to offer more vegetables but were less likely than comparison schools to have met the (soon-to-be-required) Target 1 sodium standard. There was no evidence of impacts on meeting NSLP requirements for other food components, the calorie range requirement, or the percent of calories from saturated fat. There were no significant differences in meeting food component requirements or the Target 1 sodium standard for breakfasts offered.

The CEP appeared to have little if any impact on the number of choices offered in meal components. There were no significant differences in the number of choices offered for fruits, vegetables, grain, milk and entrées for lunches between the treatment and comparison schools, nor was there a significant difference in choices for breakfast components. For lunch, the only significant impact of the CEP was a small increase in the number of desserts offered, although the number of desserts offered was minimal and well within allowed limits for both CEP and comparison schools. Changes in the types of food offered to serve more quickly, and shifts to breakfast in the classroom in CEP schools were reported but had no significant effect on the number of breakfast choices offered in CEP schools.

Summary

Summing up across all of the evaluation results, the implementation of the CEP in its first two years was successful in perhaps the two most important dimensions. First, the take-up of the CEP was widespread among eligible LEAs, despite the uncertainties about impacts on finances and operations; further, participating LEAs were both well-satisfied and likely to continue using the CEP. Second, the CEP appeared to increase NSLP and SBP participation and the associated Federal reimbursements, while not adversely affecting the financial bottom-line of foodservice operations. The CEP eliminated substantial levels of error in the processing of FRP meals applications, as well as eliminating the costs of processing and verifying these applications. For most other outcomes, there were little or no impacts, either positive or negative.

The results point to several key challenges for the future of the CEP. First, there is substantial skepticism about the feasibility of the CEP among eligible non-participating LEAs; wider adoption of the CEP may require some efforts to address this skepticism. Second, the need for household income data for Federal and State educational programs will continue to pose perhaps the greatest implementation challenge. Third, impact findings suggest that the LEAs experience new challenges in meal claiming under the CEP, at least during initial implementation, based on the evidence of increased administrative costs and errors. Several currently-implementing CEP States have already installed automated systems to prevent errors in the use of claiming percentages, and others indicate that they plan to do so. As this practice becomes more widespread, it would presumably eliminate the main source of claiming error observed in CEP schools. Finally, the findings on meal quality and

choices provide evidence of little change in meal quality, suggesting that the participating LEAs have not reduced meal quality to contain costs but also that any resources freed up by the CEP have not led to broad improvements in meals. The only significant effects on meal quality were the positive impact on vegetables offered and the negative impact on meeting the future intermediate sodium target. Given the timing of the study, it is too early to determine whether the observed effects on meal quality are merely transient (reflecting CEP implementation, introduction of new standards, or both) or likely to be sustained. Across the multiple outcomes assessed by the Impact Study, the clear and positive impacts on NSLP and SBP participation and reimbursements represent the most notable results of implementing the CEP.

1. Introduction

Section 104(a) of the Healthy, Hunger Free Kids Act (HHFKA) of 2010 made the Community Eligibility Provision (CEP) available to Local Educational Agencies (LEAs) and schools in high poverty areas.[1] Under the CEP, families are not required to submit applications for free or reduced-price meals, and schools must provide free lunch and breakfast to all students. Schools are reimbursed for meals using a formula based on the percentage of students identified as eligible without an application (the identified student percentage, or ISP), using direct certification and other lists of eligible students.[2] The potential benefits are to increase low income students' access to nutritious meals, and to reduce the administrative burden LEAs experience with the school meals programs.

The CEP is being phased in over three years. The Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA) selected three States to participate in the CEP during School Year (SY) 2011–12 (referred to hereafter as Year 1 States) and four additional States for SY 2012–13 (Year 2 States). FNS has selected four more States for SY 2013–14 (Year 3 States), and the CEP will be available to all LEAs nationwide in SY 2014–15.

As mandated by the HHFKA, the CEP Evaluation examined the implementation and impacts of the new framework for providing free meals to all students in high-poverty schools. The overall purpose of the evaluation was to obtain a better understanding of:

- The acceptability of the Community Eligibility Provision to LEAs,
- The incentives and barriers for LEAs adopting the provision,
- Operational issues that State agencies encounter in administrating this provision, and
- Implications and impacts of opting for this provision.

This Final Report presents the methods and results of the CEP Evaluation. It includes descriptive information on the implementation of the CEP from the State and LEA perspectives, and analytic findings on the factors affecting LEA participation in the CEP and its impacts on LEAs.

The next section discusses the background of the CEP in the overall context of the structure of school meal administration, the mandate for an evaluation, and an overview of the evaluation design. The rest of the chapter discusses the research objectives of the evaluation and concludes with the scope and organization of this report.

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[1] During the evaluation's planning and data collection phases, the CEP was known as the Community Eligibility Option (CEO).

[2] Eligibility can also be certified based on lists maintained by LEAs or other agencies that identify categorically eligible students, such as homeless, runaway and migrant youth, and foster children.

1.1 Study Background

Two school-based programs—the National School Lunch Program (NSLP) and School Breakfast Program (SBP)—are vital parts of the safety net against childhood hunger overseen by FNS. Each State administers these programs through Local Educational Agencies (LEAs)[3] and is responsible for ensuring that the LEAs meet Federal program guidelines. Students in households with family incomes at or below 130 percent of the Federal poverty line (FPL) are eligible for free meals at school, while those in households with family incomes between 130 percent and 185 percent of FPL are eligible for reduced price meals. The NSLP and SBP provide foods that meet the government's nutritional standards for two meals each day that school is in session.

More than 90 percent of students nationwide attend schools that offer NLSP and/or SBP. In Fiscal Year 2012, over 31 million children participated in the NSLP, and almost 13 million children participated in the SBP. Over 68 percent of lunches and 84 percent of breakfasts served in schools were for children eligible for free or reduced price (FRP) meals (USDA, 2013a, 2013b). Eligibility for FRP meals is determined through annual household applications, direct certification, and lists of eligible children. Households can apply based on income or categorical eligibility (i.e., being part of a group that is specified as eligible by law regardless of income).

Direct certification determines children's eligibility for free meals by matching student enrollment records with administrative records from programs that make children categorically eligible for free meals, including the Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), or the Food Distribution Program on Indian Reservations (FDPIR). In addition, children can be certified as eligible for free meals based on lists of other categorically eligible individuals maintained by LEAs or other agencies, including homeless, runaway and migrant youth, and foster children. Children certified for free meals by any of these means—without applications—are referred to as "identified students."

The Child Nutrition and WIC Reauthorization Act of 2004 required States to develop a direct certification system for school-age SNAP participants by SY 2008–09. During SY 2011–12, 89 percent of LEAs participating in the NSLP directly certified some SNAP participants. Nationally,

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[3] The Richard B. Russell National School Lunch Act (NSLA) uses two different terms to refer to the local entities that enter into agreements with State agencies to operate the school meal programs. The Child Nutrition and WIC Reauthorization Act of 2004 (P.L. 108-265) amended the NSLA by using the term Local Educational Agency (LEA), defined for public schools in the Elementary and Secondary Education Act of 1965 (ESEA), when referring to the application, certification, and verification functions of the school meal programs. Sections of the NSLA that deal with other aspects of the programs, such as meal pattern requirements and meal-counting and claiming reimbursements, use the term School Food Authority (SFA), which current NSLP regulations define as the governing body that has the legal authority to operate the NSLP/SBP in one or more schools. The term most commonly used for the entities described as LEAs in the ESEA is school districts. While this definition applies only to public entities, State agencies also enter into agreements to operate the NSLP with charter schools, non-public schools, or other non-profit local entities such as an archdiocese running multiple non-public schools. Because the section of the HHFKA that authorizes the CEP refers to LEAs, that term is used throughout this document to refer to both public and non-public nonprofit local entities that enter into agreements with State agencies to operate the NSLP and SBP.

direct certification identified 86 percent of school-age SNAP participants. This measure of effectiveness in reducing the need for household applications increased 17 percent over the previous year (2010–11) (Moore, Conway, and Kyler, 2012).

LEAs participating in NSLP and SBP receive Federal reimbursements for meals to eligible children. Under conventional procedures, LEAs separately count reimbursable meals served to (a) children certified for free and reduced price meals and (b) children paying the LEA's full price ("paid" meals). LEAs submit monthly claims for reimbursement based on meal counts and rates for free, reduced, and paid meals set by USDA, to their respective State Child Nutrition (CN) Agencies.

To reduce local-level administrative burdens that accompany completing and processing the household applications, USDA has established three provisions as alternatives to the traditional requirements for annual determinations of FRP meal eligibility. All three provisions let LEAs conduct FRP meals certification less frequently than annually: every two years under Provision 1, and at most every four years under Provisions 2 and 3. These provisions can be used throughout the LEA or specifically for individual schools. Under Provisions 2 and 3, LEAs offer free meals to all students and count only the total meals, then claim reimbursement using percentages or dollar amounts established in the base year when students are certified for FRP meals (USDA, 2013c).[4] LEAs must still collect applications every four years unless they receive an extension for an additional four years. Stopping and starting the application process can represent a challenge for families, schools, and LEAs, who may become out of practice with the application process, especially if four-year extensions have been granted (National Research Council, 2012).

1.1.1 Authorization for the CEP and Mandate for the Evaluation

Recognizing the problem of both childhood obesity and food insecurity in children, Congress passed the HHFKA in 2010. The HHFKA authorized funding and reformed policies for the USDA child nutrition programs, including NSLP and SBP, with the goal of improving the quality of and increasing access to meals offered to children. The HHFKA updated standards for nutritious meals and provides additional funding for healthier meals. Several other program changes were designed to improve access to NSLP and SBP through program expansion and outreach, including the CEP. As part of the HHFKA, Congress further mandated that FNS conduct an evaluation (1) to understand how the CEP is implemented; (2) to describe incentives and barriers for LEA and school participation; and (3) to estimate impacts on LEAs, schools and children.

1.1.2 Purpose and Design of the CEP

Section 104(a) of the HHFKA created the CEP for LEAs and schools as an alternative to household applications for FRP meals and conventional reimbursement methods. The CEP can be used in an entire LEA (district-wide), a group of schools in an LEA, or an individual school—*if* the ratio of identified students (i.e., those certified for free meals without application, as explained in Section 1.1) to total enrollment is 40 percent or more in the year prior to adopting the CEP (known as the year prior to year 1 of CEP operations).[5] This criterion is known as the "Identified Student Percentage"

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[4] http://www.fns.usda.gov/cnd/governance/prov-1-2-3/Prov1_2_3_FactSheet.htm

[5] Schools participating in Provision 2 or 3 may elect the CEP if (a) they are not in the base year, when direct certification must be conducted, and (b) they can provide an ISP for the year prior to the first year of the CEP.

(ISP). LEAs and schools using the CEP must agree to serve both breakfasts and lunches free to all students, and to cover all costs of these meals in excess of Federal reimbursements with non-Federal funds. The percentage of meals reimbursed with Federal funds at the free meals rate (the "claiming percentage") equals the ISP multiplied by a factor of 1.6, as established in the HHFKA; all other meals are served free to students but are reimbursed at the paid meals rate. The applicable ISP is for the entire LEA, the group of schools, or the individual school, depending on how the LEA chooses to implement the CEP and establish CEP eligibility for its schools.

The CEP has two potential advantages, compared to conventional reimbursement methods: (1) it can potentially increase student participation in meal programs by expanding access to free meals for all students, and (2) it can decrease household and administrative burden by not requiring regular applications to establish eligibility, and by simplifying the counting of reimbursable meals.

The CEP allows four years of reimbursement to eligible LEAs and schools with an additional four-year cycle possible if the LEA or school continues to meet the minimum ISP of 40 percent. LEAs using the CEP are encouraged, but not required, to conduct direct certification. If the LEA chooses to conduct direct certification (or if the State conducts direct certification) and the ISP increases over the course of participation, the LEA will be reimbursed at a higher claiming percentage.[6] An LEA or school may withdraw from the CEP at any time during the four-year cycle.

The phase-in of the CEP has followed a schedule specified by the HHFKA. FNS initially identified 10 States with the greatest potential for covering the highest number of qualifying LEAs and schools to apply for the CEP for the first year, SY 2011–12. FNS selected three States (Illinois, Kentucky, and Michigan), all of which offered the Provision in SY 2011–12.[7] For SY 2012–13, FNS encouraged all States to apply for the CEP, and selected three additional States (New York, Ohio, and West Virginia) and the District of Columbia, making a total of seven participating States.[8] FNS has similarly selected another four States to participate in the CEP for SY 2013–14 (Florida, Georgia, Maryland, and Massachusetts). The CEP will be available nationwide to all eligible LEAs and schools in SY 2014–15.

1.2 Study Objectives and Overview

The evaluation comprised two study components: the Implementation Study and the Impact Study. The Implementation Study provides a description of the scope and operations of the CEP, and offers lessons from the first seven States to implement the CEP. The Impact Study provides estimates of the impacts of the CEP on school meals program participation and revenues, foodservice staffing and costs, program integrity, and the nutritional quality of meals offered. This section provides an overview of the study objectives and research questions.

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6 To renew participation after the fourth year, LEAs must obtain identified student data demonstrating that they still meet the ISP requirement for the participating schools.

7 Although FNS originally selected Tennessee among the three States, it subsequently opted out, and was replaced by Michigan.

8 For ease of discussion, the term "State" in this report includes the District of Columbia (D.C.) government, which supervises all LEAs participating in the NSLP and SBP within its borders, including the D.C. Public School system, public charter schools, and non-public schools.

1.2.1 Implementation Study Objectives

The Implementation Study had three research objectives to fulfill the Congressional mandate.

1: Estimate the number of eligible LEAs and schools that have not chosen to participate in the CEP,

2: Assess the barriers to participation in the CEP in non-participating but eligible LEAs and schools, and

3: Describe the LEAs and schools participating in the CEP.

These objectives required two distinct types of data. To meet Objectives 1 and 3, the study used descriptive data on three groups of LEAs and schools in School Year (SY) 2012–13:

- Those that were participating in the CEP,
- Those that were eligible but non-participating, and
- Those non-participating LEAs that were near-eligible (i.e., those with ISPs close to but not above the minimum eligibility level of 40 percent).

To meet Objective 2, the study collected data on the experiences and attitudes of the 11 CEP States and of the LEAs in the Year 1 and Year 2 States that constituted the three groups of interest. These data included not only perceptions of barriers but also facilitators of the CEP. In addition, the study used the descriptive data in statistical modeling to determine the LEA characteristics related to CEP participation. Finally, the study collected data from 51 State Education Agencies (SEAs) on one of the key barriers to participation: the impact of the CEP on the processes of allocating Federal and State educational funds at the LEA and school levels.

1.2.2 Impact Study Objectives and Research Questions

The Impact Study was designed to meet Research Objective 4 by estimating the impacts of the CEP on five domains of school meals program outcomes: participation and revenues, availability of the SBP, LEA administrative costs, program integrity, and meal quality. The research questions for these domains are discussed below.

Program Participation and Revenue Impacts

The two outcomes most central to evaluating the CEP's success are impacts on participation and revenues. The specific research questions regarding these outcomes are:

- How did average daily participation in the NSLP change because of the CEP (compared to what participation would have been in the absence of the CEP)?
- How did Federal revenues per reimbursable meal change because of the CEP (compared to revenues that would be generated from the traditional meal reimbursement structure)?

Additional questions for this impact domain include the following:

- How did average daily participation in the SBP change because of the CEP (compared to what participation would have been in the absence of the CEP)?
- To what extent (if any) did the impacts of the CEP on program participation:

  - Reflect changes in the number of actual participants, frequency of participation, or both, for NSLP, SBP, and total meals?
  - Vary by grade level for NSLP, SBP, and total meals?
- How did revenues from non-Federal sources, including State funds, local funds, student payments for reimbursable meals, and payments for competitive foods[9] and adult foods, change because of the CEP compared to revenues that would be generated from the traditional meal reimbursement structure?
- How do revenues under the CEP compare to revenues that would be generated under other special assistance alternatives (Provision 1, 2, or 3)?
- How much local funding is needed compared to these other alternatives?

The research questions for the other four domains are listed below.

School Breakfast Program Impacts

- How did the CEP impact the School Breakfast Program in terms of whether schools offer breakfast and the type of breakfast service offered?
- To what extent did the CEP affect the foods served at breakfast, specifically:
  - Whether the identical breakfast is served to all students (or more generally, whether the CEP affects the amount of breakfast food choices for students)?
  - Whether and to what extent a la carte and competitive foods are offered during breakfast?

Staffing and Cost Impacts:

- To what extent did the administrative burden of operating the NSLP and SBP change under the CEP?
- What is the difference in administrative costs to the LEA associated with the CEP compared to the costs in the absence of the CEP?
- To what extent did the costs of producing reimbursable meals change under the CEP?

Program Integrity Impacts:

- How did the CEP impact program integrity, specifically:
  - What is the impact on errors associated with the certification process, including overcertification, undercertification, and procedural errors?
  - What is the impact on errors in meal counting by cashiers and in computing claims for reimbursement?

[9] Here the term "competitive foods" includes all foods sold to students by school foodservice other than reimbursable meals. As such, this does not include food sales by other entities, including the athletic department or school store.

Meal Quality Impacts:

- To what extent, if any, did the nutritional profile of school meals offered change under the CEP (compared to what would have happened in the absence of the CEP)?
- To what extent, if any, did the variety of food choices offered to students in school meals change?
- To what extent, if any, did compliance with USDA-FNS nutrition standards change?

1.3 Overview of Study Samples

This section describes the universe of LEAs and the samples for the Implementation Study and the Impact Study, and the relationship among the samples selected for each study and data collection component. The elements of the Implementation and Impact Studies were nested, such that as data collection demands became more intensive, successively smaller samples were required, thereby reducing the burden on participating LEAs, while providing important contextual information about those LEAs selected for the most intensive on-site data collection activities. Exhibit 1.1 illustrates the nested relationships of the universe and samples. The data sources are described in Chapter 2.

1.3.1 Administrative Data for the Universe of LEAs

To identify LEAs eligible or near-eligible for the CEP, and to describe their characteristics, the Implementation Study collected administrative data on all LEAs and schools in the seven States operating the CEP in SY 2012–13.[10] Within this universe, additional administrative data were collected on participating LEAs and schools.

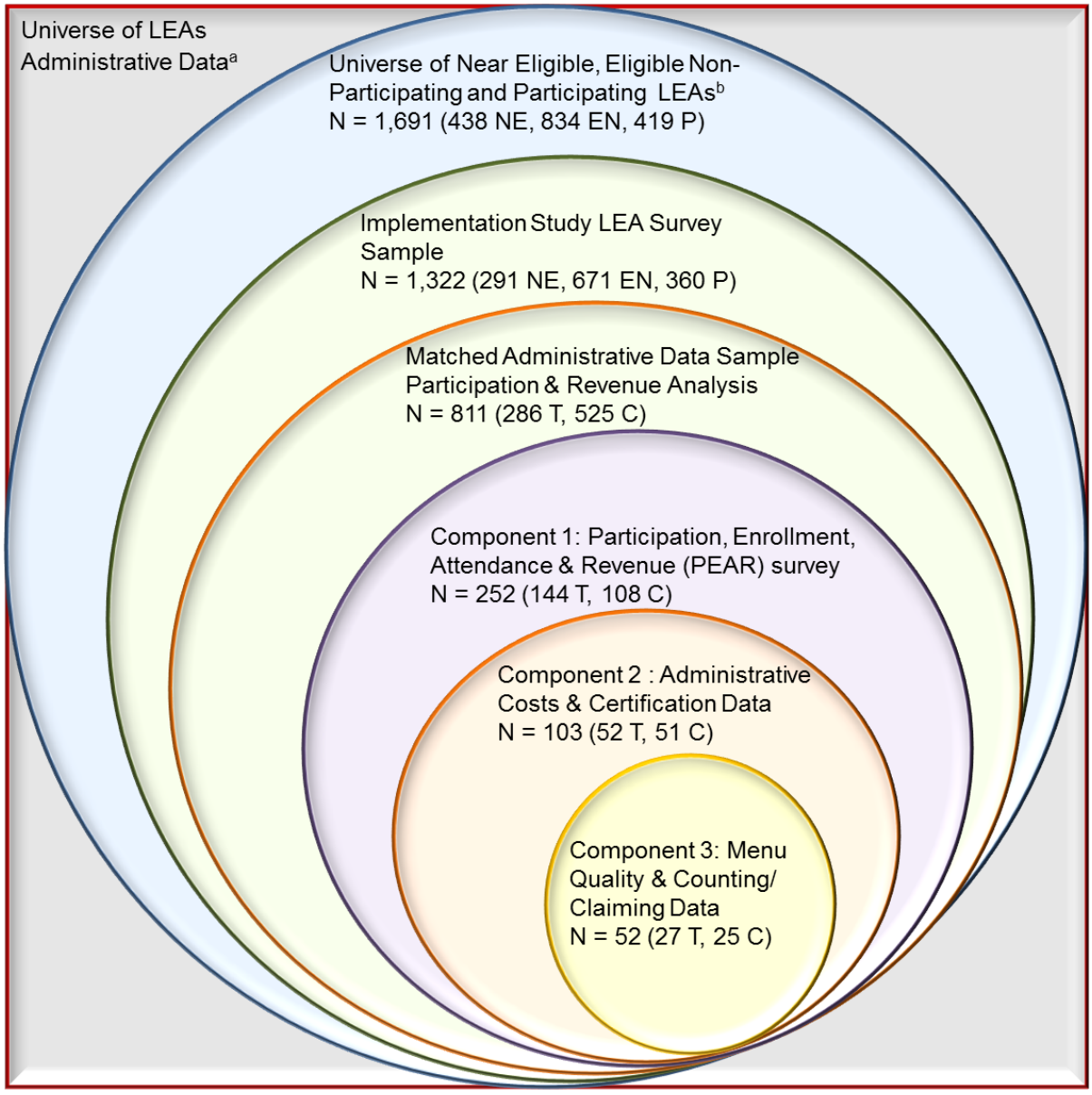
The universe in the seven CEP States included 419 participating, 834 eligible non-participating, and 438 near-eligible LEAs. This was the universe for the Implementation Study LEA survey sample.

1.3.2 Implementation Study LEA Survey Sample

To meet the broad range of Implementation Study objectives, the study fielded a survey of 1,322 LEAs, including 360 participating, 671 eligible non-participating, and 291 near-eligible LEAs in the seven CEP States. Chapter 2 of this report describes the process of identifying LEAs and selecting respondents in each of these groups.

[10] In early 2014, the evaluation will report on the numbers and characteristics of participating, eligible non-participating, and near-eligible LEAs in the 11 States operating the CEP in SY 2013–14, using administrative data from these States.

Exhibit 1.1: Graphical Depiction of Relationship across Implementation and Impact Studies and Sample Sizes



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Legend: NE: near-eligible LEAs; EN: eligible non-participating LEAs; P: participating LEAs.

T: treatment (participating) LEAs for the Impact Study; C: comparison (non-participating) LEAs for the Impact Study.

[a] Administrative data include all LEAs in the State records on LEA participation counts and revenues for the NSLP and the SBP for the following States: Illinois, Kentucky, Michigan, New York, Ohio, West Virginia. Administrative data from all seven CEP States including the District of Columbia were used to identify the universe in the largest circle.

[b] The universe of near-eligible, eligible non-participating and participating LEAs is defined as all LEAs that appear in the 2011–12 FNS Verification Summary Report (VSR) data set and either (a) participate in the CEP, (b) are eligible for the CEP, or (c) are nearly eligible for the CEP. See Section 2.1 for description of the VSR data.

1.3.3 Matched Administrative Data Sample for the Participation and Revenue Analysis

Administrative data on NSLP and SBP participation and Federal revenues were collected for all LEAs in the six States in the Impact Study: Illinois, Kentucky, Michigan, Ohio, New York and West Virginia; note that the District of Columbia was included in the Implementation Study but not the Impact Study because of a lack of suitable comparison LEAs, as discussed in Chapter 2. From the universe of LEAs in these States, the evaluation team selected a sample of 525 non-participating LEAs to match with 286 participating LEAs for the primary analysis of the impacts of the CEP on NSLP and SBP participation, and for analysis of impacts on Federal revenues for school meals. This approach allowed the study to reduce the burden of the evaluation on LEAs selected for the Impact Study.

1.3.4 Component 1: Participation, Enrollment, Attendance and Revenue (PEAR) Survey

Component 1 was the largest of three primary data collection components for the Impact Study. In this component, 144 treatment (participating) LEAs and 108 matched comparison (non-participating) LEAs completed a web survey and provided LEA-level participation, enrollment, attendance, and revenue data to complement the State administrative data. The LEA sample for Component 1 was then sub-sampled for Component 2 (The matching approach for Components 1, 2, and 3 is discussed in Section 2.3.)

1.3.5 Component 2: Administrative Costs and Certification Errors Data

Component 2 comprised data collection on two domains: administrative costs and certification errors. These data were collected in a matched sample of 52 treatment LEAs and 51 comparison LEAs. Data for Components 2 and 3 were collected at both the LEA and school levels, with up to three sampled schools per LEA. All LEAs selected for Component 3 were included in the sample for Component 2.

1.3.6 Component 3: Meal Quality and Meal Counting/Claiming Data

Component 3 included data collection on two domains: meal quality and errors in counting and claiming reimbursable meals. These data were collected in a matched sample of 27 treatment and 25 comparison LEAs, including 2 or 3 schools in each LEA.

1.4 Scope of the Report

Chapter 2 of this report describes the methods and data for the Implementation and Impact Studies, including study design, sampling, administrative sources, and primary data collection. Chapter 3 addresses the Implementation Study objectives by providing a description of the implementation process, the challenges and lessons learned, and the incentives and barriers to participation, and information from a survey of State Education Agencies on issues related to the use of FRP meals eligibility data by educational programs. Chapter 4 compares the participating LEAs and schools with eligible non-participating and near-eligible LEAs and schools; it also presents a statistical analysis of the factors related to LEA participation in the CEP. Chapter 5 presents the analysis of the impact of the CEP on NSLP and SBP participation by students. Chapter 6 presents the analysis of the impact of the CEP on LEA Staffing and Administrative Costs. Chapter 7 provides the results of the analysis of Program Integrity Impacts (certification, cashier, and meal counting/claiming error). Chapter 8 presents the impact of CEP on nutritional quality and choice and variety in meals offered in on NSLP and SBP. Chapter 9 provides a discussion of the overall findings and conclusions.

2. Study Design, Sampling, and Data

This chapter discusses the study's design, sampling, and data sources. Section 2.1 discusses the Implementation Study, and Sections 2.2 through 2.4 describe the Impact Study. Further details of design, data, and methods are presented in subsequent chapters, in the context of the discussion of the specific analyses and results. As explained in Chapter 1, the primary data collection for the Implementation Study was nested within the universe of LEAs in the seven CEP States, and the primary data collection for the Impact Study was nested within the LEA sample for the Implementation Study in six of the seven CEP States (excluding the District of Columbia). Administrative data from State records and extant national databases were collected for all LEAs for use in both parts of the evaluation.

2.1 Implementation Study Design, Sampling, and Data

The Implementation Study was designed to address three research objectives: (1) to estimate the number of eligible LEAs and schools that do not choose the CEP, (2) to assess the barriers to participation in the CEP in eligible but non-participating LEAs and schools, and (3) to describe the LEAs and schools participating in the CEP. The Implementation Study used three sets of data: State Child Nutrition Director Interviews, State and national databases, and web surveys of LEAs. These data sources and the data collection methods for the Implementation Study are described below.

2.1.1 Design and Sampling

The sampling and data collection for the Implementation and Impact Studies used a specific set of definitions of the three types of LEAs of interest based on LEA and school-level information, following the FNS guidance:

1) participating in the CEP: LEAs with at least one participating school

2) eligible non-participating: LEAs with at least one eligible but no participating schools

3) near-eligible non-participating: LEAs with a district-wide ISP between 30 and 40 percent and no eligible schools.[11]

Exhibit 2.1 summarizes how the three groups of LEAs were identified. In the five States where data were available,[12] the evaluation team used the official definition of LEA eligibility (as discussed in Section 1.1.2); consequently, the "eligible" category includes all LEAs with an ISP over 40 percent, plus LEAs with an ISP below 40 percent with at least one eligible school. In these States, the "near-

[11] The near-eligible non-participating LEAs are defined on the basis of the requirement that States notify these LEAs about the CEP.

[12] All seven States provided data on participating LEAs and schools, including ISPs. Five States—all but Ohio and New York—provided statewide ISP data drawn from April 2012 at both the LEA- and the school-levels, which allowed the evaluation team to identify these five States' participating and eligible non-participating LEAs. The evaluation team used the State-provided list of LEAs Ohio and New York had identified as eligible in their applications to FNS to participate in the CEP. It was these LEAs that the States had notified about the CEP availability. Under this definition, LEAs with an ISP over 40 percent that did not appear on the State eligible list were included in the near-eligible category.

eligible" category comprised the LEAs with ISPs in the 30 to 40 percent range with no eligible schools. Exhibit 2.1 explains the alternate definition of LEA eligibility used where school-ISPs for non-participating LEAs were not known.

Exhibit 2.1: Definitions of LEA Eligibility and Participation in CEP

Type of CEP Eligibility/ Participation	FNS Definition	Operationalized Definition
Participating	The LEA has at least one participating school	The LEA has at least one participating school reported by the State Child Nutrition Agency
Eligible non-participating	The LEA has at least one eligible school (as specified by FNS, i.e., with ISP at least 40%) but no participating schools	(a) The LEA has at least one school with an ISP of 40% or higher as of April 1, 2012 according to State-provided data (DC, IL, KY, MI, WV); or (b) The LEA appeared on the list of eligible LEAs that the State submitted to FNS as part of its application to participate in the CEP (NY, OH).
Near-eligible	The LEA has an ISP of at least 30 percent but less than 40 percent and no eligible schools	The LEA has a projected ISP of 30 percent or higher (according to calculations using October 2011 VSR data) and is not eligible or participating.[a]

[a] Projected ISP = Number Free Eligible Not Subject to Verification/Enrollment. This measure is "projected" in the sense that it is based on October 2011 data rather than the April 2012 data that States were required to use under FNS guidance. April 2012 ISP data were not available for all LEAs in all States, so October 2011 data were used.

The CEP participation and eligibility classification of schools for the evaluation generally follows the LEA classification scheme and the FNS rules, with some modifications to accommodate data limitations. All schools in near-eligible LEAs were classified as near-eligible, and all schools in eligible non-participating LEAs were classified as eligible non-participating (based on the assumption that schools with ISPs below 40 percent could be combined with schools with ISPs above 40 percent). However, non-participating schools in participating LEAs were classified as follows: (1) eligible non-participating if they either belonged to an LEA with an ISP of 40 percent or more (and therefore all schools in the LEA were eligible regardless of ISP) or had a school ISP of 40 percent or more; (2) near-eligible otherwise (regardless of ISP, because of the possibility of combinations with schools with higher ISPs to make a near-eligible group). These definitions were used to ensure consistent classifications for all States.[13]

[13] The school ISP data needed to construct school-specific CEP participation and eligibility classification were completely missing for two States (New York and Ohio) and partially missing for two others (Illinois and Michigan). If the ISP was missing for a non-participating school in a participating LEA, it was classified as eligible non-participating.

2.1.2 Administrative and Extant Data

The evaluation team constructed the database for the descriptive analysis of LEA and school characteristics from several sources. The universe of LEAs for the analysis was constructed from the FNS Verification Summary Report (VSR) data.[14] The States provided their administrative data to identify participating LEAs and eligible non-participating LEAs from among those listed in the VSR data. States also provided data to identify participating and eligible non-participating schools. The evaluation team combined the VSR and State data with LEA and school characteristics from the Common Core of Data (CCD) to complete the analysis database.[15] These data sources and their associated issues are described in Appendix 2A. The analysis of these data is presented in Chapter 4.

2.1.3 LEA Web Surveys for Implementation Study

As part of the Implementation Study, the evaluation team conducted a web-based survey in January to June 2013 to collect information on LEA/school characteristics and environments as well as the incentives and barriers to adopting and implementing the CEP. The primary survey respondent was intended to be the LEA foodservice director (FSD), although other central foodservice personnel were sometimes called upon to respond to some survey questions. To obtain the target sample for the implementation web survey, the evaluation team first identified the universe of all participating LEAs, as well as all eligible or near-eligible LEAs. After finding that that some FSDs were responsible for multiple LEAs in the sampling universe, the evaluation team randomly sampled from among the LEAs overseen by each FSD, and included no more than two LEAs with the same foodservice director in the sample, to minimize burden on each individual respondent. [16]

The survey sample included each of the following respondent groups (Exhibit 2.2), which were defined as described in Section 2.1.2 and identified in each of the seven CEP States.

- ***Eligible Participating (EP) LEAs:*** Survey invitations were sent to all 389 EP LEAs identified in the seven States. Four such LEAs were deemed ineligible (as discussed below), and of the remaining sample, 360 submitted surveys.
- ***Eligible Non-Participating (EN) LEAs:*** After 31 LEAs were identified as ineligible to receive the survey, invitations were sent to a sample of 714 EN LEAs, and 671 completed the survey.

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[14] Each year, FNS compiles a national database from the FNS-742 (VSR) reports submitted by LEAs. The relevant data for this evaluation include counts of identified students (approved for free meals without application), students approved for free and reduced-price meals by application, students in Provision 2/3 schools not in a base year, and total enrollment.

[15] The CCD is a national database of public LEAs and schools compiled by the National Center for Educational Statistics (http://nces.ed.gov/ccd/). SY 2010–11 CCD data were used for the evaluation.

[16] The restriction of the original target sample to include no more than two LEAs per FSD accounts for the difference between the 1,691 LEAs in the universe of near-eligible, eligible non-participating and participating and the 1,525 LEAs to whom the survey was initially fielded.

- ***Near-Eligible (NE) LEAs:*** A sample of 391 LEAs was targeted for the NE survey.[17] Sixty-six of these LEAs were deemed ineligible for the web survey, and the remaining 325 were asked to complete the survey. The final number of submitted NE surveys was 291.

LEAs were considered ineligible for any of the web surveys if the sampling data placed the LEA in the wrong group (e.g., the LEA was listed as non-participating in State administrative data but reported participating), if the LEA was ineligible to participate in the CEP for reasons other than ISP, or if the FSD received an invitation to respond for three or more LEAs. The following types of LEAs are not eligible to participate in the CEP: Residential Child Care Institutions, LEAs that do not operate the NSLP, LEAs that are no longer in operation, Juvenile Detention Facilities and Hospitals.

Exhibit 2.2: Implementation Survey Samples and Response Rates

Survey	Original Sample size	LEAs Marked as Ineligible to Receive Survey	Revised Sample size	Number of Submitted Surveys	Response Rate
Participating (EP)	389	4	385	360	93.5%
Eligible non-participating (EN)	745	31	714	671	94.0%
Near-eligible (NE)	391	66	325	291	89.5%
Total	1525	101	1,424	1,322	92.8%

Three distinct web-based surveys were developed, one for each LEA group. Some questions were asked consistently across all three surveys, while others were purposively customized to the LEA group according to the data needed to address the research questions. Common topics across all surveys included the following:

1. Contact information of respondent;
2. LEA/school characteristics and environment (e.g., CEP implementation status, type of school meal reimbursement system previously used, staffing structure, resources available, parent involvement, stakeholder buy-in, and other established and/or available assistance programs);
3. Process information (e.g., sources used to determine FRP and ISP, uses for FRP data other than School Breakfast Program (SBP) and the National School Lunch Program (NSLP), variability of ISP from year to year, determination of ISP for CEP eligibility/reimbursement, and school-level responsibilities regarding meal reimbursement);
4. Communication process (e.g., process and responsibility of notifying LEAs, schools, and community of CEP);
5. Decision-making process around adoption and implementation of the CEP; and
6. Adequacy of the multiplier used to determine claiming percentages.[18]

[17] To ensure the nested structure of the data collection, LEAs that were selected as comparison sites for primary data collection were added to the set of near-eligible LEAs if not already included in the EN or NE group. Thirty-four LEAs were added to the target sample.

As noted, some survey questions were customized to each LEA group. The following information was collected according to the LEA group:

- ***EP web survey:*** This survey included questions to assess reasons for adoption of the CEP and perceived incentives and advantages to participation. Although this group had implemented the CEP, questions were also asked to assess perceived barriers to the CEP. Data were collected on experiences since implementation of the CEP, including: benefits and barriers encountered; effects of the CEP on administrative burden (e.g., reduction in burden); effects of staff assignments (e.g., reallocation of staff); financial impacts of the CEP (e.g., cost savings and if so, where; implications for Provision 2 or 3 schools); attrition of schools participating in the CEP; and, reasons for program continuation.
- ***EN web survey:*** This survey included questions to assess reasons for lack of adoption of the CEP and perceived barriers that made the CEP unappealing (in the sense that LEAs would not want to participate). Questions also assessed whether there were any aspects of the CEP that seemed appealing, and factors that would make the CEP more appealing in the future.
- ***NE web survey:*** This survey included questions to assess perceived incentives and barriers to the CEP. Data were collected on the likelihood near-eligible LEAs would participate once they became eligible, and what specifically would make the CEP appealing.

2.1.4 State Child Nutrition Director Interviews

The evaluation team conducted four rounds of telephone conversations with selected State Child Nutrition (CN) Directors to gather information about the implementation process. Chapter 3 presents results from those conversations. The first round of conversations was conducted with the three Year 1 States that implemented the CEP in SY 2011–12 (Illinois, Kentucky, and Michigan) in January 2012. The second round of conversations with State CN directors was conducted in the summer of 2012 with all seven States implementing the CEP in SY 2012–13 (Year 1 States, as well as the Year 2 States: the District of Columbia, Ohio, New York, and West Virginia). The third round of conversations was conducted in October 2012 with the Year 1 and Year 2 States using a structured interview protocol. The fourth round of conversations was conducted in summer 2013 with all States implementing the CEP in 2013–14 (Year 1 and Year 2 States as well as the Year 3 States: Florida, Georgia, Maryland, and Massachusetts), using a revised version of the structured interview protocol.

The primary purpose of the first round of conversations in January 2012 was to obtain information to help guide data collection planning and instrument development. Respondents included the CN Directors and staff responsible for implementing the CEP in the first three States, and interviews addressed the following topics:

- States' initial contacts with LEAs about the CEP
- LEA responses to the CEP and factors influencing adoption of the CEP
- Existing school meals reimbursement systems and adaptations for the CEP

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[18] As discussed in Chapter 1, the ISP for the school is multiplied by the statutory multiplier of 1.6 to determine the percentage of meals claimed at the free rate. Starting in SY 2014–15, the Secretary of Agriculture may establish a multiplier between 1.3 and 1.6.

- Availability of data for the evaluation (meal claims, enrollment, attendance, revenues, and administrative costs)
- Direct certification and household application processes
- School meals eligibility data
- Computation of Identified Student Percentages

The evaluation team conducted conference calls with each of the seven CEP States in the summer of 2012. Respondents included CN directors, lead staff for the CEP, and specialists dealing with LEA and school data. The primary purpose of the calls was to request two kinds of data: first, lists of participating, eligible non-participating, and near-eligible LEAs and schools; and second, participation, enrollment, attendance, and revenue data. During these calls, the State staff also provided some general information on implementation of the CEP, particularly the response of LEAs to the CEP and the timing of approval of LEAs to participate for SY 2012–13.

While earlier calls with the States yielded useful insights, the October 2012 structured telephone interviews with the CN Directors and other CEP staff in the seven States, together with the Summer 2013 telephone interviews with the 11 States, represented the primary data sources on State implementation of the CEP for the Final Report. The topics of these interviews are listed in Exhibit 2.3. The interview guide was tailored for each State based on prior conversations and when the States had begun CEP participation (Year 1 for Illinois, Kentucky, and Michigan; Year 2 for District of Columbia, New York, Ohio, and West Virginia; or Year 3 for Florida, Georgia, Maryland, and Massachusetts).

Exhibit 2.3: State CN Agency Interview Topics

	Year 1	Year 2	Year 3
Background on respondent and context	✓	✓	✓
State decision to participate in CEP	✓	✓	✓
Communication with LEAs and schools	✓	✓	✓
Initial reaction from LEAs and schools	✓	✓	✓
Eligibility data for CEP	✓	✓	✓
Implementation processes	✓	✓	✓
Foodservice management company contracts	✓	✓	✓
Results and impressions	✓	✓	
Direct certification process	✓	✓	✓
Communication with State education officials	✓	✓	✓

2.2 Impact Study Design

The impact evaluation of the CEP was designed to assess the extent to which various outcomes for LEAs and schools that have implemented the CEP differ from the outcomes of those LEAs and schools that did not implement the CEP. While FNS was interested in examining a wide range of outcomes, the Impact Study design purposefully distinguished between the study's confirmatory and exploratory outcomes, [19] to target evaluation resources where they were most needed and to minimize

[19] A confirmatory outcome is one that—if it shows a difference due to the intervention—can be used to judge the overall effectiveness or "success" of the intervention. In contrast, exploratory outcomes are those that

the consequences of multiple hypothesis testing. When conducting multiple hypothesis testing for outcomes within the same domain, the convention in social science research is to adjust by lowering the effective p-value at which findings reach statistical significance. There are different strategies or thresholds that can be imposed (Benjamini and Hochberg, 1995; Dunn, 1961). These adjustments effectively impose a penalty for multiple hypothesis testing. Rather than require a much larger sample or risk finding no statistical impacts, the evaluation team decided a priori to limit the number of confirmatory hypotheses to those most central to evaluating the CEP.

The two outcomes most central to evaluating the CEP's success are impacts on participation and revenues. The specific questions regarding these confirmatory outcomes were:

- How did average daily participation in the NSLP change because of the CEP (compared to what participation would have been in the absence of the CEP)? [20]
- How did Federal revenues per reimbursable meal change because of the CEP (compared to revenues that would be generated from the traditional meal reimbursement structure)?

As discussed below, the strongest part of the evaluation design was used to answer these confirmatory questions. The rest of the impact evaluation is considered exploratory, including the other Component 1 research questions regarding participation and revenue impacts, and the research questions for Component 2 (administrative costs and certification errors) and Component 3 (meal quality and counting and claiming errors). The Implementation Study is purely descriptive, so issues of multiple hypothesis testing do not apply to its conclusions.

Assessing the impact of the CEP means that one needs to know not only what has changed, but what has occurred in the absence of the CEP (i.e., the counterfactual).[21] For the purposes of this study, the effect of adopting the CEP on participation is defined as the *difference* between the average LEA's average daily participation level in the NSLP for those LEAs that did and those that did not adopt the CEP. The same comparison group approach is used to estimate impacts on other outcomes (e.g., comparing the outcomes for LEAs that did and did not adopt the CEP). The experience of those LEAs that did not adopt the CEP is the best possible estimate of what participating LEAs would have experienced had they not chosen to participate.

FNS, the research community, or the public would not consider central to judging the overall effectiveness of the CEP. Certainly, exploratory outcomes play an important role in understanding how the intervention might have achieved its outcomes, how outcomes vary by key subgroup, or identifying unanticipated consequences of an intervention.

[20] The evaluation team chose the NSLP participation as the confirmatory outcome for two reasons: the NSLP is larger than the SBP, and estimates of the effect of the CEP on NSLP participation are less likely to be biased because of the stronger design in place to assess NSLP participation impacts. The presence of the SBP program at a school is potentially related to a school's choice to take up the CEP, and so disentangling the selection effect from the causal effect is more difficult for the SBP. Therefore, the impact on SBP participation is better suited for an exploratory analysis.

[21] The term "counterfactual" refers to the expected outcome if the intervention had not happened (which cannot be observed), as opposed to the factual outcome that is observed.

The strongest tests of program impacts are typically based on an experimental evaluation design that compares participation in a given program to what would have occurred in the absence of such participation, i.e., the counterfactual outcome. For the CEP evaluation, it was not feasible to randomize to the treatment group, due both to the timing of implementation and considerations of LEA autonomy. [22] Therefore, the evaluation uses the strongest feasible non-experimental design, a comparative interrupted time series (CITS) design, for the participation and revenue-related outcomes. For all other outcomes, only post-intervention measures could be obtained, and therefore the evaluation uses the strongest design possible without any pre-intervention measures, a posttest-only comparison group design.[23] Exhibit 2.4 below summarizes the analytic design for each Impact Study component. In the exhibit "O_1" refers to observations ("O") in the first year covered by data collection (2009–10).

Exhibit 2.4: Impact Study Outcomes and Data Collection Timing

Outcomes	Design	SY 2009–10 Data	SY 2010–11 Data	SY 2011–12 Data	SY 2012–13 Data
Illinois, Kentucky, Michigan (Year 1 States)		**Pre-Intervention**		**Post-Intervention**	
• Participation • Revenues	Comparative Interrupted Time Series (CITS)	O1	O2	O3	O4
• Presence of School Breakfast Program • Costs and Staffing • Program Integrity • Meal Quality	Posttest-Only Comparison Group				O4
Ohio, New York, West Virginia (Year 2 States)		**Pre-Intervention**			**Post-Intervention**
• Participation • Revenues	Comparative Interrupted Time Series (CITS)	O1	O2	O3	O4
• Presence of School Breakfast Program • Costs and Staffing • Program Integrity • Meal Quality	Posttest-Only Comparison Group				O4

"O1" refers to observations ("O") in the first year covered by data collection (2009–10), and so forth.

The Impact Study estimates program impacts by comparing mean outcomes for "treatment" LEAs that opted to participate in the CEP with those of similar "comparison" LEAs that did not adopt the CEP. The evaluation team used propensity score matching to create comparable groups of

[22] A regression discontinuity design was also considered but rejected as infeasible due to (1) the lack of sufficient LEAs with ISPs near the 40 percent eligibility threshold, and (2) the fact that LEAs could participate in the CEP based on having even just one eligible school.

[23] A posttest-only comparison group design compares treatment group means to comparison group means on outcome measures collected after the intervention has been implemented. Unlike the CITS, it does not include any pre-intervention measure(s) of the outcome, and therefore is less effective at ruling out some rival explanations for estimated impacts.

participating and non-participating LEAs. This method predicted LEAs' probabilities of participation in the CEP to identify strong plausible matches for participating LEAs.

Conceptually and mathematically, the difference between these treatment and comparison outcomes is the policy's estimated impact. In practice, however, particularly with a non-experimental design, one does not simply compute the difference in outcomes to estimate program impact. Instead, the evaluation uses multivariate regression techniques to account for other factors that may have influenced selection to treatment and outcome status.

The CITS design uses pre-implementation data points to estimate what would have happened in the absence of the intervention in the post-program implementation time period for *both* the treatment and comparison groups. By including a comparison group, the analysis can more accurately control for sources of bias that might be undetected in a simpler single-group time series design, including historic, economic, maturation, changing demographic, and policy influences.

The CITS design uses data on participation and revenues for school years (SY) 2009–10 through 2012–13, as shown in Exhibit 2.4. For these objectives, treatment group LEAs that implement the CEP in SY 2011–12 (Year 1) have two years of pre-implementation data and two years of post-implementation data, while those that implement in SY 2012–13 (Year 2) have three years of pre-implementation data and one year of post-implementation data. The comparison group for the CITS design has four years of participation and revenue data without the CEP. For the other outcomes, the evaluation has data only from SY 2012–13; for the treatment group, these represent post-implementation data.

The posttest-only comparison group design allowed the study to assess the impact of the CEP on program integrity, staffing and administrative costs, and meal quality (Components 2 and 3). In this design, the treatment group is compared with a comparison group *after* the treatment has been implemented. The Posttest-Only design is the strongest feasible design for these components; it is certainly better than having no comparison group at all. The matched sampling methods used for these components sought to make the comparison group as similar as possible to the treatment group, reducing the selection bias introduced by the LEAs' choices of whether to participate. However, unlike the analyses based on the stronger CITS design, the evaluation is unable to net out of treatment effects any source of bias from important underlying baseline trends. [24]

2.3 Impact Study Sampling

This section describes the formation of the treatment and comparison groups and the baseline characteristics of the final sample. The Impact Study included two distinct samples: the Matched Administrative Data Sample for the analysis of impacts on NSLP and SBP participation and Federal

[24] The administrative data, as discussed in Section 2.3, do not exclude LEAs that participate in State or local universal free meals programs and, as such, its comparison group represents broadly what would have happened in the absence of the CEP, in a world where other free universal meals programs exist. In contrast, the comparison group in the Component 1 PEAR data sample is one on which several exclusions were imposed, including the exclusion of any LEAs where free meal programs are in effect. As a result, the comparison is that of LEAs in which the CEP is in effect to LEAs where no universal free meal program exists.

revenues, and the Primary Data Collection Samples for Components 1, 2, and 3. These two types of data required somewhat different approaches to forming the treatment and comparison groups, as discussed in this section. As shown in Exhibit 1.1, all of the samples for the Impact Study were nested within the Implementation Study sample, and the Primary Data Collection Samples were successively nested within the Matched Administrative Data Sample.

The remainder of this section is organized as follows. The Target Population subsection describes the overall population of the Impact Study and how sample eligibility requirements varied across the Matched Administrative Data Sample and Components 1, 2 and 3. The Administrative Data Sample subsection describes the propensity score modeling and matching procedures used to identify treatment and comparison LEAs for this sample and presents the baseline sample characteristics. The Primary Data Collection Sample subsection describes the propensity score matching procedures used to identify treatment and comparison LEAs for Components 1, 2 and 3 and then presents baseline sample characteristics.

2.3.1 Target Population

The target population of the Impact Study sample consisted of regular, public school LEAs and charter school LEAs in Illinois, Kentucky, Michigan, New York, Ohio and West Virginia.[25] LEAs serving special populations and non-public LEAs were excluded, because it was unlikely that appropriate matches could be identified. To ensure availability of a measure of baseline ISP, the sample excluded LEAs operating Provision 2 or 3 in the year prior to State implementation of the CEP. Similarly, LEAs missing data from key data sources essential to sampling were excluded.[26]

The samples were nested so that the LEAs selected for more intensive data collection were included in the less intensive components and the Matched Administrative Data Sample. The eligibility requirements were more restrictive for the more intensive data collection activity, because of the requirements for the data collection to be feasible. For example, LEAs in Component 3 had to meet the eligibility requirements for both Matched Administrative Data Sample and for Components 1 and 2, because these LEAs were also included in the larger samples. In addition, LEAs in Component 3 had to meet the Component 3-specific LEA requirements. Eligibility requirements for each sample are summarized in Exhibit 2.5 below, and described in detail in Appendix 2A.

[25] The evaluation determined that including the District of Columbia in the Impact Study was infeasible, and excluded these LEAs. See Appendix 2A, Section 2A.2: Sample Exclusions for a discussion of this decision.

[26] See Appendix 2A for justifications for and details of each of these sample exclusions.

Exhibit 2.5: Summary of Eligibility Requirements, by Impact Study Sample

Sample	Eligibility Requirement	Treatment LEAs	Comparison LEAs
Matched Administrative Data Sample	Regular public school LEA or public charter school LEA	✓	✓
	LEA is in Illinois, Kentucky, Michigan, New York, Ohio or West Virginia	✓	✓
	Does not exclusively serve special populations	✓	✓
	No schools operating Provision 2/3 in in the year prior to State implementation	✓	✓
	At least one participating school	✓	N/A
Component 1	Does not offer an alternative universal free meals program	✓	✓
	No conflict with other evaluations	✓	✓
Component 2	Enrollment of 300 or more	✓	✓
	A school eligible for on-site data collection (i.e., not serving special populations)	✓	✓
	At least 70 percent of eligible schools participating in CEP	✓	N/A
Component 3	Three schools eligible for on-site data collection that each represent a distinct grade range and together span kindergarten to 12th grade	✓	✓

For Components 1, 2 and 3, the evaluation team restricted sample inclusion to at most two LEAs per State that share a foodservice director (FSD). When more than two LEAs share a FSD, State-level respondents indicated that either: (a) the LEAs use the same foodservice management company, and the regional manager is the FSD for the group of LEAs, or (b) that the LEAs are charter schools run by a single management corporation, and the management of foodservice is centralized at the parent organization. Because responding to multiple surveys and interviews would represent an excessive burden for one FSD, the team identified groups of participating LEAs with the same FSD in each State and selected two LEAs to be included in the sampling frame, randomizing within a set of preferences that prioritized participation in the CEP, as well as size and grade coverage. Thus, any individual FSD was selected to participate in the evaluation for at most two LEAs within a given State.

2.3.2 Matched Administrative Data Sample: Procedure and Baseline Characteristics

The evaluation team used propensity score matching to identify participating "treatment" LEAs and non-participating "comparison" LEAs. The evaluation team estimated a statistical model of participation and generated a "propensity score." This score was the LEA's predicted probability of taking up the CEP. The propensity scores were estimated for all participating and non-participating LEAs in the six Impact Study States, and were then used to select the comparison sample for the analysis of administrative data on NSLP and SBP participation and Federal revenues. [27] The model included the following LEA characteristics:

- Identified Student Percentage (ISP)
- Percentage of students eligible for free or reduced price lunch (FRP)

[27] See Appendix 2B for a description of the model, definition of the variables, and details of the matching procedures. See Appendix 2A for a detailed description of the data sources and the construction of the sampling frame.

- Proportion of NSLP meal counts provided free in the year prior to implementation in the LEA's State
- Proportion of NSLP meal counts provided at a reduced price in the year prior to implementation in the LEA's State
- Percentage of students who are English language learners (ELL)
- Percentage of students who are in grades K-5
- Percentage of students who are in grades 6–8
- Whether the LEA is in an urban area (city)
- Number of schools
- Enrollment
- Percentage of students who are Black
- Percentage of students who are Hispanic
- Percentage of schools which are Title I schools
- Charter indicator for MI, NY and OH
- State indicators (with KY as the excluded category)

Exhibit 2.6 describes the baseline sample characteristics for the Matched Administrative Data Sample. Statistical tests demonstrated that the samples are balanced on the data elements included in the propensity score model. In addition, the sample is balanced on average daily participation in the NSLP in the year prior to State implementation of the CEP.

The sample is not statistically balanced on average daily participation in the SBP, as the mean difference of 4 percentage points is statistically significant at the 5 percent level. However, the CITS design of this analysis uses pre-intervention measures to control for this initial difference.

Exhibit 2.6: Matched Administrative Data Sample Characteristics Weighted to Reflect Many to One Matching, LEA Level Measures

	Matched Administrative Data Sample			
	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of observations	525		286	
Weighted number of observations	286		286	
Enrollment[a]	3,195	(8,795)	4,062	(24,235)
Percentage distribution of students in grades K-12				
Percent in grades K–5	50.1	(19.8)	51.0	(20.2)
Percent in grades 6–8	23.1	(11.2)	23.2	(13.3)
Percent in grades 9–12	24.0	(21.2)	22.9	(20.2)
Number of schools	6.6	(14.5)	8.1	(37.5)
ISP	52.2	(18.2)	53.9	(17.6)
Percent students free/reduced lunch	72.2	(17.9)	74.0	(16.8)
Percent Title I schools	83.3	(23.8)	85.0	(21.4)
Urban LEA (%)	31.3	(46.4)	33.6	(47.3)
All charter schools (%)	32.3	(46.8)	33.2	(47.2)
Percent English Language Learners	3.7	(10.9)	3.7	(10.6)
Percent students Black	30.3	(35.4)	33.2	(36.3)
Percent students Hispanic/Latino	7.8	(14.1)	7.1	(12.2)
Average daily participation (%) lunch	70.7	(12.8)	71.9	(12.3)
Average daily participation (%) breakfast[b]	42.1	(21.3)***	47.1	(24.8)***

SD=Standard deviation.

Hypothesis testing performed using t-tests for all outcomes except for grade distribution. Grade distribution outcomes jointly tested using MANOVA. The means and standard deviations reflect the weights assigned by the propensity score matching algorithm, which selected up to 5 comparisons for each treatment LEA.

[a] The large SD for enrollment reflects the inclusion of some very large LEAs in the treatment group, including New York City and Chicago.

[b] Observed for 517 comparison LEAs (weighted number of observations 279.6) and for 284 treatment LEAs.

***=p<.01, **=p<.05, *=p<.10.

2.3.3 Primary Data Collection Sample: Matching Procedure and Baseline Characteristics

The evaluation team used similar propensity score matching to identify matched pairs of participating, "treatment" LEAs and non-participating, "comparison" LEAs within each State for the primary data collection (Components 1, 2, and 3). The propensity scores for the primary data collection sample were based on a model using the following LEA characteristics:

- Identified Student Percentage (ISP)
- Percentage of students eligible for free or reduced price lunch (FRP)
- Percentage of students who are English language learners (ELL)
- Percentage of students who are in grades K-5
- Percentage of students who are in grades 6–8
- Whether the LEA is in an urban area (city)
- Number of schools

- Enrollment
- Charter indicator

Additional details describing the construction of the primary data collection sample are available in Appendix 2C.

Exhibit 2.7 describes the baseline sample characteristics for the Component 1, 2 and 3 LEAs. All LEAs with sufficient data to include in at least one analysis are included in the appropriate components. Hence, the number of observations listed in the table is the maximum number of LEAs included in analyses for a particular component.

Statistical tests were conducted to determine the extent of balance between the treatment and comparison groups. The more balanced such samples are, the more plausible it is that the samples are similar in not only observed but also unobserved characteristics. As shown in Exhibit 2.7, these tests demonstrated that the samples were balanced on measures of enrollment, grade distribution, number of schools, FRP percentage, Title I status, whether the LEA was located in a city, charter status, and demographic characteristics. [28] In addition, the samples were balanced on average daily participation (ADP) in the NSLP in the year prior to State implementation of the CEP.

Although the Component 1 and 2 samples were balanced on many characteristics, they were not balanced on ISP or on ADP in the School Breakfast Program in the year prior to State implementation of the CEP. Both the 5 percentage point ISP difference between Component 1 treatment and comparison LEAs and the 7 percentage ISP point difference between Component 2 treatment and comparison LEAs are statistically significant at the 5 percent level. The differences between treatment and comparison LEAs in ADP in the SBP were of larger magnitude—8 percentage points for Component 1 and 12 percentage points for Component 2—and significantly different at the 5 percent level. The Component 3 differences were of similar magnitude to the Component 1 differences, and have similar standard deviations. The differences for Component 3 were not statistically significant, although the sample size was too small to detect the difference.

For the PEAR survey analyses, which used the CITS design, the pre-intervention measures for the treatment group controlled for pre-intervention differences between the treatment and comparison groups that affect the outcome of interest. However, the analyses conducted using the Component 2 and 3 samples relied on a posttest-only comparison group design. Hence, the initial differences between the groups are important to bear in mind when interpreting the impact findings from analyses of the Component 2 and 3 samples. In this report, the presentation of each impact analysis includes the results of balance tests between the samples and the variables used to control for differences in sample characteristics in order to separate out the effects of the CEP.

[28] For consistency of representation, these variables were defined as they were for the Matched Administrative Data Sample Characteristics table: using the data sources and definitions from the Administrative data propensity score model—see Appendix 2B—and the analysis of participation—see Chapter 5.

Exhibit 2.7: Components 1, 2 & 3 Sample Characteristics, LEA-Level Measures

	Component 1				Component 2				Component 3			
	Comparison		Treatment		Comparison		Treatment		Comparison		Treatment	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
Number of observations	108		144		51		52		25		27	
Enrollment	3,022	(4,604)	2,957	(4,909)	3,854	(5,752)	4,060	(6,955)	5,546	(7,539)	6,803	(8,806)
Enrollment 1–499 (%)	25.0		33.3		17.6		21.2		0.0		3.7	
Enrollment 500–2,499 (%)	41.7		31.3		45.1		36.5		48.0		29.6	
Enrollment 2,500–4,999 (%)	17.6		18.8		13.7		25.0		20.0		33.3	
Enrollment 5,000+ (%)	15.7		16.7		23.5		17.3		32.0		33.3	
Percentage distribution of students in grades K-12												
Percent in grades K–5	50.1	(16.7)	50.0	(18.1)	49.7	(17.1)	51.0	(13.9)	44.0	(4.4)	44.3	(3.4)
Percent in grades 6–8	22.8	(6.6)	22.0	(9.1)	21.0	(6.3)	23.5	(7.9)	21.9	(1.7)	21.8	(1.7)
Percent in grades 9–12	23.6	(17.4)	24.7	(20.7)	25.9	(17.6)	21.7	(13.5)	30.1	(5.5)	29.5	(3.3)
Number of schools	6.1	(7.3)	6.6	(9.2)	7.5	(8.8)	8.9	(12.8)	10.7	(11.1)	14.4	(15.8)
1 school (%)	24.3		30.5		17.6		17.6		0.0		0.0	
2–5 schools (%)	42.1		29.8		37.3		37.3		36.0		29.6	
6–14 schools (%)	26.2		27.0		35.3		27.5		44.0		37.0	
15+ schools (%)	7.5		9.9		9.8		13.7		20.0		25.9	
ISP	46.1	(16.2)**	51.0	(17.7)**	47.9	(16.2)**	55.2	(16.5)**	44.5	(11.1)	49.6	(12.3)
Percent students free/reduced lunch	67.9	(16.1)	70.7	(16.5)	70.6	(15.2)	74.3	(14.6)	66.2	(14.2)	70.3	(12.7)
Percent Title I schools	83.7	(22.0)	85.4	(20.4)	86.4	(21.2)	87.1	(15.1)	79.1	(25.6)	80.4	(14.4)
Urban LEA (%)	23.1		30.6		27.5		30.8		20.0		33.3	
All charter schools (%)	19.4		27.1		15.7		19.2		0.0		3.7	
Percent English Language Learners	2.8	(6.3)	2.3	(6.4)	3.1	(5.1)	3.4	(6.9)	3.2	(4.4)	4.5	(8.2)
Percent students Black	26.1	(33.2)	29.9	(36.5)	27.0	(31.3)	33.5	(35.9)	15.5	(19.5)	24.2	(28.5)
Percent students Hispanic/Latino	7.0	(11.7)	6.4	(10.8)	8.0	(11.6)	8.9	(15.0)	7.6	(10.5)	10.5	(17.8)
Average Daily Participation (%) Lunch	70.4	(10.6)	69.8	(13.6)	68.5	(11.1)	70.8	(12.8)	65.6	(10.5)	67.2	(15.1)
Average Daily Participation (%) Breakfast[a]	37.1	(25.3)**	44.8	(27.6)**	36.8	(20.6)**	49.2	(28.3)**	32.3	(16.5)	39.8	(16.0)

Hypothesis testing performed using t-tests for all outcomes except for grade distribution. Grade distribution outcomes jointly tested using MANOVA.

***=p<.01, **=p<.05, *=p<.10.

[a] Component 1: observed for 105 comparison LEAs and 143 treatment LEAs. Observed for all LEAs in Component 2 and Component 3.

2.4 Impact Study Data Collection

As described below, the Impact Study included collection of administrative records and primary data. The primary data collection effort included three components aligned with the research objectives. Program participation and revenues data were collected through the combination of the Component 1 PEAR survey and State administrative data. Component 2 collected data on administrative costs and certification errors by conducting in-person interviews and record abstractions. Component 3 collected data on meal quality and meal counting/claiming errors through on-site observations. For Component 1, data were collected at the LEA level. For Components 2 and 3, data were collected at the LEA and the school levels, as shown in Exhibit 1.1.

Exhibit 2.8 maps research questions to the data sources described below.

Exhibit 2.8: Research Objectives and Questions, Role in Evaluation, and Designs

Research Objective	Research Questions	Role in Evaluation	Design	Sample	Data Source
Impact on SBP and NSLP participation	How did average daily participation in the NSLP and SBP change because of the CEP compared to what participation would have been in the absence of the CEP?	NSLP: Confirmatory SBP: Exploratory	Comparative Interrupted Time Series (CITS)	Matched Administrative Data Sample	Administrative Data
	To what extent (if any) did the impacts of the CEP on program participation: Reflect changes in the number of actual participants, frequency of participation, or both for NSLP, SBP, and total meals? Vary by grade level (elementary, middle, and high school) for NSLP, SBP, and total meals?	Exploratory	Posttest-Only Comparison Group, and self-assessment by LEAs	Component 1	PEAR Survey
Impact on foodservice revenues	How did Federal revenues change because of the CEP compared to revenues that would be generated from traditional meal reimbursement structure?	Confirmatory	CITS	Matched Administrative Data Sample	Administrative Data (Federal Revenue: NSLP and SBP)
	How did revenues from non-Federal sources, including State funds, local funds, student payments for reimbursable meals, and payments for competitive foods and adult foods, change because of the CEP compared to revenues that would be generated from traditional meal reimbursement structure? How do revenues compare to revenues that would be generated under other special assistance alternatives (Provision 2 or 3)? How much local funding is needed compared to these other alternatives?	Exploratory	CITS	Component 1	Administrative Data and PEAR Survey Data

Research Objective	Research Questions	Role in Evaluation	Design	Sample	Data Source
Impact on School Breakfast Program	How did the CEP impact the School Breakfast Program in terms of whether schools offer breakfast and the type of breakfast service offered?	Exploratory	Pretest-Posttest Comparison Group design supplemented with self-reported reason for change (for presence) Posttest-Only Comparison Group (for type)	Component 1 (PEAR Survey) Component 2 (Pre-visit School Questionnaire)	PEAR Survey Data (Presence) Pre-visit School Questionnaire (Type)
	To what extent did the CEP affect the foods served at breakfast, specifically: • Whether the identical breakfast is served to all students (or more generally, whether the CEP affects the amount of breakfast food choices for students)? • Whether and to what extent a la carte and competitive foods are offered during breakfast? How much time are students allowed to eat breakfast?	Exploratory	Posttest-Only Comparison Group	Component 2	Pre-visit School Questionnaire
Impact on administration (staff allocation and costs, non-program needs for eligibility data, direct certification)	To what extent did the administrative burden of operating the NSLP and SBP change under the CEP? What is the difference in administrative costs to the LEA associated with the CEP compared to the costs in absence of the CEP?	Exploratory	Posttest-Only Comparison Group	Component 1 Component 2	PEAR Survey (Change) Administrative Cost Interviews
Impact on foodservice costs	To what extent did the costs of producing reimbursable meals change under the CEP?	Exploratory	Posttest-Only Comparison Group	Component 1	PEAR Survey

Research Objective	Research Questions	Role in Evaluation	Design	Sample	Data Source
Impact on program integrity	How did the CEP impact program integrity, including: administrative errors associated with the certification process, and errors in meal counting by cashiers and in computing claims for reimbursement?	Exploratory	Posttest-Only Comparison Group	Component 2	Certification Record Review
				Component 3	Cashier Observations
				Component 3	Meal Counting and Claiming
Impact on nutritional quality (meeting standards, variety, competitive foods)	To what extent, if any, did the nutritional profile of school meals offered change under the CEP compared to what would have happened in the absence of the CEP? To what extent, if any, did the variety of food choices offered to students in school meals change? To what extent, if any, did compliance with USDA-FNS nutrition standards change?	Exploratory	Posttest-Only Comparison Group	Component 3	Menu Survey

2.4.1 Administrative Data on Participation, Enrollment, Attendance and Revenue

The administrative data on participation, enrollment, attendance and revenue were obtained from the six Impact Study States (Illinois, Kentucky, Michigan, New York, Ohio and West Virginia) to address research questions regarding impacts on participation and foodservice revenues. All six States provided data on NSLP and SBP meal counts, number of operating days, and Federal payments from NSLP, SBP and the afterschool snack program. Most States provided additional requested data elements, as summarized below in Exhibit 2.9. The State- provided data include observations for all SFAs in the State, and cover school years 2009–10 to 2011–12 and the first half of 2012–13.

Exhibit 2.9: Meal Count and Revenue Administrative Data Provided by each State

Data Elements	IL	KY	MI	NY	OH	WV
1. Number of NSLP lunches reimbursed	Yes	Yes	Yes	Yes[d]	Yes	Yes
2. Number of SBP breakfasts reimbursed	Yes	Yes	Yes	Yes[d]	Yes	Yes
3. Number of operating days	Yes	Yes	Yes	Yes[d]	Yes	Yes
4. Student enrollment (preferably as of October 31)	Yes	Yes	Yes	Yes[d]	Yes	Yes
5. Average daily student attendance	Yes	Yes[c]	No	No	No	Yes
6. School foodservice revenues:						
a. Federal payment from National School Lunch Program	Yes	Yes	Yes	Yes	Yes[e]	Yes
b. Federal payment from School Breakfast Program	Yes	Yes	Yes	Yes	Yes[e]	Yes
c. Federal payment from Afterschool Snack Program	Yes	Yes	Yes	Yes	Yes[e]	Yes
d. Other Federal payment (e.g., FFVP, Special Milk, CACFP, equipment grants, etc.)	Yes[a,b]	Yes[b]	No	Yes	Yes[b]	Yes[f]
e. Value of commodities received	Yes[a,b]	No	No	No	Yes[a.b]	No
f. State payments	Yes	Yes[b]	No	Yes	Yes[a.b]	No
g. Local funds (other than payment for catering)	No	N/A	No	No	No	No
h. Student payment for reimbursable meals	No	Yes[b]	No	No	No	No
i. Non-reimbursable foods (e.g., a la carte, vending machines)	No	Yes[b]	No	No	No	No
j. Other revenue from local sources not listed above (e.g., catering, special events)	No	Yes[b]	No	No	No	No

[a] Provided yearly data.

[b] Provided data only for 2009–10 to 2011–12 school year.

[c] Provided average daily attendance for 2009–10 to 2011–12 school year and average daily participation for 2012–13 school year.

[d] Provided monthly data only for Oct, Nov and Dec for 2009–10 to 2011–12 school year.

[e] Provided semiannual data instead of monthly data for 2012–13 school year.

[f] Provided yearly data only for 2010-11 and 2011–12 school year.

2.4.2 Participation, Enrollment, Attendance and Revenue (PEAR) Survey

The LEA PEAR Survey was a web-based survey fielded to 330 LEAs (164 treatment and 166 comparison) from February to May 2013. The PEAR Survey uses the Component 1 sample to address research questions regarding impacts on participation, foodservice revenues, and presence of the SBP. The PEAR survey asked LEA foodservice director about those data elements on the participation, enrollment, attendance and revenue not provided by the State as part of the Administrative Data

Collection.[29] To investigate whether the CEP affects the number of participants or their rate of participation and the impacts by grade level, the LEA survey asked foodservice directors for their perceptions about these facets of the impacts. A total of 57 LEAs were screened out of the PEAR survey due to a change in CEP participation status (17 comparison) or due to participation in an alternative universal free meals program (16 treatment and 24 comparison). A total of 246 LEAs completed all of the priority PEAR survey items, for a response rate of 90.1 percent.[30]

2.4.3 Administrative Cost Interviews

The evaluation measured the impacts of the CEP on the costs of administrative activities and the staff hours for these activities by measuring and comparing costs and hours for the samples of participating and non-participating LEAs in the matched comparison sample for Component 2 (which also included the certification record reviews described below). Administrative cost interviews were conducted for 52 treatment and 48 comparison LEAs. Within each selected LEA, up to three schools were sampled; fewer schools were sampled in LEAs with only one or two schools. Administrative cost data were collected in a total of 247 schools, 123 treatment and 124 comparison. For LEAs that did not implement the CEP universally, schools were sampled from those that were using the CEP. A total of 5 LEAs (2 treatment and 3 comparison) were found to be ineligible for the Impact Study after completion of data collection. The final analysis sample included 123 treatment schools and 129 comparison schools within 52 treatment and 48 comparison LEAs.

Costs and hours were measured for the following activities that were expected to be affected by the CEP:

- Processing FRP meals applications
- Direct certification, including ISP calculation, and certification without applications from other sources (such as foster child lists)
- Verifying FRP meals applications
- Managing student payment accounts and payment systems
- Preparing and submitting claims for reimbursement

For each activity, data collectors obtained estimates of staff time and labor costs through interviews with the LEA foodservice director, school cafeteria managers, and (where necessary) school principals or other school personnel. Data collection, and the resulting comparisons, focused on salaries and other labor costs (rather than other direct costs such as office supplies and capital expenditures) because labor represents by far the largest component of administrative costs. In

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[29] The survey was adapted for each State to omit requests for information which the State had agreed to provide as part of the Administrative Data on Participation, Enrollment, Attendance and Revenue.

[30] The following categories of PEAR survey items were designated as priority items for follow-up: respondent information, information on LEA and number of schools participating in CEP, respondent perceptions of changes in average daily participation in the NSLP and SBP, and respondent perceptions of changes in food, labor and costs in the NSLP and SBP. Respondents that completed the priority items were considered to have completed the survey.

addition to these quantitative measures of time and costs, staff in participating LEAs provided qualitative information on factors including:

- The extent to which they have reallocated or reduced staff or other costs since they implemented the CEP, including positions eliminated and staff who have been reassigned.
- Any changes made to meal planning as a result of implementing the CEP. Participating LEAs may simplify menus because they are now serving more meals, or they may be able to provide additional choices (or healthier choices) due to the changes.

This qualitative information was intended for use in describing the response of LEAs to changes (if any) in staff hours and costs for the specified activities.

2.4.4 Certification Record Reviews

To obtain data on administrative certification errors, data collectors reviewed eligibility documents maintained by LEAs, including approved and denied applications for FRP meals, direct certification lists, and other related documents. For this data collection, student records were sampled. In CEP schools, the sample consisted of identified students (approved for free meals without application). In non-CEP schools, the sample included identified students, students approved for FRP meals by application, and students whose applications were denied. Data collectors completed forms to abstract data from eligibility lists, FRP meals applications, and other documentation supporting LEAs' eligibility determinations. These data were analyzed to determine whether approved applications were completed according to program rules and had valid documentation, and whether the eligibility determinations (including approvals and denials) were correct.

Certification record data were collected from the Component 2 sample in 103 LEAs and 252 schools selected for the administrative cost interviews. Data collection included 114 records of identified students in treatment schools, and 114 records of certified students and 36 records of denied applicants in comparison schools.

2.4.5 Menu Survey

The Menu Survey was conducted with the Component 3 sample of participating and non-participating LEAs. Data were collected for a total of 162 schools (81 treatment and 81 comparison). Among the sampled schools, 6 comparison schools were found to be ineligible for the Impact Study after completion of data collection. The final sample included 81 treatment schools and 75 comparison schools within 27 treatment and 25 comparison LEAs.

The Menu Survey was completed by school foodservice staff from their production records. It obtained data on all foods offered in reimbursable meals for the target week (up to 5 days), including detailed food descriptions, serving sizes, planned number of servings, manufacturer information, and recipes for school-prepared foods. These data were coded and processed by the evaluation team using specialized menu analysis software to determine the nutritional profile of lunch and breakfast as offered, the number of choices in each food group, and the extent of compliance with USDA standards for NSLP and SBP meals.

2.4.6 Cashier Observations

In the Component 3 sample of schools that participated in the Menu Survey, data collectors recorded the *reimbursable* foods included in meals (taken by a random sample of students for both breakfast

and lunch) and the corresponding determination of meal classification (reimbursable or not) made by the cashier for each meal observed. The purpose was to obtain a measure of the rate of cashier error. Data were collected for each meal offered by the school on one day of the target week at each of the sampled schools in the LEA. Treatment schools were required to offer the SBP, but in comparison schools, breakfast was observed only in schools that had the SBP.

Data were collected for 27 treatment and 27 comparison LEAs; within these LEAs, completed data were obtained for a total of 162 schools (81 treatment and 81 comparison). The final sample includes 81 treatment schools and 75 comparison schools within 27 treatment and 25 comparison LEAs.[31] In each school, a total of 40 breakfast and 60 lunch observations were conducted.

2.4.7 Meal Counting and Claiming

The meal counting and claiming data were collected to investigate errors in counting, recording, and claiming reimbursement for school meals. Errors could occur at several points in the counting and claiming process—at the individual school level when consolidating the different cashier totals in a school or when consolidating school totals into a single LEA claim. Or, errors could occur when reported information was incorrectly transcribed onto the necessary form—for example, when entering school-reported information into a State web-based claim system. The meal counting and claiming forms were designed to provide a basis for estimating the percentage of reimbursement dollars paid in error.

Data collectors obtained meal counts at the school and LEA levels to permit three comparisons that might identify meal counting and claiming errors:

1. Meal counts reported by the school to the LEA for one sampled day versus supporting records at the school (such as tally sheets or cash register tapes).

2. Meal counts reported by the school to the LEA for the sampled day versus the record of those counts at the LEA central office.

3. Meal counts reported by schools to the LEA for a sampled claiming week or month versus the meal counts reported by the LEA to the State for that period. Depending on the claiming procedure, these counts were for the sampled schools or all schools in the LEA.

[31] Two LEAs, both comparison, were found to be ineligible for the Impact Study after completion of data collection.

3. Implementation of the Community Eligibility Provision

The experiences of the 11 participating States in their first, second, or third year of implementation, and of both participating and non-participating LEAs, provide important insights into key questions about implementing the Community Eligibility Provision (CEP). The specific research questions about aspects of implementation among the 11 States include:

- What factors influenced the decision to adopt the CEP at the State level?
- What was the process of deciding about CEP participation at the LEA level?
- What communication methods did States use to notify and identify LEAs, and how did LEAs communicate with schools and community members?
- What are the benefits and barriers to CEP participation, as perceived by LEAs?
- What State systems had to be adapted to accommodate the CEP? What processes did States have to adjust when implementing the CEP?
- What changes to meal variety, staffing, processes and costs did LEAs report?
- What are the results and lessons learned from CEP implementation at the State and LEA levels?

Additionally, FNS sought to learn about potential ramifications of the CEP for educational programs that currently use FRP meals application data, which are not available for schools using the CEP.

This chapter presents answers to these questions, based on four different data sources: 1) interviews in Summer 2013 with the 11 State CN directors and other State staff members and earlier conversations with Year 1 and 2 States, 2) telephone surveys of 51 State Title I directors in Spring/Summer 2013, 3) web surveys of LEA foodservice directors in Winter/Spring 2013, and 4) administrative cost interviews conducted with LEA foodservice directors in CEP districts in Winter/Spring 2013. The LEA data were collected only in the Year 1 and Year 2 States, and the interviews with the four Year 3 States reflect only early implementation prior to the 2013–14 school year. Each of the four sources is described in Chapter 2.

This chapter first focuses on State-level decisions to participate in the CEP, and then communications and decision-making of the LEAs, schools, and community. Next, the perceived benefits and barriers to participation are described. Third, some of the processes and methods the State and participating LEAs and schools adjusted to during CEP implementation are detailed. The chapter concludes with findings about implementation, including successes and benefits, challenges and barriers, and implications for educational programs that use FRP meals eligibility data.

3.1 Decision-Making and Notification of LEAs, Schools and the Community

Within the State CN Agencies, the first step in CEP implementation was the decision to apply for the CEP. In SY 2011–12, FNS selected three States based on criteria about which States were most likely to have high numbers of eligible LEAs and schools. In each of the next two years, all remaining States received a memo about the availability of the CEP; five applied for SY 2012–13 (four were selected) and six applied for SY 2013–14 (four were selected), bringing the total to 11 participating

States. This section describes State participation decisions, LEA participation decisions, and communications about the CEP among States, LEAs, schools, and communities.

3.1.1 State Participation Decision

Several factors influenced the States' decisions to participate in the CEP. The factors most commonly cited by Year 1 and 2 States were (1) the opportunity to provide free, nutritious breakfasts and lunches to more students, and the (2) potential to decrease the administrative burden of application processing and meal counting for LEAs. Other factors identified by one or two States were additional reimbursement to LEAs and the elimination of the verification process. Year 3 States reported that family financial need in the State and the streamlined process of CEP were factors in their decision.

3.1.2 LEA Participation Decision Process

A variety of LEA stakeholders were involved in the decision about whether to adopt the CEP. The foodservice director and superintendent were involved in a substantial majority of participating LEAs (79 percent and 78 percent respectively; Exhibit 3.1). Other common stakeholders involved in participating LEAs' decision-making processes included other LEA administrators (61 percent), the School Board (60 percent), and principals (46 percent). For eligible non-participating LEAs, the most frequently mentioned stakeholder was the foodservice director (62 percent).

Exhibit 3.1: Percentage of LEAs Indicating Different Stakeholders Were Moderately or Very Involved in the Decision Whether to Adopt the CEP

Stakeholders	Participating LEAs	Eligible Non-Participating LEAs
Students	6.4	1.2
Parents	11.9	2.1
Teachers	12.2	2.2
Principals	46.4	15.8
Cafeteria managers	34.2	14.5
Foodservice director	79.2	61.9
Superintendent	77.5	48.9
Other LEA administrators	61.1	37.1
School board	59.7	16.1
State Department of Education	44.7	15.4
Governor	4.2	0.5
Other elected officials	3.3	1.0
Community-based organizations	4.2	0.8
Number of responding LEAs	360	671

Note: Multiple responses were allowed so percentages sum to more than 100.

Source: Surveys of Participating and Eligible Non-Participating LEAs.

The stakeholder most frequently making LEAs' final decision about participation in the CEP was the School Board (37 percent), followed by the superintendent (28 percent) (Exhibit 3.2). For eligible non-participating LEAs, most often the superintendent (23 percent) and foodservice director (20 percent) were the final decision-makers. (As indicated in Exhibit 3.2, about one-fifth of the eligible non-participating LEAs were not sure who made the final decision; the primary respondent for these surveys was the SFA director, who was not necessarily involved in the final decision.)

Exhibit 3.2: Percentage of LEAs Indicating Which Stakeholders Made the Final Decision about CEP Participation

Stakeholders	Participating LEAs	Eligible Non-Participating LEAs
State Department of Education	1.7	3.6
LEA superintendent	28.1	23.4
School board	37.1	6.8
LEA foodservice director	12.8	20.2
Other LEA administrator	8.1	11.2
Other	6.4	13.8
Don't know	5.9	21.0
Number of responding LEAs	359	662

Source: Surveys of Participating and Eligible Non-Participating LEAs.

Once the decision was made to participate in the CEP, almost all of the eligible schools participated. In the participating LEAs, on average, 93 percent of the eligible schools participated; 97 percent of eligible schools participated in LEAs where all schools were eligible and 79 percent participated in LEAs where some but not all schools were eligible. (See Chapter 4 for further information on school-level participation.)

3.1.3 State Communications with LEAs

Implementation of the CEP required initial communications between FNS, States, LEAs, and schools. In all States, these communications began when FNS publicized the opportunity for States to apply to implement the CEP.[32] This announcement resulted in communications between States and LEAs about potential interest. Once States were selected, FNS required them to notify eligible and potentially eligible LEAs. The Year 1 States first conducted this process in 2011, and the Year 2 States first conducted the process in 2012. All three groups of States notified LEAs in 2013 in preparation for SY 2013–14.

Most eligible non-participating LEAs in the first seven States reported having been informed about the CEP, but less than 80 percent reported this in three States. Near-eligible LEAs were generally less likely to report having been informed (less than 80 percent in five of the seven States; Exhibit 3.3).

Exhibit 3.3: Percentages of Non-Participating LEAs that Reported Being Informed About the CEP by the State

	District of Columbia	Illinois	Kentucky	Michigan	New York	Ohio	West Virginia
Eligible non-participating LEAs	83.3	66.67	96.7	74.9	83.3	62.0	100.0
Near-eligible LEAs	100.0	58.2	84.6	61.3	64.0	30.9	(a)

Percentages in table are based on 671 eligible non-participating, and 291 near-eligible non-participating respondents. (a) Data are suppressed because West Virginia had only one near-eligible LEA.

Source: Surveys of Eligible Non-Participating and Near-Eligible LEAs.

[32] As specified in Chapter 1, the Year 1 States (Illinois, Michigan, and Kentucky) first implemented the CEP in SY 2011–12, Year 2 States (District of Columbia, New York, Ohio, and West Virginia) first implemented the CEP in SY 2012–13, and Year 3 States (Florida, Georgia, Massachusetts and Maryland) implemented the CEP in SY 2013–14.

Among LEAs that reported contacts, they were most commonly contacted by State officials about the CEP. Some LEAs reported that they had been informed by the USDA/FNS (Exhibits 3.4a and 3.4b), although it is unclear in these cases if the information provided by FNS had actually been forwarded to the LEAs by the States.

Exhibit 3.4a: Percentages of LEAs that Were Informed by a USDA/FNS or State Official about the CEP by Type of LEA

	Participating LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs
USDA/FNS	9.2	10.6	5.8
State official	70.6	51.0	33.0
Number of responding LEAs	360	671	291

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

Exhibit 3.4b: Percentages of LEAs that Were Informed by a USDA/FNS or State Official about the CEP by State

	District of Columbia	Illinois	Kentucky	Michigan	New York	Ohio	West Virginia
USDA/FNS	2.9	7.4	15.6	10.5	14.2	5.3	0.0
State official	76.5	45.4	68.8	52.1	46.2	40.6	92.6

Percentages in Exhibits 3.4a and 3.4b are based on 360 eligible and participating LEAs, 671 eligible non-participating LEAs, and 291 near-eligible non-participating respondents. The percentages reported in Exhibits 3.4a and 3.4b are based on **all** responding LEAs, **not** on the subset of LEAs informed about the existence of the CEP, so the percentages do not sum to 100%.

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

States used numerous modes to inform LEAs about the CEP, including emails, presentations and meetings, training workshops, webinars, one-on-one phone calls, site visits, newsletters, and Web postings (according to State CN director interviews). Ten of the 11 States reported engaging in multiple strategies of communication depending on the timing of the communication process and the level of interest among LEAs. From the perspective of LEAs, email was the most common form of communication about the CEP, with in-person meetings and postal mail as the next common methods (Exhibit 3.5). Word-of-mouth among LEAs was also common; eight of the 11 States, including all of the Year 1 States, reported that they encouraged LEAs to talk with one another about the CEP and facilitated this communication. For example, one State reported that they left time for an open discussion among LEAs at the end of a webinar. One Year 3 State reported having facilitated communication between one of its large LEAs and a large LEA in a Year 1 State that was similar in demographics, so the LEA could learn more about implementation of the CEP.

The majority (nine) of States reported providing estimators, online calculators, or worksheets (developed by USDA or the State) for LEAs to use in determining whether they were eligible to participate. These tools enabled LEAs to enter data about numbers of identified students into a database and receive notification of eligibility status.

States varied in their perceptions about the most effective strategies for communicating with LEAs about the CEP. States commented that emails and webinars were cost-effective and successful forms of communication. Three States noted that providing individualized technical assistance to LEAs was very important, and one State reported that "a high level of technical assistance was a key to their

success in communicating effectively" with LEAs. Several States described unique strategies that they perceived to be effective, such as conducting a poster session at a State meeting, and obtaining the help of a community-based organization to promote interest through the media. While most States directed their communications to LEA foodservice directors, one State's Superintendent of Education promoted the CEP directly to LEA superintendents to encourage participation. The majority (eight) of States did not report any challenges in their notification and communication process with LEAs. Challenges mentioned by the remaining three States included LEA concerns about not having FRP lunch data, not having individual school ISP data, and not having enough time for communication with LEAs.

Exhibit 3.5: Percentages of LEAs Reporting Methods of Communicating Information about the CEP From States to LEAs

	Participating LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs
In-person meeting	32.8	24.6	11.7
In-person training	18.1	12.5	5.2
Letter/mail	24.7	18.8	12.4
Email	54.4	49.8	32.7
Phone call	8.1	1.9	2.1
Webinar	15.3	14.2	8.3
Press release	11.1	8.5	4.5
Other LEAs	8.9	9.4	5.8
Other	4.4	2.5	5.2
Don't know	7.5	2.8	1.7
Number of responding LEAs	360	671	291

Multiple responses were allowed so percentages sum to more than 100.

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

States also differed in terms of which types of LEAs they targeted for CEP communications. At a minimum, States were required to notify eligible LEAs with overall ISPs of 40 percent or more as well as potentially eligible LEAs with ISPs of 30 percent to 40 percent. All 11 States reported that they initially informed all LEAs about the CEP, regardless of ISP. Subsequent communication appeared to be directed toward eligible LEAs based on their respective ISPs.[33] One State sent targeted communications to LEAs participating in Provision 2 or 3 as well as LEAs with accountability or performance issues for whom the CEP might be particularly beneficial. Another State targeted its pre-proposal and follow-up communications to a subgroup of the largest LEAs that appeared to meet or exceed eligibility criteria based on FRP student data. States differed in their capacity to identify eligible schools. Six States indicated that they identified individual eligible schools on the basis of direct certification data, and four indicated that they relied on LEAs to identify eligible schools.[34] (This issue is discussed in the section on benefits and challenges to CEP implementation.)

[33] Three States explicitly stated in interviews that they targeted outreach to eligible and potentially eligible LEAs. Others provided a more general description of their outreach.

[34] For one Year 3 State, the availability of school-level ISPs was unknown.

3.1.4 LEA Communications with Schools and Community Members

Almost one-quarter of the eligible non-participating LEAs (24 percent) and almost half of the near-eligible participating LEAs (48 percent) reported that they had not been informed about the CEP (Exhibit 3.6). LEAs in Year 1 States were less often uninformed about the CEP, compared with LEAs in Year 2 States (23 versus 29 percent for eligible non-participating LEAs, and 39 versus 57 percent for near-eligible LEAs). Only 28 percent of all eligible non-participating LEAs and 24 percent of all near-eligible LEAs in turn informed their schools. (Eligible non-participating LEAs were required to notify their eligible schools about the CEP, but near-eligible LEAs did not have any notification requirements.)

Exhibit 3.6: Percentages of LEAs that Informed Their Schools about the CEP

Stakeholders	Eligible Non-Participating LEAs	Near-Eligible LEAs
LEA was not informed about CEP	24.4	48.1
LEAs informed about CEP		
LEA informed schools	28.2	23.7
LEA did not inform schools	32.6	19.6
Don't know if LEA informed schools	13.3	7.9
LEAs that did not respond to question	1.5	0.7
Percent (total)	100.0	100.0
Number of responding LEAs	671	291

Source: Surveys of Eligible Non-Participating and Near-Eligible LEAs.

The most common methods used by LEAs to communicate with their schools about the CEP were in-person meetings and presentations (over 50 percent of each LEA type), followed by email notification (over 30 percent of each LEA type). About one-third (34 percent) of eligible participating LEAs used postal mail to inform schools (Exhibit 3.7).

Exhibit 3.7: Percentage of LEAs by Method of Communication with Schools about the CEP

Method of Communication	Participating LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs
In-person meeting/presentation	61.0	55.0	68.1
In-person training	16.9	11.1	8.7
Letter/mail	34.1	9.0	2.9
Email	38.4	38.1	30.4
School website	19.8	0.5	0.0
Phone call	14.0	11.6	8.7
Webinar	2.6	0.0	0.0
Press release	18.1	1.1	0.0
Other	3.4	7.9	14.5
Don't know	6.3	2.7	1.5
Number of responding LEAs	349	189	69

Multiple responses were allowed so percentages sum to more than 100.

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

Almost all (94 percent) eligible participating LEAs reported that they had informed their communities in some way about the CEP, but as might be expected, the eligible non-participating and near-eligible LEAs only did so infrequently (less than 10 percent of each type). LEAs communicated with their

respective communities in a variety of ways. The most common methods for participating LEAs were a notice or letter sent home with students (59 percent) and postal mail (52 percent) (Exhibit 3.8).

Exhibit 3.8: Percentage of LEAs by Method of Communication with the Community about the CEP

Method of Communication	Participating LEAs
In-person meeting/presentation	21.5
Letter/mail	52.4
Email	9.7
School website	43.5
Phone call	7.1
Notice/letter sent home with students	58.5
Local newspaper	38.2
Other	5.9
Don't know	6.5
Number of responding LEAs	349

Only 38 eligible non-participating LEAs and 13 near-eligible LEAs responded to this question. Multiple responses were allowed so percentages sum to more than 100.

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

The foodservice director (FSD) was the most likely type of LEA official responsible for initially informing schools about the CEP (over 40 percent of each LEA type) (Exhibit 3.9).

Exhibit 3.9: Percentage of LEAs by Who was Responsible for Initially Communicating with Schools

LEA Official	Participating LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs
Superintendent	21.0	15.1	30.9
Foodservice director	46.1	56.8	39.7
Foodservice contract management co.	2.9	2.7	0.0
Other LEA administrator	11.7	11.4	16.2
Other	10.2	10.8	13.2
Don't know	8.2	3.2	0.0
Number of responding LEAs	343	185	68

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

In eligible participating LEAs, the FSDs were also most likely to inform the community (38 percent) followed by the Superintendent (20 percent) (Exhibit 3.10).

Exhibit 3.10: Percentage of LEAs by Who Was Responsible for Informing the Community About the CEP

LEA Official	Participating LEAs
Superintendent	19.5
Foodservice director	38.3
Foodservice contract management co.	0.9
Other LEA administrator	9.0
Principals of individual schools	16.2
Other	9.6
Don't know	6.6
Number of responding LEAs	334

Only 38 eligible non-participating LEAs and 13 near-eligible LEAs responded to this question.

Source: Survey of Participating LEAs.

3.2 Benefits and Barriers to CEP Participation

The State CN director interviews and LEA surveys provide perspectives on two important aspects of CEP participation decisions. First, States and LEAs described the benefits and barriers to participation. Second, States and LEAs shared their perceptions of the factors influencing LEA participation decisions. Each aspect is described below.

3.2.1 Perceived Benefits

State interviews indicate that six of seven Year 1 and 2 States perceived LEAs' initial reactions to the CEP as generally positive, albeit with some concerns. According to these States, LEAs understood the potential benefits of participation in the CEP, including: free breakfast and lunch for all children attending participating schools, elimination of the burden of the free and reduced price meal application for families and foodservice staff, and simplification of the meal counting process. The seventh State reported mixed reactions: eligible LEAs were positive while non-eligible LEAs were not, particularly those with ISPs just below the 40 percent cut-off for eligibility. Four States mentioned LEA nutrition staff as particularly positive about the CEP, and two specifically reported that LEAs had received positive feedback from parents.

Two of the four Year 3 States noted that one of the biggest benefits is being able to provide free meals to all students without any stigma. Two Year 3 States also commented on the efficiency of the CEP process, and one State observed that not having to process free and reduced price meal applications allowed the LEAs to "focus on more important issues like whether students are getting nutritious meals."

Survey data indicate that a majority of participating LEAs (81 percent) characterized the possibility of relief for families under financial burden as an important potential benefit from participation in the CEP. Nearly three-fourths of participating LEAs reported increasing school meal participation (73 percent) as a potential benefit; other benefits included decreasing stigma for children in need (55 percent), and improved academic performance (51 percent). A significantly lower proportion of

eligible non-participating and near-eligible LEAs indicated that these benefits were important (Exhibit 3.11).[35]

Exhibit 3.11: Percentage of LEAs Rating Possible Benefits of Participation as Moderately or Very Important

Possible Benefit	Participating LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs
Increased revenue***	42.9	13.6	30.3
Decreased costs***	20.6	8.2	21.4
Decreased administrative burden***	47.3	24.6	40.0
Decreased stigma for students in need***	54.9	22.7	32.1
Improved academic performance***	51.0	15.7	30.9
Increased school meal participation***	73.0	34.8	48.1
Improved nutritional quality of meals***	33.6	7.6	17.9
Relief for families under financial burden***	80.5	36.6	51.2
Number of responding LEAs	359	671	291

Percentages in table are based on 359 participating LEA respondents, 671 eligible and non-participating respondents, and 291 near-eligible respondents. Multiple responses were allowed so percentages sum to more than 100.

For each possible benefit, a chi square test (1 df) was performed to compare endorsement rates of participating and eligible non-participating LEAs.

***=p<.01, **=p<.05, *=p<.10.

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

Furthermore, over half (55 percent) of eligible participating LEAs reported that participation in the CEP **actually** reduced administrative burden for their LEAs. In particular, the three most commonly reported types of personnel whose burden was reduced were: LEA foodservice administrative staff (45 percent), school foodservice workers (28 percent), and school administrators (25 percent) (Exhibit 3.12).

Exhibit 3.12: Percentages of LEAs Citing Personnel Whose Burden Has Been Reduced by Implementing the CEP

Personnel	Participating LEAs
School administrators	25.3
LEA foodservice administrative staff	45.0
Other LEA administrative staff	12.8
Cafeteria managers	17.8
School foodservice workers	28.3
Number of responding LEAs	360

Source: Survey of Participating LEAs.

[35] Significance tests were performed for comparisons of participating and eligible non-participating LEAs on questions about key attitudes likely to affect the decision to participate. The purpose was to test whether these key attitudes were different between these two groups that had the option to participate. The near-eligible LEAs were not included in these tests because they did not have the option to participate.

Among LEAs that reported reduced burden, more than half (54 percent) indicated that due to participation in the CEP, staff members were able to spend more time overseeing foodservice operations and managing other administrative tasks (53 percent) (Exhibit 3.13). Over one-third (36 percent) reported that staff spent more time on planning nutrition or meal services.

Exhibit 3.13: Percentages of Participating LEAs Reporting Activities Staff Were Able to Spend More Time On Due to Participating in the CEP (Among Those Reporting Any Reduced Burden)

Activity	Participating LEAs
None	14.2
Conducting professional development or training	16.2
Conducting other administrative tasks	53.3
Implementing new school breakfast program	6.6
Planning nutrition/meal services	36.0
Overseeing foodservice operations	53.8
Developing recipes	13.2
Researching purchasing options for food and supplies	18.3
Developing nutrition education materials/activities	15.2
Assessing student nutritional needs and/or food preferences	29.4
Other	4.1
Number of responding LEAs	197

Multiple responses were allowed so percentages sum to more than 100.

Source: Survey of Participating LEAs.

The most important factors for participating LEAs in their decision to participate were the rate of reimbursement for school meals (55 percent) and their respective community poverty level (48 percent) (Exhibit 3.14). These two factors were identified by significantly fewer eligible non-participating LEAs as decision-making factors (41 and 9 percent, respectively). For eligible non-participating LEAs, the potential financial impact was the most commonly reported factor in deciding not to participate in the CEP (59 percent).[36] A sizable majority of eligible non-participating and near-eligible LEAs agreed that the CEP would be well-received by school staff and students (86 percent and 83 percent, respectively) and would result in increased meal participation that would benefit students (83 percent and 79 percent, respectively) (Exhibit 3.15).

State CN directors agreed with some of the factors affecting LEA participation as reported by LEAs, and offered some additional perspectives. Three States reported that support from LEA FSDs or administrators was an important factor in an LEA's decision to participate. Two States perceived that community poverty level affected LEAs' decisions to participate. Other factors affecting LEAs' participation, according to States, were perceived benefits for children, high proportion of FRP lunches served, and pressure from neighboring communities.

[36] The mean ISP for 356 eligible participating LEAs was 46.8 percent, and the mean ISP for 659 eligible non-participating LEAs was 36.9 percent, a difference of 9.9 percent. This is statistically significant, $p<.0001$. While potential financial impact was the most commonly reported factor in eligible non-participating LEAs' decisions about whether to participate, whether this factor disinclined these LEAs to participate is not known. For instance, some eligible non-participating LEAs may have been attracted by CEP because of a potential positive financial impact, yet may have decided against participation for other reasons.

Exhibit 3.14: Percentage of LEAs Endorsing Factors as Among the Three Most Important in Deciding Whether or Not to Participate

Factor	Participating LEAs	Eligible Non-Participating LEAs
Poverty of the community***	48.1	9.2
ISP or rate of reimbursement for school meals***	55.3	40.5
Staffing needs**	4.2	8.5
Financial impact***	46.4	58.6
Rate of participation in school meals programs***	25.8	11.5
Logistics or ease of implementation	13.3	10.4
Considerations around schools being labeled as low income	1.9	2.8
Considerations around students being labeled as low income	2.8	3.0
Availability of the CEP for the long term***	29.4	14.0
Eligibility of individual schools or entire LEA to participate	20.3	21.9
Number of responding LEAs	360	671

Multiple responses were allowed so percentages sum to more than 100.

For each possible benefit, a chi square test (1 df) was performed to compare endorsement rates of participating and eligible non-participating LEAs.

***=p<.01, **=p<.05, *=p<.10.

Source: Surveys of Participating and Eligible Non-Participating LEAs.

Exhibit 3.15: Percentages of Non-Participating LEAs Agreeing with Beliefs About the CEP

I believe that the CEP would…	Strongly Agree		Somewhat Agree		Somewhat Disagree		Strongly Disagree	
	Eligible Non-Participating LEAs	Near-Eligible LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs
Be more costly to implement than what is currently in place.	35.2	29.3	35.7	41.5	21.0	20.7	8.1	8.5
Be well-received by school staff and students.	43.5	33.7	42.4	49.1	10.9	14.7	3.2	2.6
Be confusing to implement.	12.5	13.7	37.8	47.4	31.2	28.9	18.5	10.0
Result in increased meal participation that would be overwhelming to the staff.	7.5	10.7	21.1	25.5	42.3	42.1	29.1	21.8
Result in increased meal participation that would benefit students (access to more foods, healthy foods).	41.7	38.4	41.7	41.0	11.5	16.2	5.1	4.4
Create issues for determining eligibility for other assistance programs due to lack of free and reduced price data.	28.2	26.3	39.5	49.6	21.4	17.0	11.0	7.0
Result in a lot more work to serve breakfast.	7.9	16.2	21.5	26.9	33.4	35.4	37.1	21.4
Increase plate waste.	10.0	18.9	30.8	34.4	36.7	36.3	22.4	10.4

Percentages in table are based on 629 eligible non-participating LEAs and 273 near-eligible (non-participating) LEAs. Multiple responses were allowed so percentages sum to more than 100.

Source: Surveys of Eligible Non-Participating and Near-Eligible LEAs.

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More than half of participating LEAs indicated that total reimbursements under the CEP were greater than conventional meal claims in prior years (Exhibit 3.16). Over 80 percent of LEAs in Kentucky and New York reported receiving more reimbursement. In contrast, the proportion of LEAs reporting having received less reimbursement under the CEP was 20 percent or less in each State. .

Exhibit 3.16: Percentages of Participating LEAs Indicating How Reimbursements under the CEP in SY 2012–13 Compare to Reimbursements Received in Prior Years

	Reimbursements in SY 2012–13 Compared to Prior Years				
	Much More	Moderately More	Same Amount	Moderately Less	Much Less
District of Columbia	10.0	45.0	25.0	15.0	5.0
Illinois	12.0	44.0	28.0	16.0	0
Kentucky	7.8	76.5	11.8	2.0	0
Michigan	16.2	58.1	16.2	9.5	0
New York	18.2	70.5	9.1	2.3	0
Ohio	12.7	52.7	21.8	9.1	0
West Virginia	11.4	54.3	22.9	11.4	0
All States	13.3	58.3	18.3	8.9	0.3

Percentages in table are based on 360 eligible and participating LEAs.1 LEA from Kentucky and 2 LEAs from Ohio did not respond to this question.

Source: Survey of Participating LEAs.

3.2.2 Perceived Barriers

Almost half of participating LEAs (45 percent) indicated that concern about how the CEP might affect funding for educational programs was an important barrier to participation (Exhibit 3.17). (Other programs still required free and reduced price student data; this issue is discussed below and in Section 3.4). LEAs also were often concerned about how much reimbursement would be received (41 percent). The most common concern reported by eligible non-participating LEAs (53 percent) was the financial viability of the CEP; the amount of reimbursement was a related concern (41 percent).

State CN directors reiterated the LEA concerns identified by surveys, and provided additional insights about some of the questions and issues faced by LEAs.

- All 11 States mentioned that LEAs had questions about or were concerned about the CEP's potential effect on both Federal (i.e., Title I and E-rate)[37], and State funding, given that individual student free and reduced price meal eligibility data would no longer be available. (This issue is discussed further in the final section of this chapter.) Ten of 11 States reported that LEAs had specific questions and concerns about Title I funding, and several States commented that this concern kept several large LEAs in their State from participating in the CEP. In another State, LEAs were reported to be most concerned with the lack of individual household income data, as it affected compensatory education funding provided by the State to LEAs. Four States commented that it would have been useful to have had more specific Federal guidance about the potential implications for allocation of Federal and State funds.

[37] Title I provides Federal educational assistance to high-poverty schools. E-rate provides assistance for telecommunications and Internet access to high-poverty schools and other institutions.

Exhibit 3.17: Percentage of LEAs Rating Possible Barriers to Participation as Moderately or Very Important

Possible Barrier	Participating LEAs	Eligible Non-Participating LEAs	Near-Eligible LEAs
CEP not financially viable***	29.1	53.0	41.4
Concern about how much reimbursement would be received	41.2	40.5	55.3
Concern about how the CEP will affect funding for educational programs***	45.1	29.7	34.7
Not enough time to implement the CEP	11.7	13.0	14.1
Concern about participating schools being treated differently than other schools***	7.2	13.9	8.6
Participating LEAs may be viewed as poor	4.8	6.9	7.2
Difficulty establishing a school breakfast program	0.8	1.2	3.8
Community not supportive	1.9	1.6	5.5
Key LEA or school officials not supportive	3.9	3.7	4.5
Number of responding LEAs	360	671	291

Percentages in table are based on 360 participating LEA respondents, 671 eligible and non-participating respondents, and 291 near-eligible respondents. Multiple responses were allowed so percentages sum to more than 100.

For each possible barrier, a chi square test (1 df) was performed to compare endorsement rates of participating and eligible non-participating LEAs.

***=p<.01, **=p<.05, *=p<.10.

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

- Another initial concern (cited by three States in the 2012 interviews) was that not enough time was provided for LEAs to understand the CEP, make sure that the CEP was financially viable, and obtain local approval for participation. These three States indicated that the time constraints limited LEA participation. Similar concerns were raised by two of the four Year 3 States in 2013 interviews. Several Year 1 and 2 States commented on how their previous experience enabled them to begin the application process earlier in 2012–13.

- Two States noted that some LEAs were concerned about fairness in the implementation of the CEP. Since LEAs could group schools within the LEA to achieve the 40 percent ISP, some LEAs were concerned that the CEP would provide free meals to all students in schools with relatively few students who would qualify for free meals under conventional procedures.

- Finally, another fairness issue arose for some LEAs when CEP schools offered free meals to all students, while other schools in the same LEA had to raise meal prices to meet the new paid meals equity regulation. According to States, parents perceived this situation as having the non-participating schools subsidize the participating schools.

- Five States reported at least one question raised by LEAs for which they had to seek guidance from FNS, including questions about mixed LEAs in which not all schools were participating in CEP. For example, one LEA asked how to handle meals for students who visit other schools if

one school was implementing CEP and the other was not. Another question had to do with schools that merged if one school was implementing CEP and one was not.

When eligible non-participating LEAs were asked about changes that would make the CEP more appealing, about two-thirds (65 percent) named an increased reimbursement rate (Exhibit 3.18). The second most popular change endorsed by eligible non-participating LEAs was to make the CEP available LEA-wide regardless of individual schools' ISPs (45 percent). One-third (33 percent) of eligible non-participating LEAs indicated that they would find the CEP more attractive if alternative methods (other than via FRP data) could be found to qualify, and about one-quarter (26 percent) wanted greater lead time prior to implementation. LEAs were asked whether they would be willing or unwilling to participate in the CEP using different (lower) multipliers that ranged from 1.5–1.0; less than 10 percent of each LEA type indicated willingness to participate, and a majority indicated that they did not know (Exhibit 3.19).

Exhibit 3.18: Percentage of Eligible Non-Participating LEAs Indicating Changes that Would Make the CEP More Appealing

Change	Makes CEP More Appealing
Increase reimbursement rate	65.0
Eliminate school breakfast program requirement	7.2
Greater lead time prior to implementation	25.8
More training provided	31.2
Available to all schools in LEA and not just eligible schools	45.3
Alternative method (other than free and reduced price data) to qualify for other assistance programs	32.6
Number of responding LEAs	671

Multiple responses were allowed so percentages sum to more than 100.

Source: Survey of Eligible Non-Participating LEAs.

Exhibit 3.19: Percentages of LEAs Willing to Participate in the CEP at Lower Multipliers

	Participating LEAs			Eligible Non-Participating LEAs			Near-Eligible LEAs		
Multiplier	Willing	Un-willing	Don't Know	Willing	Un-willing	Don't Know	Willing	Un-willing	Don't Know
1.0	1.7	31.5	66.8	0.3	45.7	54.0	0.3	41.1	58.6
1.1	1.7	31.4	66.9	0.2	45.6	54.2	0.7	41.0	58.3
1.2	2.0	30.9	67.1	0.2	45.8	54.0	0.7	41.0	58.3
1.3	3.3	29.8	66.9	0.5	45.3	54.2	1.0	40.7	58.3
1.4	6.7	28.7	64.6	0.9	45.1	54.0	1.4	40.3	58.3
1.5	8.6	27.5	63.9	0.8	45.0	54.2	2.8	39.8	57.4
Number of responding LEAs	369			670			291		

Each row represents a separate question.

Source: Surveys of Participating, Eligible Non-Participating, and Near-Eligible LEAs.

3.2.3 State Perceptions of Types of LEAs Most Likely to Participate

LEAs and schools with higher ISPs were more likely to participate in the CEP, according to State officials (and as confirmed by the analysis of LEA participation presented in Chapter 4). A key threshold cited by States was that LEAs with ISPs of 62.5 percent or more could claim all meals at

the free rate, making the CEP a "no-brainer" in the words of one State respondent. Other perceived influences on CEP participation included size, type of LEA, buy-in from LEA leadership, and use of Provisions 2 and 3 (which, like the CEP, eliminate applications for FRP meals and provide free meals to all students). (See Chapter 4 for detailed tables of LEA characteristics by State.) The reasons for these factors being influential are discussed below.

- ***Size:*** According to two States, in smaller LEAs the processes for getting approval for implementation were both simpler and quicker, or because the potential for reduced administrative burden was more important. On the other hand, one State mentioned that large urban LEAs had spent years refining their direct certification methods to increase their numbers of directly certified students, thus boosting their ISPs and the desirability of the CEP.
- ***Type of LEA:*** According to two States, many charter schools have high concentrations of low-income students and thus high ISPs and claiming percentages. These two States also explained that charter schools generally did not face the problem confronted by regular public school districts, particularly larger ones: that the CEP would result in reallocating funds away from the schools with the highest concentrations of students in poverty (as discussed later in this section).
- ***LEA administrator support:*** Four States emphasized the importance of support from LEA administrators, and in some cases school leadership, for the CEP. They observed that LEA leadership had to be comfortable with and supportive of an initiative that involved change and uncertainties.
- ***Provisions 2 and 3:*** For schools using these provisions, the CEP was particularly appealing, according to the States with these schools, for several reasons. First, these schools had already decided to offer free meals for all students. Second, they had relatively high ISPs and often qualified to have all meals reimbursed at the free rate (more than under Provision 2/3).[38] Third, two States observed that taking FRP meals applications is more difficult for Provision 2/3 schools because they do not conduct the process annually, so eliminating the process entirely under the CEP is particularly appealing. Finally, in one State, these schools were already collecting alternate household income data and did not report the same concerns about Federal funding as LEAs using the traditional reimbursement method.

3.3 State-Level and LEA-Level Implementation

State-level implementation for the CEP included changes to meal reimbursement systems and direct certification. At the LEA-level, changes to meals, staffing, and costs were identified.

3.3.1 Adaptation of Meal Reimbursement Systems

Eight States adapted their meal reimbursement systems to accommodate the CEP, and of the remaining three, two States are in the process of developing a new system that will incorporate CEP in SY 2014–15, and the other State reported that it did not need to modify its system. In two of the States without a modified system for CEP, LEAs used a spreadsheet provided by the States to

[38] Qualifying for the CEP could be challenging for schools using Provision 2 or 3 that are not in a base year, and therefore may not have completed the direct certification process. However, in States that provide direct certification results at the school level, ISP data are available for these schools.

calculate counts of free and paid meals. One of these two States indicated that it provided the spreadsheet because it did not have time to modify its claiming system. States did not report any specific CEP-related challenges with this process.

All 11 States currently have an automated on-line meal claim system for NSLP and SBP. Nine States pre-loaded the CEP claiming percentages for participating LEAs and schools into their meal claiming systems to automate the computation by CEP LEAs of meals to be claimed at the free and paid rates.[39] The automated systems also helped to ensure that checks are in place for LEAs to use the correct claiming percentage. As described above, two of the other three States provided spreadsheets for LEAs to make these computations. Five of the 11 States reported minor issues with the accuracy of claims from a small number of LEAs, but no major issues with State verification of LEA data were reported.

One potential issue for implementation of the CEP is that meal claims could become more complicated if the LEA submits a consolidated claim for all of its schools but only some of the schools are operating under the CEP (a "mixed" LEA). However, no States reported any complications with claims from mixed LEAs. In the nine States with systems programmed to apply approved claiming percentage for CEP schools, claims were entered and processed in the usual manner for non-CEP schools.

3.3.2 Direct Certification Process

All States reported that they were encouraging CEP LEAs to continue annual direct certification. Three States require ongoing direct certification for LEAs without 100 percent free reimbursement, and one State requires all LEAs to continue. All States mentioned two main reasons for the importance of ongoing direct certification: 1) the possibility of increasing ISPs, and 2) the need for direct certification data for allocation and reporting for other funding streams.

Six States reported positive changes to the direct certification process during SY 2012-13 that allowed them to better identify directly certified children through system enhancements and therefore increase the ISPs of LEAs and schools. Examples of enhancements include flagging certain students (e.g. SNAP, TANF, foster children) in automated systems, use of a student identifier number to find students on direct certification lists, and structuring the system so that all students in a household could be identified through one student's record. Two other States reported more frequent extraction of data over the course of the year. Several other States also mentioned that they were part of the Medicaid direct certification pilot, which may increase ISPs.

Starting in 2013, a new reporting form (FNS 834) requires States to provide a count of students who are matched to SNAP records. This information is needed for all LEAs, including those that implement the CEP and are not required to conduct direct certification. All but two States planned to obtain this information through identifying SNAP students based on direct certification data. Of the remaining two, one planned to obtain the needed information from another report, and the other was formulating plans at the time of the interview. As noted above, only six States indicated that they had

[39] As explained in Chapter 1, the claiming percentage for the CEP is the proportion of meals reimbursed with Federal funds at the free meals rate (currently 1.6 times the ISP). LEAs count the total meals served and then submit claims for free and paid meals based on the claiming percentage.

direct certification data at the school level for all LEAs, so four or five States would have to obtain the information for the new FNS report from LEAs.

3.3.3 Changes to Meal Variety, Staffing, Process & Cost

On-site interviews with LEA foodservice directors indicated that about equal numbers reported having made some or no changes to the variety of meals, staffing, and other processes as a result of the CEP. The majority of LEA foodservice directors (36 of 54) reported no change to the variety of foods offered as a result of the CEP. Almost one-fifth (9) reported that they had increased the variety. Examples of changes included using more fresh fruits instead of canned/frozen fruits, and introducing new food options to students. Given new meal patterns that were being implemented at the same time, the extent to which CEP affected variety in these LEAs is unclear.

Over half of FSDs (30) reported no changes to the types of food served, and one-third (18) indicated they had made changes. Offering grab-and-go breakfast was the most common change reported. Over half of FSDs (31) indicated the amount of fresh fruits and vegetables had not increased because of the CEP. One-third (18) reported that the amount did increase. Over half of directors (31) indicated that they had not made changes to the serving process in order to serve more quickly. About one-third (20) reported that they had; a common example was increasing the number of serving lines.

Most FSDs (38) noted they had not changed foodservice administrative staffing as a result of the CEP. Less than one-fifth (8) reduced staff. Food production staffing had generally remained stable; over half (30) of respondents had made no changes, and almost one-third (17) increased staff hours.

In terms of data processing, such as the meal counting system, over half (30) of FSDs reported no changes due to the CEP; less than half (22) indicated that data processing had changed. Some examples of data processing changes included not having to track individual names, and instead simply using a less time-consuming tally sheet. Finally, the most common response about whether the CEP affected LEAs' capacity to break even was that the CEP made this easier (24) and almost one-fifth (10) said this had stayed the same.

3.4 Results and Lessons Learned from CEP Implementation

The Year 1 States—Illinois, Kentucky, and Michigan—succeeded in implementing the CEP in SY 2011–12 and SY 2012–13. The Year 2 States—the District of Columbia, New York, Ohio, and West Virginia—did so in SY 2012–13. The Year 3 States – Florida, Georgia, Maryland and Massachusetts – will begin implementation in SY 2013–14.[40]

3.4.1 Benefits and Challenges for State and Local Implementation of the CEP

States described several important benefits of CEP implementation. When asked about the biggest benefit of CEP, six States reported that school breakfast and lunch participation had increased. Four States reported that CEP eliminated the stigma for students who received free and reduced price lunches. Another benefit mentioned by four States was the ability for LEA staff to focus more on meal content and patterns than on administrative activities.

[40] The evaluation team was collecting information on LEA participation in the CEP for SY 2013–14 at the time of this report. A supplement to this report will provide this information.

States also reported having to deal with several implementation-related challenges. The largest challenge for CEP States was trying to determine how CEP will affect other funding sources and programs that use FRP data, in particular Title I. In addressing this challenge, States worked with LEAs to figure out how CEP would affect them financially. (This topic is described in further detail below).

As noted above, another important challenge for the Year 1 and 2 States was the timing of CEP implementation. For example, the Year 2 States were notified in May 2012 that they had been chosen for the CEP. Thus, they had four months to identify and notify eligible and potentially eligible LEAs, respond to LEA questions, encourage LEAs to apply, process LEA applications to participate, and modify their meal claims systems. States had to complete these steps at the same time that they were processing LEA applications to participate in the NSLP and SBP, and implementing and providing training on other program changes. Furthermore, the States were asked to provide LEA and school data for the evaluation. Six Year 1 and 2 States reported that time constraints impeded their efforts to recruit LEAs to take up the CEP during the first two years of implementation. Only one Year 3 State reported time constraints during SY 2012–13.

A related challenge for States was the need to develop the process for LEAs to apply for the CEP. Five States mentioned that a clearinghouse or manual for CEP implementation from FNS would have better facilitated implementation. Year 1 States had frequent communications with one another to adapt to this initial challenge, including sharing State-developed forms and procedures (such as worksheets for LEAs to use during the initial application process). One Year 1 State reported that it was in the process of developing its own CEP policy and procedures manual; this State emphasized the need for the Year 2 States to be aware of implementation process lessons learned by Year 1 States. FNS conducted periodic conference calls among the CEP States to share problems and lessons learned; members of the evaluation team participated in two of these calls. All of the Year 3 States indicated that initial implementation had been relatively smooth because of lessons and processes learned from Year 1 and 2 States.

At least four States, and possibly five, lacked school-level direct certification data at the State level. These States had to obtain data from LEAs as part of their applications for the CEP to identify eligible schools and, therefore, were not able to identify LEAs with eligible schools if they did not apply for the CEP. As discussed above, the lack of school-level direct certification data in these States also posed a challenge for completing the FNS-834 report.

All Year 1 and 2 States reported receiving very positive feedback from participating LEAs and schools about the CEP. States reported few implementation challenges for LEAs and/or schools. One unanticipated issue within mixed districts was parental confusion about why one child could eat for free and the other could not. Another State described the lack of local infrastructure to change the system and reporting, particularly in small LEAs.

3.4.2 Benefits and Barriers to LEA Participation in the CEP

As described earlier, there appeared to be a clear link between the anticipated benefits of the CEP and LEAs' participation decisions. Participating LEAs cited relief for families, increased participation, reduced stigma, and improved school performance most often as the expected benefits. Eligible non-participating LEAs had less positive expectations about these benefits. Over half of participating LEAs reported increased reimbursements and reduced administrative burden, but these appeared to be

less important motivators. The States perceived all of these factors as potential benefits when they chose to implement the CEP.

Concerns about the financial impacts of the CEP appeared to be the largest barriers to participation among eligible non-participating and near-eligible LEAs. The majority of eligible non-participating LEAs reported that the CEP was not financially viable for them, yet described the CEP as potentially more appealing if (a) reimbursement were higher or (b) if the CEP were available in all schools. Other barriers included concerns about equity issues when schools are treated differently (especially when prices for paid meals in non-CEP schools rose, due to the Paid Lunch Equity requirement) and related operational issues with having both CEP and conventional schools. Concern about the impact of the CEP on funding for educational programs was shared by all three groups of LEAs surveyed, with the participating LEAs being most often concerned about this issue. According to one State, this issue undercut the potential for the CEP to reduce burden, because it created new paperwork for the LEA (as discussed below). One-quarter of eligible non-participating LEAs reported that they had not been informed about the CEP by their State; this lack of effective communication may have contributed to negative perceptions about the CEP. State and LEA data indicated that the transition to the CEP was easier for schools already serving free meals to all students under Provision 2 or 3, but these schools were relatively rare in the CEP States.

3.4.3 Impacts of the CEP on Allocation of Educational Funds

Data from both interviews and surveys indicate that States and LEAs expressed deep concern about the impacts of the CEP on Federal and State funding for educational programs (e.g., Title I, E-rate, and State aid to schools) to and within LEAs. Ten of 11 States perceived this as the largest barrier to adopting and implementing the CEP, and it also appeared to be the largest concern among participating LEAs.

Federal Title I policy allows LEAs to use the claiming percentage for each school (based on the ISP for the school, group of schools, or entire LEA) in lieu of the FRP student percentage normally based on both identified students and household applications. This approach can result in funds shifting to schools newly eligible for Title I funds away from previous recipients. Ten of 11 States reported that a sizable number of LEAs had major concerns about the effect of the CEP on Title I allocations, and five of these States reported that this issue had affected LEA participation.

Nine of the 11 States indicated that they had communicated this year with other divisions within the State Department of Education about the effect of CEP on other programs (e.g. Title I, E-rate, No Child Left Behind accountability[41]) that use free and reduced price data. Although two States reported that they have resolved these data concerns, the others indicated that there were still unaddressed issues at the State level.

In response to the funding issues, some LEAs limited the CEP to schools already receiving the maximum Title I funds, or to schools that did not depend on Title I funds (such as special education

[41] The No Child Left Behind Act requires reporting on adequate yearly progress for economically disadvantaged students. These students are usually identified on the basis of FRP meals certification. The Department of Education has instructed LEAs to identify all students in CEP schools as economically disadvantaged.

programs). As indicated by the analysis presented earlier in this chapter, however, the vast majority of LEAs that participated in CEP did so in all schools.

Nine States reported that LEAs were using alternative household income forms to replace FRP meal applications. In seven of these States, the forms were optional for all CEP LEAs. One State mandated collection of household income forms for CEP LEAs, and one State effectively made the forms necessary for CEP LEAs because compensatory education funding depended on the data. Six of the nine States provided standardized forms for LEA use, and two of the other three were in the process of developing a standardized form. Two States chose not to offer the option of a household income form, because the State determined that existing Federal policy adequately addressed the issues raised by eliminating FRP meals applications, and participating LEAs were not collecting household income data for students in CEP schools.

Telephone surveys of Title I directors and other State administrators responsible for the State Title I programs (in all 50 States and the District of Columbia) provided further information about how FRP data are used for multiple purposes. As shown in Exhibit 3.20, a substantial majority (90 percent) of States reported using FRP data to identify economically disadvantaged students for reporting requirements (e.g., adequate yearly progress) for No Child Left Behind (NCLB). In addition, almost three-quarters of respondents (71 percent) reported that they used FRP data for other education planning purposes such as school-level plans, preschool education, decisions regarding grants, and staff development.

Exhibit 3.20: Percentages of States Reporting Use of FRP Data and Other Data Sources

Use FRP Data:	Percent of States
To identify economically disadvantaged students for NCLB	90.2%
For planning purposes related to education	70.6%
To allocate Title I funds to LEAs	58.8%
To allocate Title I funds to schools	33.3%
To waive fees for low income students	15.7%

Sources: Based on telephone interviews conducted in spring and summer 2013 with Title I administrators in 51 States. Multiple responses were allowed, so percentages may sum to more than 100.

The majority of State Title I directors (59 percent) indicated that they used FRP data to allocate Title I funds to LEAs. About one-quarter of respondents voluntarily reported that they used U.S. Census poverty data in addition to or in combination with FRP data to make these allocation decisions and five respondents reported using a combination of factors.[42] One-third of States that they use FRP data to allocate Title I funds to schools, but the majority of States (65 percent) explicitly reported that they did not use FRP data this way.[43] Of the States who reported they did not use FRP data to allocate

[42] According to the U.S. Department of Education, Title I funds are allocated to LEAs based on Census estimates of the number of children in poverty (U.S. Department of Education, 2011). The response that States use FRP data to allocate Title I funds to LEAs is therefore questionable. As noted in the text, about one-quarter of States also indicated that they use Census data for Title I allocation to LEAs. Further investigation into State procedures would be required to interpret this finding and is beyond the scope of this study.

[43] One respondent did not know whether his/her State used FRP data to allocate Title I funds to schools.

Title I funds to schools, more than half commented that LEAs allocate Title I funds to schools. In addition to the State Child Nutrition and Education offices, more than one-third of States (39 percent) reported that other State agencies, such as the Department of Social Services, Human Services, and Health and Family Services, also relied on the FRP data.

Almost one-half of States (49 percent) reported that LEAs in their State used the FRP data for purposes not mandated by the State, most commonly for grant applications. Other reported uses of the FRP data by LEAs (as reported by States) included student fee waivers (e.g., books, sports) and other programs (e.g., tutoring).

Approximately two-thirds of the Title I directors indicated that they would consider alternative data sources to replace FRP data. Most States (71 percent) were not aware of the American Community Survey (ACS), which collects household income information and might be used to estimate poverty rates for school districts or groups of schools, although important issues with this approach have been identified (National Research Council, 2012). The remainder of States were divided nearly equally between those who would and would not consider using the ACS (16 percent and 14 percent).

Outside of the ACS, the three most appealing data sources reported by States were TANF and/or direct certification data (29 percent), U.S. Census poverty data (20 percent) and household survey data (10 percent). The largest drawback to the ACS and U.S. Census poverty data reported by States was that it did not provide individual student level data.

3.4.4 Summary of Implementation Results

In summary, three States and their LEAs succeeded in implementing the CEP in SY 2011–12, four more States and their LEAs did so in SY 2012–13, and four additional States were well-positioned to implement during SY 2013–14 despite numerous challenges. Some States and LEAs had already noticed increased meal participation, and according to States, LEAs were excited about the CEP. Key challenges for CEP States and LEAs were (1) the limited time during the initial period of implementation to understand the CEP, make decisions about participation, and implement it, and (2) understanding and trying to address the implications of the CEP for educational programs that use individual student FRP meals certification data. At the LEA level, the biggest barriers were financial concerns: uncertainty about the impacts of the CEP on NSLP and SBP participation, and the impacts on LEA finances. Equity issues and operational challenges (especially for LEAs with mixes of eligible and non-eligible schools) were also important concerns. Addressing the timing and information issues is a relatively straightforward problem, but unless States find ongoing alternatives for meeting the data needs of other Federal and State programs, this will likely be an ongoing challenge.

4. Take-Up of the Community Eligibility Provision

This chapter describes the characteristics of LEAs and schools that took up the Community Eligibility Provision (CEP) in SY 2012–13. It also describes how these characteristics differ for other high-poverty LEAs and schools that did not take up the CEP. This description helps to fulfill the Congressional mandate for the Implementation Study (Research Objectives 1 and 3, as discussed in Chapter 2) and to provide descriptive information as context for the results of the Impact Study. The first section presents counts of near-eligible, eligible non-participating, and participating LEAs, overall and by State. (See Chapter 2 for definitions of these three groups as used in this report.) It also presents data on LEA approaches to claiming percentages. The second section provides descriptive statistics to address the question of how these three groups differ, both across and within the seven States. This section also describes near-eligible, eligible non-participating, and participating schools. The final section presents the results of a multivariate statistical analysis intended to isolate the distinct contribution of factors associated with LEA take-up of the CEP. Analyses presented in this chapter used administrative data on LEAs and schools; the text identifies the relevant populations for the descriptive and multivariate analyses.

4.1 Numbers of Near-Eligible, Eligible Non-Participating, and Participating LEAs

The analysis in this section and the next distinguishes between two categories of LEAs within the universe of those that participate in the NSLP (with or without the SBP). The first category is labeled as "regular and charter LEAs" and consists of typical public school districts, referred to as "regular" LEAs by the Department of Education's Common Core of Data (CCD), and charter school organizations treated as distinct LEAs, as was the case in Michigan, Ohio, New York, and the District of Columbia. Illinois incorporates charter schools within regular LEAs, and Kentucky and West Virginia have no charter schools. The second category, called "other LEAs," includes non-public schools or groups of non-public schools (such as Catholic dioceses), and non-typical public LEAs, including regional education service agencies, State-operated agencies, and other types. This distinction is relevant for two reasons. First, the regular and charter LEAs, but not the other LEAs, are included in the analysis of the impacts of the CEP for reasons discussed in Chapter 2. Second, data are missing for substantial numbers of the other LEA category, as described in Appendix 4A.

4.1.1 Regular LEAs: Numbers of Near-Eligible, Eligible Non-Participating, and Participating

Exhibit 4.1 shows the counts of near-eligible, eligible non-participating, and participating LEAs by State for the regular and charter LEAs, based on data for SY 2012–13. In the seven States where the CEP was implemented, there were 1,373 regular and charter LEAs that were at least near-eligible, representing 39 percent of the total of 3,533 public LEAs in the SY 2011–12 VSR data for these seven States.

Among the three groups of regular and charter LEAs represented in Exhibit 4.1, more than half (743) were eligible but non-participating, about a fourth (349) were participating, and the remainder (281) were near-eligible. Eligible non-participating LEAs constituted the largest of the three groups in Illinois, Kentucky, Michigan, and Ohio. Participating LEAs made up the largest group in the District of Columbia and West Virginia, while near-eligible LEAs represented the largest group (more than

one-half of the total) in New York.[44] Near-eligible LEAs comprised about a third of the total for the three groups in Illinois and Ohio but only a small fraction in the other four States.

The participation rates among eligible regular and charter LEAs, as shown in Exhibit 4.1, provide a measure of the take-up of the CEP. By this measure, about one-third of eligible LEAs in the seven States took up the CEP for SY 2012–13. Participation rates varied across States, from 24 percent in Michigan to over 60 percent (61 and 65 percent, respectively) in the District of Columbia and West Virginia. The lowest participation rates were in the three largest States (in order, Michigan, Ohio, and Illinois, as measured by the LEA totals in Exhibit 4.1). Possible explanations for differences in participation rates are discussed later in this chapter.

Exhibit 4.1: Regular and Charter LEAs, by CEP Status and State (SY 2012–13)

		Eligible		Participation Rate (% of Eligible)[a]	Total[b]
	Near-Eligible	Non-Participating	Participating		
District of Columbia	5	12	19	61%	36
Illinois	93	104	48	32%	245
Kentucky	12	92	51	36%	155
Michigan	20	358	111	24%	489
New York	48	12	17	59%	77
Ohio	102	146	68	32%	316
West Virginia	1	19	35	65%	55
Total	281	743	349	32%	1,373

[a] Eligible LEAs include eligible non-participating and participating.

[b] Totals includes only LEAs that were near-eligible, eligible non-participating, or participating in the CEP.

Sources: FNS Verification Summary Report (FNS-742) Database, State lists of participating LEAs. Classification of regular and charter LEAs based on Common Core of Data.

4.1.2 Other LEAs: Numbers of Near-Eligible, Eligible Non-Participating, and Participating

Exhibit 4.2 shows the counts of near-eligible, eligible non-participating, and participating LEAs by State for the "other LEAs." This category includes non-public LEAs, regional education service agencies, and other non-typical public education agencies. A total of 318 other LEAs were near-eligible, eligible non-participating, or participating in the CEP. Non-public LEAs comprised about two-thirds of the total number of other LEAs (209 of 318).[45] New York contributed the largest number of participating LEAs (51) in this category, followed by Illinois (7). Review of the detailed

[44] Only 6 percent of all LEAs in New York have ISPs above 40 percent, according to the VSR data for SY 2011–12, much lower than other States. As a result, a large State like New York has so few LEAs falling into these three groups in Exhibit 4.1. However, direct certification in New York was reported to be highly effective, with estimates for SY 2011–12 indicating that 100 percent of school-age SNAP children were directly certified (Moore et al., 2012). The discrepancy between these statistics might be explained by high concentrations of SNAP children in a small number of large LEAs, large numbers of heterogeneous LEAs (so that identified students are dispersed across LEAs), or a combination of these characteristics. Also, the number of eligible LEAs in New York may be underestimated because school-level ISP data for non-participating LEAs were not available.

[45] For comparison, the SY 2011–12 VSR data for these seven States included 1,131 non-public LEAs. This count does not include public LEAs that are not regular or charter LEAs. Thus near-eligible LEAs represented approximately 18 percent of non-public LEAs in the seven States (209 out of 1,131).

LEAs lists (not included in this report) indicates that the two other LEAs with the most schools were the Archdiocese of Chicago (198 schools) and the Catholic Diocese of Cleveland (66 schools). Both were eligible but non-participating in the CEP.

On average, over two-fifths (44 percent) of eligible other LEAs participated in the CEP, a higher rate than did regular and charter LEAs. Across the States, participation rates for eligible other LEAs varied widely, from 15 percent or less in Illinois and Ohio to 80 percent or more in the District of Columbia and New York.

The State-level data provide perspective on the distinct types of LEAs that make up the population of other LEAs described in Exhibit 4.2. Illinois, Michigan, and Ohio had roughly an even balance of public and non-public LEAs within the broad category of other LEAs. In New York, nearly all other LEAs (96 of 99) were non-public, many of which were religious schools. Kentucky, West Virginia, and the District of Columbia had relatively few LEAs in this group, and they were all non-public.

Exhibit 4.2: Other LEAs, by CEP Status and State (SY 2012–13)

		Eligible		Participation Rate (% of Eligible)	
	Near-Eligible	Non-Participating	Participating		Total[a]
District of Columbia	0	1	4	80%	5
Illinois	36	47	7	13%	90
Kentucky	2	3	1	25%	6
Michigan	42	14	4	22%	60
New York	45	3	51	94%	99
Ohio	30	22	4	15%	56
West Virginia	2	0	0	n.a.	2
Total	157	90	71	44%	318

Other LEAs include non-public, regional education service agencies, and other public education agencies as identified by the Common Core of Data.

[a] Totals include only LEAs that were near-eligible, eligible non-participating, or participating in the CEP.

Sources: FNS Verification Summary Report (FNS-742) Database, State lists of participating LEAs.

4.1.3 Eligible School Participation in CEP LEAs

Exhibit 4.3 presents the proportion of eligible schools in participating LEAs that actually offered the CEP. This table distinguishes between those LEAs that were eligible to participate LEA-wide—those for which the ISP for the LEA was at least 40 percent—and those LEAs within which only some schools were eligible to participate. Either type of LEA could choose to participate at a subset of eligible schools, provided that the school or group of schools had an average ISP of at least 40 percent. As discussed in Chapter 3, some participating LEAs chose to implement the CEP in some but not all eligible schools for a variety of reasons.

Among participating LEAs that were eligible to participate LEA-wide, a very high proportion of schools offered the CEP: among these LEAs, 97 percent of schools offered the CEP, on average, and 92 percent of LEAs offered the CEP at all schools. The average proportion of schools that offered the CEP ranged from 92 percent in Kentucky to 100 percent in the District of Columbia and West Virginia for participating LEAs that were eligible LEA-wide.

Participating LEAs that were not eligible LEA-wide offered the CEP in a smaller proportion of eligible schools than the LEAs that were eligible LEA-wide. Among participating LEAs that were not

eligible LEA-wide, on average 79 percent of eligible schools offered the CEP, and 53 percent offered the CEP at all eligible schools. The proportion of eligible schools participating ranged from 77 percent in West Virginia to 100 percent in the District of Columbia.

Exhibit 4.3: Percent of Eligible Schools Participating in CEP in Participating LEAs, by LEA-Wide Eligibility and State (SY 2012–13)

	Participating LEAs		
	Eligible LEA-Wide	Not Eligible LEA-Wide	All LEAs
Number of LEAs[a,b]	317	96	413
Percent of LEAs participating at all eligible schools	92	53	83
Average percent eligible schools participating	97	79	93
District of Columbia	100	100	100
Illinois	99	89	97
Kentucky	92	79	87
Michigan	95	76	89
New York[a]	99	70	98
Ohio[b]	97		97
West Virginia	100	77	85

[a] New York data are missing number of eligible schools for 2 small LEAs that are not eligible LEA-wide.

[b] Ohio data are missing number of eligible schools for all of the LEAs that are not eligible LEA-wide (affects 5 LEAs).

Sources: FNS Verification Summary Report (FNS-742), State lists of participating LEAs.

4.1.4 LEA Approaches to Claiming Percentages

Schools can establish claiming percentages for the CEP individually, as part of a group, or on an LEA-wide basis, depending on the ISPs of the LEAs' schools. How schools qualify for the CEP has implications for how the LEAs operate the CEP. If the LEAs establish CEP claiming percentages on an LEA-wide basis, then LEAs can operate all schools under the same rules, including those regarding FRP meals applications and claims for reimbursement. On the other hand, establishing claiming percentages on the basis of individual schools or groups of schools means that the LEAs must have different procedures for CEP schools and non-CEP schools as well as among CEP schools.

Exhibit 4.4, below, presents the distribution of regular LEAs by their mode of establishing claiming percentages for the CEP, with counts in Panel A and percentages of LEAs in each State in Panel B.[46] For example, the majority of participating LEAs established their claiming percentage on an LEA-wide basis, as shown in Exhibit 4.4, with the proportion of LEAs doing so ranging from 34 percent in West Virginia to 79 percent in Ohio. Roughly a third of participating LEAs in Michigan and West Virginia established claiming percentages for the CEP based on groups of schools; in other States, the percentage of participating LEAs that established a claiming percentage on this basis was about 20

[46] The categories of claiming percentage map closely onto whether an LEA is participating in the CEP with some or all of its schools. LEAs that establish a claiming percentage on an LEA-wide basis are all participating in the CEP fully, with all schools participating. The majority of LEAs that establish their claiming percentage on a group basis do not have the census of schools participating in the CEP, with three exceptions. All LEAs that establish their claiming percentage on an individual school or mixed basis are not participating in the CEP with all schools. Slightly less than half (45 percent) of LEAs that establish their claiming percentage on an individual school basis have more than one participating school.

percent or less. In Kentucky and West Virginia, about 20 percent of participating LEAs established claiming percentage on an individual school basis; in other States, this percentage was 13 percent or less. A few (4) participating LEAs established claiming percentages through a combination of methods, generally grouped and individual schools.

Exhibit 4.4: Distribution of Participating LEAs by Mode of Establishing Claiming Percentage

Mode of Establishing Claiming Percentage	DC	IL	KY	MI	NY	OH	WV	Total
Panel A: Number of participating LEAs								
Entire LEA		29	28	57	10	54	12	190
Group		10	9	34	3	6	12	74
Individual		6	10	10	1	2	8	37
Combination			1				3	4
Missing	19	3	3	6	3	6		40
Total	19	48	51	107	17	68	35	345
Panel B: Percent of participating LEAs								
Entire LEA		60.4	54.9	53.3	58.8	79.4	34.3	55.1
Group		20.8	17.6	31.8	17.6	8.8	34.3	21.4
Individual		12.5	19.6	9.3	5.9	2.9	22.9	10.7
Combination		0.0	2.0	0.0	0.0	0.0	8.6	1.2
Missing	100.0	6.3	5.9	5.6	17.6	8.8	0.0	11.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: State lists of participating LEAs and schools.

4.2 Characteristics of Near-Eligible, Eligible Non-Participating, and Participating LEAs and Schools

This section presents selected characteristics of near-eligible, eligible non-participating, and participating LEAs and schools, focusing on the regular and charter LEAs for all seven States. (Characteristics of LEAs other than regular and charter LEAs are not presented because of the data limitations, as discussed in Section 4.1.) The section begins with overall patterns at the LEA level, then considers variations in the LEA-level patterns among States, and finally presents the patterns at the school level.

4.2.1 Overall Patterns of the Characteristics of Near-Eligible, Eligible Non-Participating, and Participating LEAs

Among regular and charter LEAs in the seven CEP States, there were large differences between participating and eligible, non-participating LEAs on several characteristics, as shown in Exhibit 4.5. Compared with eligible non-participating LEAs, participating LEAs, on average, had more students (7,210 versus 2,712), more schools (15 versus 6), and higher ISPs (50 versus 38 percent).[47] The higher ISPs of participating LEAs suggest that decisions to participate in the CEP reflect incentives in the reimbursement formula. As the ISP approaches 62.5 percent, the proportion of meals reimbursed at the free rate approaches 100 percent, and thus it becomes more financially advantageous to implement the CEP.

[47] As described in section 2.1, an LEA can be considered eligible if it has at least one school with an ISP of 40 percent or more. Thus, eligible LEAs can have ISPs less than 40 percent.

Participating LEAs, on average, were more often urban (35 versus 23 percent), had more Black students (36 versus 24 percent), and were more likely to include charter schools (32 versus 25 percent). On the other hand, there was no notable difference between the two types of LEAs in their fractions of Title I schools or the distribution of students among grade levels.[48] Participating LEAs had only modestly higher percentages of students eligible for FRP meals (70 versus 66 percent, on average).

Although participating LEAs had substantially more students than eligible non-participating LEAs, on average, this difference was essentially driven by a few participating LEAs with large enrollments. (Six of the ten largest LEAs in the seven States—including New York City, Chicago, Detroit, and Cleveland—are participating.) The difference between participating and eligible non-participating LEAs in the percentage with enrollments of 5,000 or more was less dramatic (15 versus 12 percent), and there was almost no difference in the percentage with enrollments of 2,500 or more (31 versus 29 percent).

Differences between eligible non-participating and near-eligible LEAs were similar but less dramatic than those between participating and eligible non-participating LEAs. Most notably, eligible non-participating LEAs had more students (2,712 versus 1,438) and schools (6 versus 3). Relative to near-eligible LEAs, eligible non-participating LEAs also had slightly higher ISPs, FRP percentages, and percentages of Black students, and they were slightly more likely to include charter schools and to be located in a city. Differences in ISPs between near-eligible and eligible LEAs are, of course, the direct result of the definition of eligibility for the CEP. Unlike the average enrollment disparity between participating and eligible non-participating LEAs, the enrollment difference between eligible non-participating and near-eligible LEAs was not simply an artifact of a few very large LEAs skewing the result. Compared to near-eligible LEAs, eligible non-participating LEAs had much higher percentages of LEAs with enrollments of 5,000 or more (12 versus 5 percent) and 2,500 or more (29 versus 17 percent).

[48] Exhibit 4.9 shows the distribution of schools by grade span.

Exhibit 4.5: Regular and Charter LEA Characteristics—All States

	Near-Eligible		Eligible, Non-Participating[a]		Participating[b]		Combined[b]	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
Number of LEAs with VSR data[c]	276		737		345		1,358	
Number of LEAs with CCD data	281		743		349		1,373	
Enrollment	1,438	(1,651)	2,712	(5,684)	7,210	(59,308)	3,593	(30,208)
Enrollment 1–499 (%)	37		27		33		31	
Enrollment 500–2499 (%)	47		45		36		43	
Enrollment 2500–4999 (%)	12		17		16		15	
Enrollment 5000+ (%)	5		12		15		11	
Percentage distribution of students in grades K-12								
Percent in grades K-5	51	(21)	49	(18)	52	(21)	50	(19)
Percent in grades 6–8	25	(13)	24	(10)	23	(12)	24	(11)
Percent in grades 9–12	24	(24)	27	(20)	25	(21)	26	(21)
Number of schools[d]	3	(3)	6	(9)	15	(104)	7	(53)
1 school (%)	40		30		36		33	
2–5 schools (%)	46		39		28		38	
6–14 schools (%)	13		24		24		22	
15+ schools (%)	1		6		12		7	
Identified Student Percentage (ISP)[b]	35	(10)	38	(15)	50	(19)	40	(16)
Students free/reduced lunch (%)[e]	65	(15)	66	(19)	70	(19)	67	(18)
Any charter schools (%)	21		25		32		26	
Percent Title I schools	92	(19)	86	(20)	85	(20)	87	(20)
Urban LEA (%)	21		23		35		26	
Percent students Black	21	(31)	24	(34)	36	(38)	27	(35)
Percent students Hispanic/Latino	8	(14)	7	(12)	7	(11)	7	(12)

[a] Eligible non-participating LEAs include those with some but not all schools with official ISP of 40% or more.

[b] Combined means and percentages include only LEAs and schools that were near-eligible, eligible non-participating, or participating in CEP.

[c] VSR data for a few LEAs were not used because they were substantially inconsistent with State or CCD data.

[d] The large SD for the number of schools and enrollment is due to the inclusion of several very large LEAs, including New York City.

[e] To provide context for the free/reduced lunch percentages, data from the 2009–10 CCD indicates that the average public school district had 46 percent of students eligible for free/reduced lunch meals.

Sources: FNS Verification Summary (FNS-742) data, State lists of participating LEAs, Common Core of Data.

Exhibit 4.6 shows the distribution of projected ISPs (based on October 2011 VSR data) for LEAs by their CEP eligibility and participation in the 2012–13 school year. As expected, most near-eligible LEAs had ISPs below 40 percent. Some near-eligible LEAs had ISPs above 40 percent because of the way that eligible LEAs were defined.[49] Most eligible non-participating LEAs had ISPs between 20 and 50 percent. Less than 20 percent of eligible non-participating LEAs had ISPs above 50 percent.

[49] As discussed in Chapter 2, eligible non-participating LEAs in New York and Ohio were identified on the basis of the lists compiled by the respective State. LEAs with ISPs above 40 percent that were not on these lists were not notified of eligibility and thus were not considered to have made a choice regarding participation in the CEP. In other States, eligible non-participating LEAs were identified based on State-provided school-level ISP data. In some cases, incomplete school ISP data resulted in LEAs with a ISP above 40 percent being identified as near-eligible rather than eligible.

Participating LEAs generally had ISPs above 40 percent. Not all participating LEAs had ISPs above 40 percent, because participation requires only one eligible school in the LEA. These data suggest that having a district ISP above 50 percent was strongly associated with an LEA's likelihood of participation in the CEP.

Exhibit 4.6: Distribution of Projected ISPs for LEAs by CEP Eligibility and Participation—All States

	Percentage of LEAs			
ISP	Near-Eligible	Eligible, Non-Participating	Participating	Combined[a]
<20	5.4	7.9	4.4	6.5
20-39	7.6	20.5	5.2	14.0
30-39	71.7	31.1	21.2	36.9
40-49	9.4	23.9	22.1	20.5
50-59	3.3	9.1	18.9	10.4
60-69	1.5	4.5	15.1	6.6
>70	1.1	3.1	13.1	5.2
Total	100.0	100.0	100.0	100.0

[a] Combined means and percentages include only LEAs and schools that were near-eligible, eligible non-participating, or participating in CEP.

Sources: FNS Verification Summary (FNS-742) data, State lists of participating LEAs. Projected ISP based on October 2011 VSR data.

Eligible LEAs and schools were more likely to participate in the CEP if they had high percentages of students certified for FRP meals. As shown in Exhibit 4.7, close to half of eligible LEAs with over 70 percent FRP students participated in the CEP, while less than a quarter of those with 60 percent FRP students or less did so. The differences in participation rates by FRP student percentage were larger at the school level: among all schools in eligible LEAs, less than one in six schools participated where the school FRP percentage was 60 percent or less, while over half of schools with more than 80 percent FRP students participated.

Exhibit 4.7: CEP Participation Rate for Eligible Regular LEAs and Schools, by Percentage of Students Certified for Free or Reduced-Price (FRP) Meals

Pct. FRP Students	LEAs	Schools
<51	14.0	5.8
51-60	22.5	15.4
61-70	27.5	27.4
71-80	47.0	37.6
>80	44.0	51.4
Total	31.9	28.6

[a] For this table schools are considered eligible if they belong to an eligible LEA.

Sources: FNS Verification Summary (FNS-742) data for LEA percent FRP (October 2010 for Year 1 States, October 2011 for Year 2 States), Common Core of Data (SY 2010-11) for school percent FRP, State lists of participating LEAs and schools. Excludes LEAs other than regular school districts and charter schools.

The relationship of the FRP student percentage to the ISP is an important consideration in assessing the appropriateness of the multiplier that is used to determine the percentage of meals claimed at the free rate in CEP schools (the claiming percentage). The HHFKA set the multiplier at 1.6 but gave USDA the authority to set it between 1.3 and 1.6. This multiplier is also used to estimate the FRP student percentage for programs that use this statistic when identifying high-poverty schools and

allocating funds among schools (e.g., Title I). In this context, the programs assume that if, for example, a school has an ISP of 40 percent, the FRP student percentage would be 64 percent if the school took applications for FRP meals.

There are two reasons to consider using a lower multiplier. First, at the current multiplier, participating LEAs might get more Federal revenue than they would under conventional claiming procedures. It may be desirable to allow CEP LEAs to get some additional Federal funds to offset the lack of revenue from student payments. This incentive would encourage LEAs to take up the CEP and may result in higher student participation in NSLP and SBP. However, too much shift of funding from local to Federal sources might be a concern. Second, if the current multiplier did not accurately represent the relationship of the FRP student percentage to the ISP, the use of the claiming percentage as the proxy for the expected FRP student percentage would distort statistics and funding allocation for programs that use this measure.

In the typical participating LEA, the FRP student percentage was 1.6 times the ISP (as indicated by the median shown in Exhibit 4.8), while for all eligible LEAs this ratio was 1.8. (See the notes to the exhibit for the reference period.) Thus, the multiplier appears to be an accurate reflection of the relationship of the FRP student percentage to the ISP in the typical participating LEA, but it appears to understate the total number of FRP students (relative to the subset of identified students) in the typical non-participating LEA. This finding is consistent with a sorting process where LEAs choose to implement the CEP only if meal reimbursements under the CEP will be comparable to or greater than reimbursements under conventional procedures. However, each LEA would make this decision based on its own ISP, FRP student percentage, participation rates among FRP versus paid students, and available resources to cover lost revenue.

The ratio of the FRP student percentage to the ISP (the FRP/ISP ratio) varied substantially among both eligible non-participating and participating LEAs, as shown in Exhibit 4.9. At the extremes, nearly 3 percent of eligible non-participating LEAs and over 10 percent of participating LEAs had ratios less than 1.3, while over 13 percent of eligible non-participating LEAs and 9 percent of participating LEAs had ratios greater than 2.5. The mean ratio was 2.9 for eligible non-participating LEAs and 2.0 for participating LEAs. The substantial differences between the means and the medians indicate that the distribution of the FRP/ISP ratio is skewed, with wider range of values among the top 50 percent of LEAs than among the bottom 50 percent. Consistent with the difference in the median ratios, participating LEAs were more likely to have ratios less than 1.6 and less likely to have ratios above 1.6 than eligible non-participating LEAs.

The statistics in Exhibit 4.8 and 4.9 should be viewed with caution for four reasons. First, they are based on Verification Summary Report (FNS-742) data, which may not provide the best measure of the ISP and its relationship to the FRP student percentage.[50] Second, these statistics represent the seven States selected by FNS as early implementers of the CEP and likely are not representative of all LEAs nationwide. Third, the analysis of FRP/ISP ratios does not fully inform considerations about the suitability of the multiplier for determining the claiming percentage under the CEP. To do this

[50] As discussed in Chapter 3, the FNS-742 data provide the ISP as of October. LEAs can increase their ISPs from the level indicated in the FNS-742 data by conducting additional direct certification later in the school year, and in some cases this process identifies students previously approved by application. Reporting error in the FNS-742 data may also contribute to extremely high or low values of the FRP/ISP ratio.

assessment requires taking into account the differential participation rates of students approved for free, reduced-price, and paid meals. Chapter 5 addresses this issue by providing estimates of the impact of the CEP on the Federal reimbursement per meal for NSLP and SBP. Fourth, the choice of the multiplier is ultimately a policy decision, balancing the goal of expanding NSLP and SBP participation with potential concerns about equitable levels of reimbursement for CEP and non-CEP LEAs. Such a decision would need to take into account the distribution of the potential impacts of changing the multiplier across all eligible LEAs nationwide, not just the impact on the typical (median) LEA.

Exhibit 4.8: Median and Mean Ratio of FRP Student Percentage to ISP for Eligible Non-Participating, Participating, and All Eligible Regular and Charter LEAs

%FRP/ ISP	Percent distribution		
	Eligible, Non-Participating	Participating	All Eligible LEAs
Median	1.9	1.6	1.8
Mean	2.9	2.0	2.6

Sources: FNS Verification Summary (FNS-742) data (October 2010 for Year 1 States, October 2011 for Year 2 States), State lists of eligible and participating LEAs. Excludes LEAs other than regular school districts and charter schools.

Exhibit 4.9: Distribution of Eligible Non-Participating, Participating, and All Eligible Regular and Charter LEAs by Ratio of FRP Student Percentage to ISP

Sources: FNS Verification Summary (FNS-742) data (October 2010 for Year 1 States, October 2011 for Year 2 States), State lists of eligible and participating LEAs. Excludes LEAs other than regular school districts and charter schools.

4.2.2 State Variations in the Characteristics of Near-Eligible, Eligible Non-Participating, and Participating LEAs

Most of the differences among the three groups of LEAs (refer to Exhibit 4.5) hold at least roughly for individual States. Exhibit 4.10 displays in chart form the State-level descriptive statistics that differ the most for the three LEA groups. (Appendix 4A: State Tables of LEA and School Characteristics presents the supporting data for each State individually.)[51] Among the available characteristics, the most consistent differences among the three groups of LEAs were in ISPs. In all seven States, participating LEAs had higher ISPs than eligible non-participating LEAs. These gaps were substantively large (about 8 percentage points or more) in all States except Ohio and West Virginia. Eligible non-participating LEAs, in turn, had higher ISPs than near-eligible LEAs in six of the seven States, as expected given the program rules.[52] The gaps in ISPs between eligible non-participating and near-eligible LEAs were largest in Illinois, Ohio, and West Virginia. In all States except Illinois, participating LEAs had higher percentages of students certified for FRP meals than eligible non-participating LEAs.

[51] Appendix 4A also provides tabulations of the characteristics of "other" LEAs (those that are not regular or charter public LEAs) in all seven States (combined) and the distribution of LEA ISPs for each State. See Exhibit 4A.10 for the median FRP/ISP ratio by State.

[52] The exception is New York; see footnote to discussion to Exhibit 4.5.

Exhibit 4.10: Characteristics of Near-Eligible, Eligible Non-Participating, and Participating LEAs by State

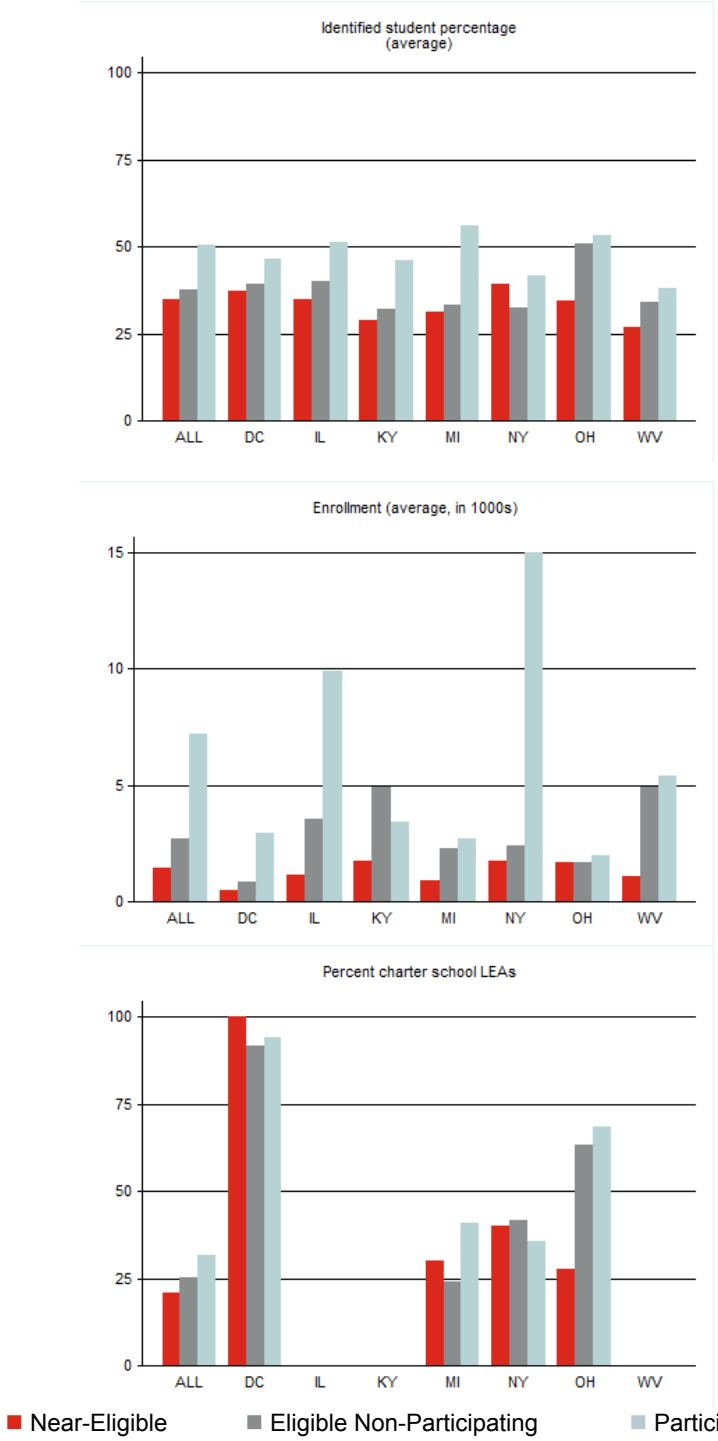
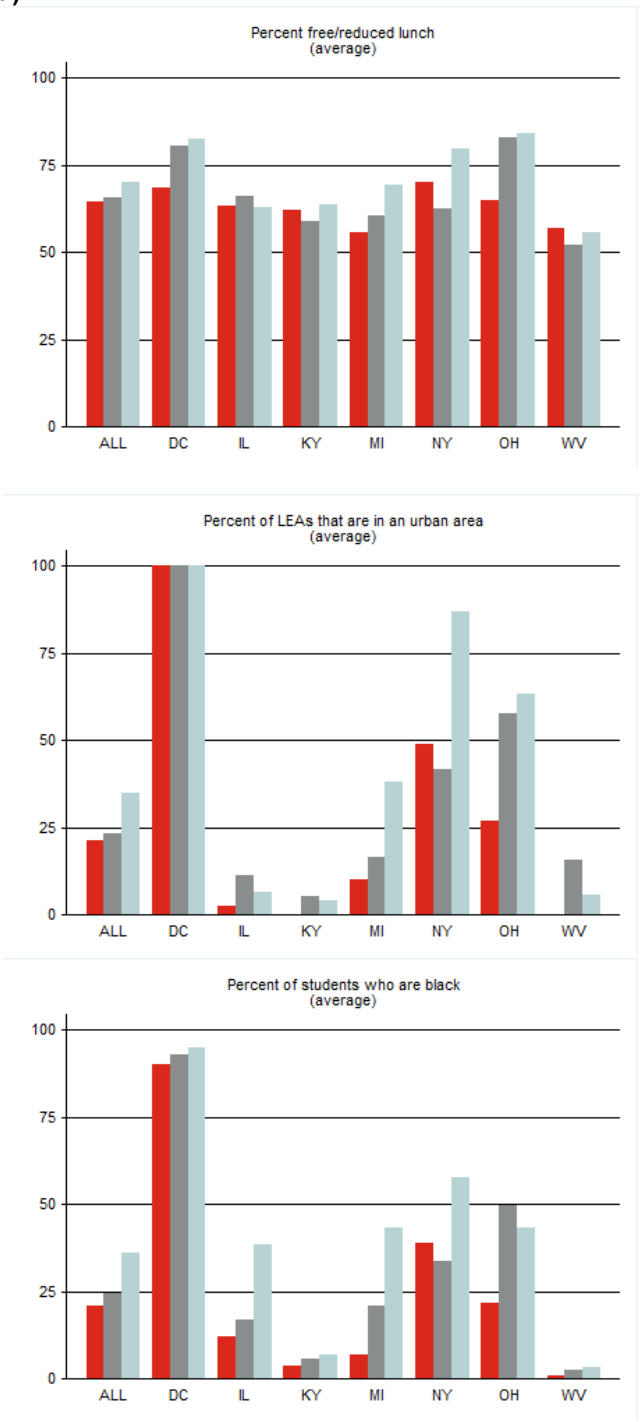


Exhibit 4.10 (continued)



Notes:

1. The average enrollment shown for participating LEAs in New York was truncated. The actual average enrollment for the group of LEAs was 68,529.

2. Kentucky and West Virginia had no charter schools. Illinois had charter schools, but they were included in regular LEAs.

Source: FNS Verification Summary (FNS-742) data, State lists of participating LEAs, Common Core of Data.

Considering other characteristics with notable differences across groups, participating LEAs had more students enrolled, on average, than eligible non-participating LEAs in all of the States except Kentucky. There was a particularly sharp contrast in size between participating and eligible non-participating LEAs in the District of Columbia, Illinois, and New York (all States where the largest public school districts participated). Participating LEAs were more often urban than eligible non-participating LEAs overall, but this pattern held in only three States (Ohio, New York, and Michigan). (The District of Columbia is all urban, so this statistic showed no variation across groups.) Compared with the other groups of LEAs, participating LEAs had higher proportions—generally much higher—of Black students in all States except Ohio.

Overall, participating LEAs more often had charter schools than eligible non-participating LEAs, which, in turn, more often had charter schools than near-eligible LEAs.[53] Michigan and Ohio contributed most of the LEAs with charter schools across the seven States. Illinois and Ohio conform to the overall pattern of LEAs with charter schools being associated with CEP eligibility and participation, while other States' patterns were mixed. The District of Columbia consists almost entirely of LEAs with charters (with the exception of the one regular public school district), so it had little variation among CEP eligibility and participation groups. In Michigan, participating LEAs had charter schools more often than eligible non-participating LEAs, but eligible non-participating LEAs had charter schools less often than near-eligible LEAs. Of all seven States, New York had the fewest LEAs with charter schools among LEAs participating in the CEP.

It should be noted that there were large differences in the structural characteristics of LEAs among States. (The discussion that follows is based on the combined characteristics of participating, eligible non-participating, and near-eligible LEAs, as shown in the State-level tables in Appendix 4A, and on additional information gleaned from State LEA lists). In Kentucky and West Virginia, LEAs aligned with counties, and there were no charter LEAs. Other States had large numbers of very small LEAs consisting of a single school or less than 500 enrolled students, but Kentucky and West Virginia had almost none.[54] Michigan, Ohio, New York, and the District of Columbia all had considerable numbers of charter LEAs, which comprised a large proportion of their LEAs with very small enrollments. New York had large fractions of both small (less than 2,500 students) and large (more than 5,000 students) LEAs, with few in between. Illinois had many small LEAs—77 percent with fewer than 2,500 students and 23 percent consisting of a single school—but it had no all-charter LEAs, although some of its LEAs included charter schools. The District of Columbia was unique among the seven CEP States insofar as it comprised one large regular LEA with 122 schools and 34 charter school LEAs, most consisting of a single school.

Among all CEP LEAs participating in SY 2012-13, 291 were participating for the first time, and 129 also participated in the prior year, as shown in Exhibit 4.11. The Year 1 States (Illinois, Kentucky, and Michigan) added a total of 92 in SY 2012-13. Only three LEAs (all in Michigan) dropped out of the CEP after SY 2011-12.

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[53] As defined for this report, LEAs with charter schools included regular public school districts that include charter schools, independent charter schools, and groups of charter schools operated together as an LEA.

[54] LEAs in Kentucky and West Virginia are county-based, and therefore large.

Exhibit 4.11: Numbers of LEAs Participating in SY 2011-12, SY 2012-13, and Both Years

	2011-12 only	2011-12 and 2012-13	2012-13 only
District of Columbia	0	0	23
Illinois	0	35	20
Kentucky	0	18	34
Michigan	3	76	38
New York	0	0	68
Ohio	0	0	73
West Virginia	0	0	35
Total	3	129	291

Source: State lists of participating LEAs. Includes regular, charter, and other LEAs.

4.2.3 Characteristics of Near-Eligible, Eligible Non-Participating, and Participating Schools

To complement the LEA-level description in the preceding sections, this section first presents the numbers of near-eligible, eligible non-participating, and participating schools in the seven CEP States and then considers the similarities and differences of these three types of schools. (See Chapter 2 for definitions of these types of schools.)

The distribution of schools among the three types largely mirrored the distribution of LEAs. Three-fifths of all schools in the three groups (5,256) were eligible non-participating, about one-quarter (2,169) participate, and the rest (1,247) were near-eligible (Exhibit 4.12). Michigan, which had the most participating and eligible non-participating LEAs, also had the most participating and eligible non-participating schools. Counting the totals across all three groups, Ohio had more LEAs than Illinois, but fewer schools. This occurred because Ohio had a particularly large number of single-school LEAs (59 percent of LEAs across the three groups, as compared with 33 percent across the seven States). The counts for New York in Exhibit 4.12 exclude New York City.[55]

On average, across the seven CEP States, slightly less than one-third of the 7,425 eligible schools in regular and charter LEAs participated in the CEP, with rates ranging from 19 percent in Michigan to 77 percent in the District of Columbia (where the city's single regular public school district, a participating LEA, accounts for the great majority of all schools). As at the LEA level, school participation rates were lower in the States with the most schools in eligible or near-eligible LEAs.

[55] See Appendix 4A for discussion.

Exhibit 4.12: Regular and Charter Schools, by CEP Status and State (SY 2012–13)

	Near-Eligible	Eligible		Participation Rate (% of Eligible)[a]	Total[b]
		Non-Participating	Participating		
District of Columbia	39	35	116	77%	190
Illinois	272	1,109	449	29%	1,830
Kentucky	116	869	268	24%	1,253
Michigan	110	2,250	512	19%	2,872
New York[c]	159	118	218	65%	495
Ohio	387	627	322	34%	1,336
West Virginia	164	248	284	53%	696
Total	1,247	5,256	2,169	29%	8,672

[a] Eligible LEAs and schools include eligible non-participating and participating.

[b] Totals include only LEAs and schools that were near-eligible, eligible non-participating, or participating in the CEP.

[c] New York City, which was partially participating with 301 CEP sites, is excluded from this analysis due to data problems. See Appendix 4A for details.

Sources: FNS Verification Summary Report (FNS-742) Database, State lists of participating LEAs. Classification of regular and charter LEAs based on Common Core of Data.

The patterns found for LEAs were generally replicated at the school level, although school-level differences between participating and eligible non-participating schools were sharper, most likely because only subsets of schools in some participating LEAs implemented the CEP, and these participating subsets of schools may have certain distinguishing characteristics.

Compared to near-eligible and eligible non-participating schools, participating schools had much higher ISPs, FRP percentages, and percentages of Black students, as shown in Exhibit 4.13. Participating schools were also far more likely to have "other" or non-standard grade spans (that is, not K–5, 6–8, or 9–12). Most of these "other" grade spans were either combined elementary-middle or middle-high schools. Participating schools were more likely to be Title I schools or charter schools than eligible non-participating or near-eligible schools, although the difference in the charter school percentage was quite small.

Exhibit 4.13: School Characteristics in Regular and Charter LEAs—All States

	Near-Eligible		Eligible, Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
Enrollment	473	(336)	491	(372)	415	(243)	469	(340)
ISP[b]	29	(9)	40	(16)	60	(16)	45	(19)
Students free/reduced lunch (%)	55	(21)	59	(23)	79	(18)	64	(24)
Grade span								
K-5 (%)	49		49		46		48	
6–8 (%)	21		16		10		16	
9–12 (%)	19		19		12		17	
Other (%)	11		15		32		19	
Title I schools (%)	80		76		91		81	
Charter schools (%)	5		5		7		6	
Percent students Black	15	(24)	21	(28)	46	(39)	26	(33)
Percent students Hispanic/Latino	7	(13)	12	(21)	9	(18)	10	(19)
Total number of schools[c]	1,222		4,793		2,060		8,075	

[a] Combined means include only LEAs that were near-eligible, eligible non-participating, or participating in CEP.

[b] ISP not available for any near-eligible or eligible non-participating schools in New York, or for any near-eligible schools in Ohio.

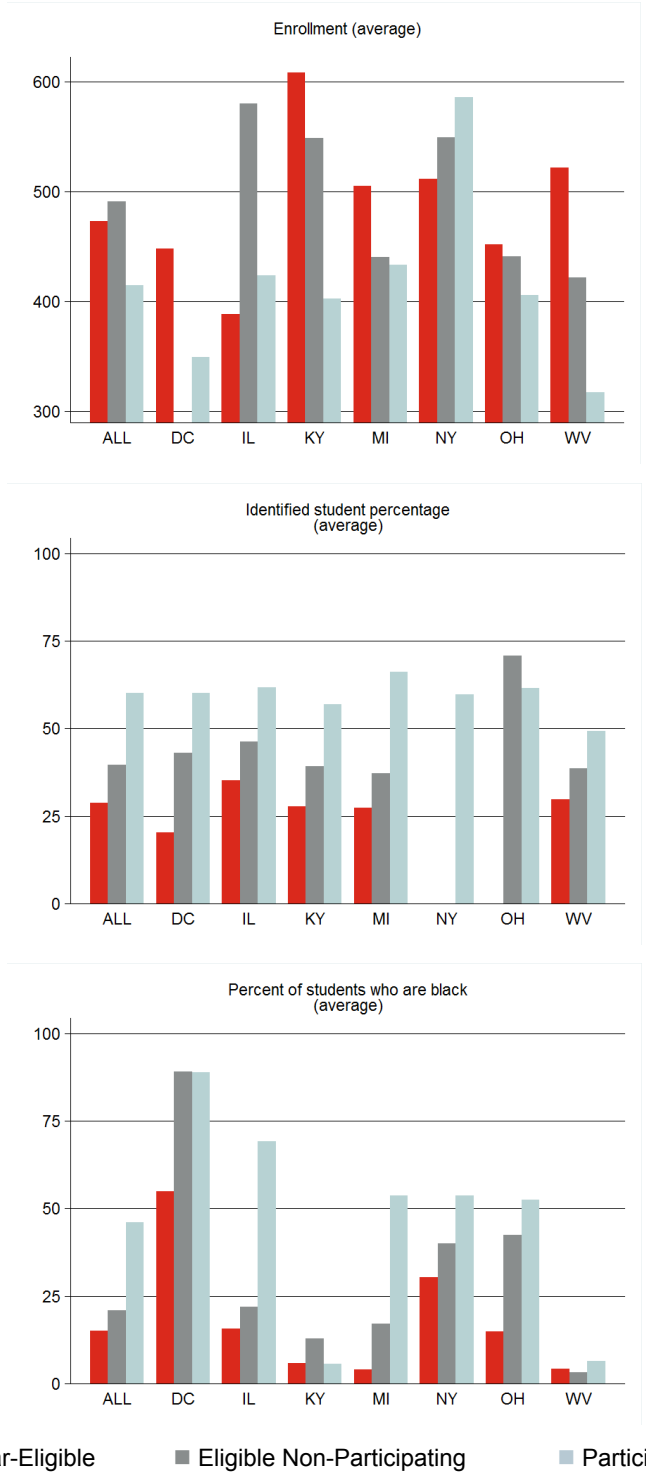
[C] Numbers of schools with enrollment data. Fewer schools had ISP and FRP percentage. Number of schools in CCD is less for near-eligible and participating, but more for eligible non-participating and combined.

Sources: State lists of schools with ISPs and FRP percentages, Common Core of Data.

The average ISP for eligible non-participating schools was 40 percent, and nearly half of the eligible, non-participating schools for which there were ISP data had ISPs less than 40 percent (based on analysis not shown in this report). This stems from the fact that all schools in eligible non-participating LEAs were classified as eligible non-participating schools, because these schools could be combined with other schools with higher ISPs in the same LEA to form groups of eligible schools. (About 8 percent of participating schools also had ISPs less than 40 percent.) Among schools with an ISP of 40 percent or higher, the average eligible non-participating school ISP was 52 percent, and the average participating school ISP was 63 percent.

Across five of the seven States, school-level ISP was the characteristic most consistently and strongly associated with CEP eligibility and participation, as shown in Exhibit 4.14. (Appendix 4A presents State-specific data on the characteristics of near-eligible, eligible non-participating, and participating schools in the seven CEP States.) This association could not be examined for New York and Ohio, where school ISP data were lacking for some or all non-participating LEAs. In all States except the District of Columbia, the percentage of Black students was higher in eligible than near-eligible schools, as was the percentage of students eligible for free or reduced price meals (not shown). In all States except except Illinois and New York, the average enrollment was lower in participating than non-participating schools.

Exhibit 4.14: Characteristics of Near-Eligible, Eligible Non-Participating, and Participating Schools by State



Source: State lists of schools with ISPs, Common Core of Data

4.2.4 Key Results of Descriptive Analysis

Across the seven States, a total of 349 regular or charter LEAs and 71 "other" LEAs (mainly non-public schools) participated in the CEP in SY 2012–13. Within regular or charter LEAs, there were 3,352 participating schools, as well as 143 schools in "other" types of LEAs (primarily non-public schools). Michigan had the most participating regular or charter LEAs and schools in number, but the lowest participation rate among all the States. New York had the fewest regular or charter LEAs but the most other LEAs. The District of Columbia had the fewest participating schools (but also had the fewest eligible schools). However, New York and District of Columbia had the highest participation rates for regular and charter LEAs and also for schools in these LEAs.

Average participation rates in the CEP for SY 2012–13 were 32 percent for eligible regular and charter LEAs, and 29 percent for eligible schools in such LEAs. However, participation rates for eligible regular and charter LEAs ranged considerably—from 24 percent in Michigan to 65 percent in West Virginia. Of note, the Year 1 States and Ohio had participation rates from 24 to 36 percent, while the other three Year 2 States had participation rates over 50 percent. This pattern of rates was not what one would expect if participation rates increased over time as States gained more CEP experience. Data on the number of near-eligible LEAs suggest that the potential to increase the number of eligible LEAs was small in most States; only Illinois and Ohio had more than 50 near-eligible LEAs.

Among participating LEAs eligible to participate LEA-wide, a very high proportion of schools offered the CEP (97 percent, on average), and 92 percent of these LEAs offered the CEP at all schools. On the other hand, among participating LEAs that were not eligible LEA-wide, 79 percent of eligible schools offered the CEP, and only 53 percent of these LEAs offered the CEP at all eligible schools.

Participating regular and charter LEAs and schools differed (on average) from eligible non-participating LEAs and schools in the following ways:

- Participating LEAs had larger enrollments and numbers of schools, on average, than eligible non-participating LEAs. However, participating regular and charter LEAs were more often very small (with enrollments under 500 students), and participating schools had slightly lower enrollments than eligible non-participating schools, on average.
- Participating LEAs and schools had higher ISPs and FRP meals eligibility percentages, on average.
- Participating LEAs were more often urban, more often either fully or partly comprised of charter schools, and had higher percentages of Black students.

These patterns were replicated in most but not all of the seven States.

The differences in ISPs and FRP percentages were as expected, given the relationship of the ISP to the rate of reimbursement for meals. These factors are generally seen as correlated with urban location and concentrations of Black students, and urban LEAs are typically larger and have more charter schools. Thus, if ISP is indeed a major determinant of participation, then differences in ISP could contribute to the other observed differences. On the other hand, discussions with State Child Nutrition staff indicate that the CEP may be more advantageous for charter schools than for regular public LEAs, because of the relationship of FRP percentages to educational funding. LEAs use FRP

percentages to allocate Federal and State funds among schools. (This consideration is discussed in Chapter 3.)

Given the observational nature of the data, it was not possible to determine which factors were the drivers of participation and which were merely correlated. The next section (Section 4.3) presents a systematic analysis of the relationships among factors associated with take-up of the CEP.

4.3 Factors Associated with Take-Up of the CEP

The previous section reviewed the differences in characteristics of participating and non-participating LEAs using descriptive tabulations. This section takes a more systematic approach by using a multivariate regression model to understand the specific factors associated with participation in the CEP. This approach helps to identify the *influence* of specific factors while controlling for others. For example, Section 4.2 reported that participating LEAs had higher ISPs and FRP percentages. However, ISPs and FRPs were highly correlated; that is, LEAs with higher ISPs tended to have higher FRP percentages and vice-versa. To separate out the specific association of FRP percentages with CEP participation, the ISP (and other variables) must be held constant while varying FRP. The multivariate regression analysis presented here does this statistically. As noted in Chapter 2, the analysis in this section is descriptive, and therefore not part of the impact analysis, the significance tests of factors related to CEP participation are distinct from significance testing of impact estimates reported in subsequent chapters.

4.3.1 Model Specification

The specific technique used was logistic regression. This technique is appropriate when the dependent variable (CEP participation, here) is binary (i.e., the LEA was either a participant or not). The data used for this analysis were the same as used in the descriptive analysis presented in the preceding two sections, with different LEA inclusion and exclusion criteria. First, LEAs were not excluded from the analysis on the basis of CEP eligibility or near-eligibility; instead, all LEAs were included. Second, because this model was used to identify matched LEAs for the impact analyses in Chapter 5, a number of LEAs were excluded, including

- All 79 LEAs in the District of Columbia because appropriate matches could not be identified for the impact analysis
- 350 LEAs in Illinois that participated in the Direct Certification with Medicaid (DCM) Evaluation[56]
- 523 LEAs across several States serving special needs populations

Details on and the reasons for these exclusions are discussed in Appendix 2A.

[56] The excluded LEAs were in the treatment group for the DCM Evaluation. These LEAs added Medicaid data to the usual SNAP and TANF data used for direct certification. Therefore, it was expected that their percentage of students certified for FRP meals, and therefore their rates of student participation in NSLP and SBP, would increase. For this reason, these LEAs were excluded from the Impact Evaluation and from the analysis of LEA participation in the CEP.

The dependent variable in the model was a binary variable equal to one if the LEA had at least one CEP participating school in 2012–13 and zero otherwise. Data from all States were pooled, and a series of dummy variables for each State was included in the model to capture differences among States. The model also included the other variables examined in the previous sections of this chapter for their relationship to CEP participation—see Appendix 2B for additional detail on modeling decisions.

- The percentage of identified students (ISP), as a 7-part categorical variable indicating ranges into which the LEA's ISP fell: 0–20, 20-30, 30-40, 40-50, 50-60, 60-70, or 70-100 percent.[57]
- The percentage of students eligible for FRP meals specified as a four-part categorical variable:
  - *Less than* 50 percent of student eligible for free meals, and *less than* 10 percent of students eligible for reduced price meals;
  - *More than* 50 percent of student eligible for free meals and *less than* 10 percent of students eligible for reduced price meals;
  - *Less than* 50 percent of student eligible for free meals, and *more than* 10 percent of students eligible for reduced price meals; and
  - *More than* 50 percent of student eligible for free meals and *more than* 10 percent of students eligible for reduced price meals.[58]
- The difference between the FRP percentage and the ISP as a measure related to the expected difference in reimbursements between conventional meal claiming procedures and CEP participation.
- The percentage of students who were English language learners (ELL)
- The percentages of students who were in grades K-5, 6–8, and 9–12 (with the percentage in grades 9–12 excluded)
- Whether the LEA was in an urban area (city)
- The number of schools (natural log)
- Enrollment (specified as whether the LEA's average enrollment per school was less than 350, which was approximately the sample mean)
- The percentages of students who were Black and Hispanic/Latino.
- Percentage of schools that were Title I schools
- For MI, NY and OH, State-specific indicators for whether the LEA was a charter LEA

[57] This specification was used because exploratory analyses revealed distinct ISP thresholds above which CEP participation increased dramatically, and it was important to capture this finding in the results.

[58] This specification was used for two reasons. First, ISP and FRP were very highly correlated. Thus, the two could not be included as explanatory variables in their simple forms. Second, the specification allows the model to test whether an LEA's percentages of free and reduced-price eligible students had different associations with the CEP participation. See further discussion in Appendix 4A.

For the categorical variables, the reference categories were:

- For ISP, ISP less than 20
- For FRP, more than 50 percent of student eligible for free meals and more than 10 percent of students eligible for reduced price meals
- For State, Kentucky.

4.3.2 Results

The logistic regression results are presented in Exhibit 4.15. Results from logistic regression can be presented as "odds ratios," which are multiplicative factors representing the effect of a variable on the probability of an outcome. For example, if the odds ratio for a particular variable was 2, it means that a unit increase in that variable was associated with a doubling of the probability of the outcome, holding all other factors constant; likewise, an odds ratio of 0.5 means that a unit increase in the variable was associated with a halving of probability of the outcome.

Across all States, there were four statistically significant factors associated with CEP participation: the State, the ISP, the number of schools, and the average enrollment in schools. In Ohio alone, charter LEAs were significantly associated with greater participation.

LEAs in Kentucky and West Virginia were much more likely to participate in CEP, all else equal. LEAs in Illinois, Michigan, New York, and Ohio were roughly 30 percent—or less—as likely to participate in CEP as LEAs in Kentucky, while LEAs in West Virginia were more than twice as likely to participate as were LEAs in Kentucky. One possible explanation is based on the fact that LEAs in Kentucky and West Virginia are generally aligned with counties, in contrast to other States where LEAs covered smaller geographic areas. It was plausible that, being larger and containing more schools, LEAs in Kentucky and West Virginia were more likely to have at least one school whose participation would be advantageous. An alternate explanation is that differences in CEP implementation, such as the role of the State, influenced the LEA participation rate.

Higher ISPs were strongly associated with a greater likelihood of CEP participation. Increases in ISPs from roughly 20 to 60 percent were associated with especially strong jumps in the likelihood of participation. All else equal, an LEA with an ISP between 30–40 percent was about five times more likely to participate than an LEA with an ISP between 20–30 percent. Further increasing the ISP to 40–50 percent multiplied the probability of participation by another factor of nearly four. Another 10 percentage point increase in the ISP to 50–60 percent roughly tripled the probability of participation again. Above 60 percent, higher ISPs continued to be associated with a greater likelihood of CEP participation, but the effect was less dramatic.

Exhibit 4.15: Factors Affecting LEA Participation in the CEP

Factors	Odds Ratio	Significance
Distribution of ISP indicators[a]		
ISP indicator: 20%-30%	2.20	
ISP indicator: 30%-40%	11.57	***
ISP indicator: 40%-50%	45.27	***
ISP indicator: 50%-60%	135.26	***
ISP indicator: 60%-70%	181.06	***
ISP indicator: > 70%	292.44	***
Distributions of free/reduced price meals eligibility[b]		
<50% free, <10% reduced price	1.06	
>50% free, <10% reduced price	1.37	
<50% free, >10% reduced price	0.81	
Difference between FRP % and ISP %	0.20	
LEA characteristics		
Percentage of ELL students	0.63	
Percentage of students in K-5 grades	1.31	
Percentage of students in 6–8 grades	2.24	
LEA in an urban area	1.03	
Log(Number of schools)	1.85	***
Avg enrollment per school < 350	1.56	***
Percentage of African American students	0.52	
Percentage of Hispanic students	1.06	
Percentage of Title I schools	0.74	
State charter indicator [c]		
MI charter LEA	1.22	
NY charter LEA	1.41	
OH charter LEA	2.72	**
State indicators [d]		
IL LEA	0.37	***
MI LEA	0.31	***
NY LEA	0.13	***
OH LEA	0.06	***
WV LEA	2.51	***
Intercept	0.01	***

***=p<.01, **=p<.05, *=p<.10.

[a] The reference category is ISP below 20%.

[b] The reference category is: Greater than 50% of reimbursed meals are free; greater than 10% of reimbursed meals are reduced price.

[c] Kentucky and West Virginia have no charter schools. In Illinois, charter schools are members in a regular public school LEA.

[d] The reference category is KY LEA.

Dependent variable is a dummy variable which takes a value of 1 if the LEA participation in the CEP, and zero otherwise. All independent variables are information from previous school year (if available).

Number of observations (Treatment): 2820 (307). IL: 428(42), KY: 172(49), MI: 681(106), NY: 673(14), OH: 811(61), WV: 55(35).

Interpretation: The odds ratio for ISP of 20-30% is in reference to ISP of less than 20%. So if an LEA with ISP between 20-30% is twice more likely to participate in CEP as compared to an LEA with ISP of less than 20%, provided everything else remains the same.

Source: FNS Verification Summary (FNS-742) data, State lists of participating LEAs, Common Core of Data.

The effects seem to stem from the reimbursement formula for LEAs participating in the CEP. As previously noted, higher ISPs entail higher reimbursement rates. As the LEA ISP approaches 62.5 percent, the proportion of meals reimbursed at the free rate approaches 100 percent, and thus it becomes more advantageous to implement the CEP.[59]

The number of schools serves as a measure of the size of the LEA. According to the results, an LEA with 100 schools would be about three times more likely to participate in the CEP than an LEA with 3 schools, all else equal. The LEA size effect might have occurred for reasons similar to that suggested for State effects, namely, LEAs with more schools may have been more likely to have at least one school for which participation was advantageous. Other unobserved characteristics associated with LEA size, such as the capability of foodservice directors to implement the CEP, might also explain this result. The finding that larger LEAs were more likely to participate, all else equal, contradicts the suggestion from some States that larger LEAs had more difficulty deciding to implement the CEP.

The results indicate that LEAs where the average school enrollment was less than 350 were 56 percent more likely to participate than those where the average school enrollment was more than 350. One possible explanation for this is that elementary and middle schools tend to have smaller enrollments, and that LEAs with more of these schools (and fewer high schools) may be more likely to participate.[60] Another possibility is that smaller schools were more likely to differ from the average for the LEA and therefore, at a given level of LEA-wide ISP, an LEA with more small schools was more likely to have one or more schools with high ISPs.

In all States where there were charter LEAs, these LEAs were estimated to be more likely to participate in the CEP than their non-charter counterparts. However, only in Ohio was this association statistically significant. The results indicate that, compared to other States, Ohio LEAs had the lowest overall rate of CEP participation. The charter effect in Ohio significantly boosts this rate for charter LEAs, but not enough to raise their participation rates above other States, except New York.

4.4 Summary

Across the seven States, a total of 349 regular or charter LEAs and 71 "other" LEAs (mainly non-public schools) participated in the CEP in SY 2012–13. Within regular or charter LEAs, there were 2,169 participating schools, as well as 143 schools in "other" types of LEAs (primarily non-public schools). Average participation rates in the CEP for SY 2012–13 were 32 percent for eligible regular and charter LEAs, and 29 percent for eligible schools in such LEAs.

Compared with eligible non-participating regular and charter LEAs, participating LEAs of these types were larger, on average, had higher ISPs and FRP meals eligibility percentages, had higher percentages of students in grades K–5, and had higher percentages of students who were Black. Despite their larger average size, participating regular and charter LEAs were more often very small

[59] The percentage of meals reimbursed at the free rate is 1.6 times the ISP. When the LEA's ISP is 62.5 percent or greater, all meals are reimbursed at the free rate, and the LEA need not contribute any non-Federal funds to make up a difference between the cost of the meals and the Federal reimbursement.

[60] Anecdotal evidence from the State interviews suggests that the impact of the CEP on funding for educational programs was more problematic for middle and high schools, as discussed in Chapter 3.

(with enrollments under 500 students); they also were more often urban and more often charter schools. These patterns were replicated in most (although not all) of the seven States.

Four factors were significantly associated with CEP participation: ISP, size, State, and charter status. The odds of participation rose dramatically with each additional 10 percentage points in the ISP, especially between 40 and 70 percent. This result is as expected given how the reimbursement rates are determined. The odds of participation also went up with the number of schools in the LEA. However, LEAs with below-average-size schools were more likely to participate. The reasons for these differences by size are not obvious but may reflect differences in school-level eligibility. LEAs in West Virginia were most likely to participate, while LEAs in Kentucky were more likely to participate than those in the other four States. Charter LEAs were more likely to participate than regular public LEAs, but this finding was significant only in Ohio. Readers should note that the above relationships are observed *after* controlling for the other factors in the analytic model, so they may differ from the descriptive results (such as the participation rates by State computed without controlling for differences in LEA demographics).[61] Evidence from State interviews suggests that the differences by State and charter status may reflect how the CEP was implemented, but differences in school-level eligibility also may be contributing factors.

[61] In addition, the regression analysis used administrative data for all LEAs in six CEP States, while the descriptive analysis, which used data only for eligible or near-eligible LEAs, included **all** seven CEP States as of SY 2012–13.

5. Participation and Revenue Impacts

This chapter assesses the effects of the Community Eligibility Provision (CEP) on program participation and revenues, and addresses the following research questions:

- How did average daily participation in the NSLP change because of the CEP (compared to what participation would have been in the absence of the CEP)? [62]
- How did average daily participation in the SBP change because of the CEP (compared to what participation would have been in the absence of the CEP)?
- To what extent (if any) did the impacts of the CEP on program participation reflect changes in the number of actual participants, frequency of participation, or both for NSLP, SBP, and total meals?
- To what extent (if any) did the impacts of the CEP on program participation vary by grade level for NSLP, SBP, and total meals?

This chapter also addresses the following research questions about the impact of CEP on LEA foodservice revenues:

- How did Federal revenues (i.e., LEA revenues from USDA reimbursements) per reimbursable meal for NSLP change because of the CEP (compared to what revenues would have been in the absence of the CEP)?
- How did Federal revenues per reimbursable meal for SBP change because of the CEP (compared to what revenues would have been in the absence of the CEO)?
- How did the total Federal revenues per student change because of the CEP (compared to what revenues would have been in the absence of the CEP)?[63]
- How did revenues from non-Federal sources, including State funds, local funds, student payments for reimbursable meals, and payments for competitive foods[64] and adult foods, change because of the CE Provision compared to revenues that would be generated from traditional meal reimbursement structure?

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[62] Because of the multiple comparisons issue, the evaluation identified a single measure as confirmatory within the participation outcome domain. Candidate measures included NSLP participation, SBP participation and total participation. The NSLP was selected for two reasons: the NSLP is the larger program, and the estimates of the effect of the CEP on NSLP participation were less likely to be biased. The presence of the SBP program at a school is potentially related to a school's choice to take up the CEP, and so disentangling the selection effect from the causal effect is more difficult for the SBP. Therefore, the impact on SBP participation is better suited for an exploratory analysis.

[63] As discussed in Section 5.2, total Federal revenues were normalized on a per student basis to permit comparisons between LEAs of different sizes.

[64] The term "competitive foods" refers to all foods sold to students by school foodservice other than reimbursable meals. As such this does not include food sales by other entities, such as the athletic department or school store.

Finally, the chapter addresses the impacts of the CEP on the availability and operation of the SBP in schools. One of the requirements of the CEP is that all schools must participate in the School Breakfast Program (SBP). Implementation of the CEP may have led some LEAs to begin offering breakfast, if the LEA had not been doing so previously. Also, since the CEP also requires that all reimbursable meals be served free to all students, the CEP may have prompted some LEAs to vary their approach to breakfast service. The research questions in this domain were the following:

- How did the CEP impact the SBP in terms of whether schools offer breakfast and the type of breakfast service offered?
- In LEAs and schools with SBP already in place, what alternative types of breakfast service were tried in lieu of the traditional cafeteria setting? Which of these have been retained as ongoing routine practices?
- To what extent did the CEP affect the foods served at breakfast, specifically whether the identical breakfast is served to all students?
- How much time are students allowed to eat breakfast?

The questions of impact on NSLP participation and Federal revenues for the NSLP were identified in advance as the study's two confirmatory research questions, i.e., the questions by which the effectiveness of the CEP will be judged. The primary goal of the CEP is to increase access to and participation in the NSLP and SBP among students in high-poverty schools. The remaining questions about participation, revenues, and availability and operation of the SBP were identified as exploratory: they are questions of interest, and the results are not, therefore, considered conclusive. As discussed in Chapter 2, drawing confirmatory conclusions on additional research questions would require adjustments for multiple comparisons, and as a result reduce the power to detect any impacts.

Analyses of the impact of the CEP on NLSP and SBP participation and revenues used State administrative data and a comparative interrupted time series design (CITS) approach to compare what happened in CEP-participating LEAs (the treatment group) to a counterfactual—what would have happened in the program's absence. First, a comparison group of LEAs similar to the treatment group of LEAs on pre-participation characteristics was constructed using propensity score matching; next, the difference in the pre- and post-CEP levels of program participation (or revenue) was compared to the corresponding pre-post differences in the matched comparison group. (See Chapter 2 for further description of the study design.)

The other analyses presented in this chapter used data from Participation, Enrollment, Attendance, and Revenue (PEAR) survey respondents from CEP-participating schools and comparison schools. For revenue data, the CITS approach was used. For impacts on the availability and operation of the SBP, the analysis used a posttest-only comparison of the treatment LEAs and their matched comparison LEAs. Supplementary data on the operation of the SBP were drawn from the Implementation Web Survey of Participating LEAs and the Pre-visit Questionnaire administered as part of the Menu Survey

Before presenting the results for the impact of the CEP on participation, revenues, and SBP availability and operations, this chapter first (1) discusses expectations about why and how effects might arise; (2) presents the specific outcome measures used; (3) describes in more detail the

methodology for selecting the comparison group for analysis of participation and revenue; and (4) details the models used for analysis.

5.1 Expectations about CEP Impacts on School Meals Participation, Revenues, and SBP Availability and Operations

The research questions were motivated by a conceptual model of how the CEP might be expected to affect NSLP and SBP participation rates and revenues, and SBP availability and operations. Adoption of the CEP by schools could lead to increased NSLP and SBP participation for several reasons. First, any schools that had not had a breakfast program were required to add one (and thus increasing the availability of the SBP would result in additional participation). Second, the CEP made it easier for students eligible for free meals to participate by eliminating the burden of the application process. Third, in CEP schools, meals were now free for those students who otherwise would have had to pay for reimbursable meals. Fourth, universal availability may have reduced the stigma associated with taking free meals. Finally, schools may have made efforts to promote universally available meals or to improve meal delivery resulting in increased participation.

On the revenue side, under the CEP, the LEA receives higher USDA reimbursements for meals served to students whose incomes exceed the eligibility levels for free meals. However, the LEA forgoes the revenue from student payments for reduced-price (RP) and paid meals (i.e., because these students now receive meals for free). Unless the LEA has a high enough ISP (62.5 percent or more) that it claims all meals in CEP schools at the free meals rate, it receives less Federal revenue for a meal served to a free-eligible student under the CEP than it would under conventional claiming procedures.[65] Under conventional reimbursements, an LEA's total revenues for a meal served to a student eligible for RP meals equals USDA reduced-price rate plus the student payment, which is set at the difference between the USDA rates for free and RP meals. Thus, only LEAs that claim *all* meals at the free rate under the CEP get the same total revenue per meal served to RP-eligible students as under conventional procedures. Whether the LEA gains or loses revenues on meals that would otherwise be served at the paid rate depends upon both the price charged as well as the ISP.[66]

The CEP also is likely to affect LEA foodservice revenues from non-Federal sources. The impact on revenues from State funding depends on how the State provides assistance to LEAs: if the State provides reimbursements tied to counts of free, reduced-price, and paid meals, then the impact will depend on the ISP (just as it does for Federal revenues). Revenues from non-reimbursable foods might fall (if students choose free reimbursable meals over paying for non-reimbursable foods), or rise (if students buy more non-reimbursable foods to supplement their free reimbursable meals). LEAs that have a net loss in revenues from Federal, State, and student payments may need to increase

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[65] As discussed in Chapter 1, the ISP is multiplied by 1.6 to determine the claiming percentage, which is the percentage of meals that were reimbursed at the free meals rate, which was $2.86 in SY 2012–13 (unless the LEA qualified for higher rates due to high need or certification for meeting school meals standards). Under conventional claiming procedures, the LEA received $2.86 in SY 2012–13 for each meal served to a free-eligible student. Under the CEP, the reimbursement rate for all meals was $2.86 if (1.6*ISP)=1 or ISP=1/1.6=0.625.

[66] For example, if the LEA charges $2.00 for a paid lunch and gets $0.27 from USDA, the total revenue is equivalent to the CEP reimbursement rate of $2.27 per lunch when the ISP equals 49.6 percent. So if the ISP is higher, the LEA would receive more total revenue per lunch.

the amount of local funds supporting school foodservice, unless they are able to reduce costs enough that they still balance their school foodservice accounts.

As discussed above, the expected impact of the CEP on availability of the SBP is clear: schools that do not already offer the SBP must do so to participate in the CEP. Regarding SBP operations, schools may use new ways of delivering breakfasts under the CEP, such as "grab and go" methods or serving in the classroom, to accommodate and facilitate greater participation, and also take advantage of eliminating the need to collect payments. These choices, or cost considerations, may affect the variety of foods offered at breakfast or the time students have to eat breakfast.

5.2 Outcome Measures

5.2.1 Participation

Participation in the NSLP and SBP was measured as the percent of students who receive meals. These outcomes were operationalized as follows:

Average Daily Participation (ADP) for NSLP:

$$ADP_{NSLP} = \frac{\text{\# of NSLP monthly meals}}{\text{\# of operating days in the month}} * \frac{1}{\text{enrollment}} \quad \text{(Eq. 5.1)}$$

Average Daily Participation (ADP) for SBP:

$$ADP_{SBP} = \frac{\text{\# of SBP monthly meals}}{\text{\# of operating days in the month}} * \frac{1}{\text{enrollment}} \quad \text{(Eq. 5.2)}$$

5.2.2 Federal Revenue

Federal revenue from NSLP and SBP was measured as the Federal reimbursement rate per meal served. This measure reflects the Federal dollar amount received for each meal served by the LEA during the school year. These rates were operationalized as follows:

Federal Reimbursement per NSLP meal:

$$Federal\ reimbursement\ rate_{NSLP} = \frac{\text{\$ NSLP monthly Federal revenue}}{\text{\# NSLP monthly lunches served}} \quad \text{(Eq. 5.3)}$$

Federal Reimbursement per SBP meal:

$$Federal\ reimbursement\ rate_{SBP} = \frac{\text{\$ SBP monthly Federal revenue}}{\text{\# SBP monthly breakfasts served}} \quad \text{(Eq. 5.4)}$$

In addition, the revenue was also measured as the total Federal revenue received by the LEA for each student enrolled. This measure reflects the average monthly Federal dollar amount received for each student served by the LEA during the school year. Normalizing total revenue on a per-student basis permitted comparisons among LEAs of different size and over time. This outcome reflects both the rate of participation in NSLP and SBP and the reimbursement per meal. It was operationalized as follows:

$$\text{Total Federal Revenue per Student} = \frac{\text{\$ NSLP monthly rev.+ \$ SBP monthly rev.+ \$Afterschool Snack monthly rev.}}{\text{enrollment}} \quad \text{(Eq. 5.5)}$$

The data source for the construction of these outcomes was the State-provided administrative data, which included NSLP and SBP monthly meal counts; monthly Federal revenue for NSLP, SBP and Afterschool snack program; enrollment; and the number of operating days in the month.

5.2.3 Non-Federal Revenues

The analyses of non-Federal revenues assessed the impact of the CEP on revenues from: (1) State funds; (2) local funds; (3) student payments for non-reimbursable meals; and (4) payments for reimbursable foods. These analyses combined data from the Participation, Enrollment, Attendance and Revenue (PEAR) survey with State Administrative Data. Each of the sources was treated slightly differently based on data availability and the nature of the revenue.

(1) **Revenues from State funds** were measured as the total fall revenue received from State funds per student among LEAs that report receiving State Revenue.[67] This was operationalized as:

$$State\ Revenue = \frac{\$\ Jul.State\ rev.+\ \$\ Aug.State\ Rev.+\ \$Sep.State\ rev.+\ \$Oct.State\ rev.+\ \$Nov.State\ rev.+\ \$Dec.State\ rev.}{\text{enrollment}} \quad \text{(Eq. 5.6)}$$

where enrollment was obtained from State Administrative Data. State revenues were obtained from the PEAR survey for all States other than Illinois and from State Administrative Data for Illinois.[68]

(2) **Revenue from local funds** was measured as a binary variable that indicates whether the foodservice program received funding from local sources (i.e., a transfer of funds to the school foodservice account from another LEA account)[69] in a given school year, operationalized as:

$$Local\ Revenue = \begin{cases} 0 & \text{no funds were transferred from other LEA account to school foodservice} \\ 1 & \text{funds were transferred from other LEA account to school foodservice} \end{cases} \quad \text{(Eq. 5.7)}$$

This definition excludes transfers to pay for catering for local events.[70] The evaluation team selected this definition of the outcome to capture the key variation among LEAs in terms of whether local funds were used for foodservice, and to maximize the number of LEAs included in the analysis (see Appendix 5A for details). These data were obtained via the PEAR survey for all States.

(3) **Revenue from Payments for Non-Reimbursable Foods** was measured as a binary variable that indicates whether the foodservice program received payments for non-reimbursable foods, including competitive foods, a la carte, vending machines or adult meals. This variable was defined as:

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67 The fall total was used rather than school year total to insure consistency of measurement across years. The timing of the data collection was such that the evaluation team was only able to collect data on revenues from July to December of 2012.

68 See Appendix 5A for additional details on outcome construction and the definition of the analytic sample.

69 If the school foodservice account has a deficit (i.e., costs exceed revenues), the LEA typically transfers funds from the LEA's general fund to balance the foodservice account. The general fund is the fund for all revenues that are not restricted to specific programs or grants. Under the CEP, LEAs must use non-Federal funds to cover any costs of the NSLP and SBP that are not covered by Federal reimbursements.

70 Payments for catering services were captured in a separate revenue category on the PEAR survey.

$$NonReimb\ Revenue = \begin{cases} 0 & \text{no revenue generated from competitive foods, a la carte, vending machines, or adult meals} \\ 1 & \text{revenue generated from competitive foods, a la carte, vending machines, or adult meals} \end{cases} \quad \text{(Eq. 5.8)}$$

As was the case for local revenues, the evaluation team selected this definition of the outcome to capture the key variation among LEAs in terms of whether revenue was generated from payments for non-reimbursable meals and to maximize the number of LEAs included in the analysis. These data were obtained from the PEAR survey for all States other than Kentucky.[71] See Appendix 5A for additional detail on the definition of the outcome variable, data availability and the definition of the analytic sample.

(4) **Revenues from Student Payments for Reimbursable Meals** were measured by the fall total revenue received from student payments per student for LEAs that report such revenue and is defined to be zero for LEAs that report that no revenue was generated from student payments. This is operationalized as:

$$Student\ Revenue = \begin{cases} Fall\ Student\ Revenue & \text{if Fall Student Revenue was reported} \\ 0 & \text{if LEA indicated no revenue was generated by student payments} \end{cases} \quad \text{(Eq. 5.9)}$$

where

$$Fall\ Student\ Revenue = \frac{\$\ Jul.Student\ rev. + \$\ Aug.Student\ Rev. + \$Sep.Student\ rev. + \$Oct.Student\ rev. + \$Nov.Student\ rev. + \$Dec.Student\ rev.}{enrollment} \quad \text{(Eq. 5.10)}$$

This outcome measure was defined for all LEAs that reported *not* having generated revenue from student payments, and for all LEAs that reported the fall revenue from student payments. The student revenue outcome measure was not available for LEAs that indicated that revenue was generated from student payments, and that did not report fall student revenue, either because the LEA was unable to report student revenue separately or because the fall student revenue data were not available.[72] On average, this outcome measure tends to understate the revenue generated from Student Payments for Reimbursable Meals, because it includes all LEAs indicating that no such revenue was generated, but not all LEAs indicating that revenue was generated.

This understatement is expected to be more pronounced for LEAs that would be expected to have student payments for reimbursable meals (including comparison LEAs and treatment LEAs in pre-intervention years) than for LEAs actively implementing the CEP in that year. Schools implementing the CEP were required to offer reimbursable meals free to all students. Therefore, LEAs that offered the CEP in all schools should have indicated that no student revenue was generated by student

[71] The PEAR survey was customized for each State based on the revenue data available from the State, so that LEAs were only asked to provide data that the State did not have. For Kentucky, the PEAR survey did not request data on revenues from non-reimbursable meals and student payments for reimbursable meals because it was expected that the State would provide the data. However, the data were not available from the State for the fall of 2012–13. Therefore, Kentucky was excluded from the analyses of these outcomes.

[72] See Exhibit 5A.23 for the number of LEAs that reported generating no student revenue, the number that indicated generating student revenue but were unable to report fall student revenue, and the number that indicated generating student revenue and reported fall student revenue.

payments in the years the LEA offered the CEP and been correctly represented in the data as having $0.00 in revenue from student payments for reimbursable meals. [73]

Data on student payments for reimbursable meals were obtained from the PEAR survey for all States other than Kentucky (as explained on the preceding page).

5.3 Constructing Matched Comparison Groups

The evaluation design for these analyses was based on using both longitudinal (time series) and comparison group data to isolate the effect of the CEP on relevant outcomes, and was designed to eliminate many sources of bias from those impact estimates. This design was used for analyses of two different samples based on available data: estimating the impact of CEP on Participation and on Federal Revenues using the Matched Administrative Data Sample; and estimating the impact of CEP on non-Federal Revenues using the Component 1 PEAR Survey Sample. For both samples, participating LEAs were identified as the treatment group, as is usual practice in discussing a quasi-experimental design. To select a comparison group of non-participating LEAs, propensity score matching (PSM) was used. PSM was intended to construct treatment and comparison groups that were equivalent at baseline, using pre-program characteristics of the LEAs—as in the analysis of factors associated with CEP take-up.

5.3.1 Comparison Group Matching for Analyses of Participation and Federal Revenues

The propensity score matching used pre-CEP characteristics data from States as well as the Common Core of Data (CCD), and FNS-provided administrative data (Verification Summary Report (VSR), the same data source used to identify factors that influenced take-up of the CEP (see Chapter 4 for these characteristics and Appendix 4 for added detail). The PSM technique used resulted in up to five potential matches for each LEA in the treatment group[74,75] (see Appendix 4A for a more detailed analysis of the matching process).

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[73] The implications of the overrepresentation of LEAs that generate no revenue from student payments for reimbursable meals for the analysis are discussed in the section presenting the results of the analysis. See Appendix 5 for additional detail on the data availability and the definition of the analytic sample.

[74] A one-to-five nearest neighbor with caliper matching strategy was used to obtain the comparison group of LEAs. This matching procedure allows up to five non-participating LEA to provide information on the counterfactual scenario for each participating LEA. Further, each non-participating LEA is allowed to be matched to an unlimited number of participating LEA. The matching procedure constructs weights for comparison LEAs that reflect the number of LEAs for which it was selected to serve as comparison and how many comparisons were identified for each of those LEAs. To prevent the use of non-comparable LEAs as matches, the evaluation team required the treatment and comparison LEAs to have propensity scores within 1 percentage point of one another.

[75] If the PSM model predicts take-up well, then participating LEAs will have relatively high scores, and matches from non-participating LEAs with similarly high scores will be chosen to comprise the comparison group. If there is greater dispersion of the propensity score across participating LEAs than across non-participating LEAs, then there is less predictive accuracy; however, the process still chooses matches from among non-participating LEAs that have scores similar to those selected for the treatment group. There was considerable overlap between the propensity scores of the treatment group and the comparison group.

The samples for analyses of NSLP participation, NSLP revenue, and total Federal revenue were identical to the matched administrative sample used for analysis of CEP take-up. Exhibit 2.6 shows the characteristics of the sample treatment and comparison LEAs. The matched sample for SBP differed due to some missing information. Exhibits 5A.1 and 5A.2 in Appendix 5A show the results of baseline balance testing for participation and revenue sample for SBP, respectively.

For both NSLP and SBP participation and revenue, across nearly all pre-CEP characteristics, there were no differences between the treatment and comparison LEAs . There was a small difference with respect to average daily student participation in the SBP; treatment LEAs had a slightly higher rate, on average, than comparison LEAs (47 percent versus 42 percent).[76] Regardless, the two groups appear to be quite well-matched on the observed characteristics that the analyses used to identify the comparison LEAs.

5.3.2 Comparison Group Matching for Analyses of Non-Federal Revenues

For the Component 1 PEAR Survey Sample, the comparison group was identified using a different PSM approach based on State administrative, VSR and CCD data available prior to data collection (see Appendix 2A for details). Propensity score modeling was performed separately for each State to support within-State matching; this resulted in a single comparison LEA matched to each treatment LEA.

The set of LEAs included in each of the analyses of non-Federal Revenues had unresolvable imbalances on several factors (i.e., differences at baseline) between the treatment and comparison groups.[77] (See Exhibit 5A.10 in Appendix 5A for statistics.) The combination of several factors—specifically survey non-response, item-level non-response and after-the-fact identification of LEAs as ineligible based on survey responses—resulted in substantial differences between the initial PEAR survey sample and the final analytic sample of LEAs for analyses of non-Federal revenues.[78] The analytic sample for the State revenue analysis was imbalanced on several baseline characteristics: ISP, percent of Title I schools, charter status and the percent of students who are Hispanic; likewise, the analytic sample for the analysis of revenue from student payments for reimbursable meals was imbalanced on baseline ISP and percent Title I schools. The analytic model for each of these two analyses included baseline covariates on which the sample was imbalanced. The analytic samples for

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However, the treatment group had propensity scores closer to one, and finding suitable matches for these LEAs was difficult.

[76] A possible reason for treatment-comparison differences on this variable is that it was not part of the propensity score model. All variables included in the model are balanced between the two groups.

[77] Exhibit 2.7 in Chapter 2 presents the baseline balance tests for the overall sample of PEAR survey (Component 1) respondents. However, because of logical skips in PEAR survey programming and item-level non-response, not all of the PEAR survey respondents provided sufficient data for inclusion in the analysis of non-Federal revenue. The baseline balance tests presented in Appendix 5A restrict attention to the analytic sample for each of these analyses.

[78] Note that propensity score matching was performed prior to data collection. All PEAR survey respondents with sufficient data were included in each analysis. Baseline balance testing results capture the extent to which the treatment and comparison groups are comparable in the resulting analytic sample.

the local revenue and revenue from payments for non-reimbursable foods were each balanced on baseline characteristics.

5.4 Analytic Model

This section presents the analytic model used to estimate the CEP's impact on participation, Federal revenues and non-Federal revenues. Specifically, it describes how the time series data were analyzed. The basic model for estimating impacts is shown in equation 5.11:

$$Y_{it} = (\beta_0 + \alpha_{0i}) + (\beta_1 + \alpha_{1i})t + \beta_2 T_i + \beta_3 X_t + \beta_{4_t} TE_{it} + \beta_5 Z_i + \varepsilon_{it} \ (1) \qquad \text{(Eq. 5.11)}$$

Where

Y_{it} is the outcome of interest (participation, revenues) for LEA i in time t;

T_i is the treatment group indicator (=1 if LEA i takes the CEP at any point in time; =0 otherwise);

X_t is a post-treatment indicator (=1 if in the years the CEP is available and 0 otherwise);

TE_{it} is the treatment effect indicator (=1 if LEA i implemented the CEP at time *t*; =0 otherwise);

Z_i is a vector of pre-intervention characteristics of LEA i (this is an LEA-level measure—not time varying—during the pre-intervention years), α_{0i} is the between-LEA random variation in the intercept (deviation of LEA i's intercept from the grand mean intercept, distributed with mean 0 and variance τ_0^2);

α_{1i} is the between-LEA random variation in the slope (deviation of LEA i's slope from the grand mean slope, distributed with mean 0 and variance τ_1^2); and

ε_{it} is the error term, which can be further decomposed into an LEA-specific unobservable constant term δ_i and an independent, identically distributed error term u_{it}.

In this model, the effect of participating in CEP is given by β_4, the average treatment effect. This coefficient corresponds to the difference between the pre- and post-outcomes observed for the treatment LEAs and those observed for the comparison LEAs. The coefficients β_0 and β_1 are interpreted as the regression-adjusted level and change over time in the mean outcome for comparison LEAs. $\beta_0 + \beta_2$ and β_1 provide the regression-adjusted level and change over time of the mean outcome among treatment LEAs. β_3 captures the influences of policy changes other than the CEP on the outcome, and β_5 captures the contributions of other explanatory variables.

Because non-Federal Revenue sources did not show evidence of a time trend in the pre-intervention period, time was omitted from the model for these outcomes. This corresponds to setting β_1 and α_1 to equal 0 in Equation 5.11 above.

5.5 Impact of CEP on Participation in School Meal Programs

This section presents the impact of the CEP on NSLP and SBP participation rates, based on whether these rates differed for those LEAs that did and did not participate in the CEP. This analysis used the LEA-level CITS analysis described Section 5.4. See Appendix 5A for further information on the CITS analysis model used.

The impact of the CEP on participating LEAs was examined by comparing the participation rates in NSLP before and after the intervention to the participation rates during the same time periods for a matched group of non-participating LEAs. Exhibit 5.1 displays the regression-adjusted means for the treatment and comparison LEAs. The average daily participation rates in NSLP for the treatment LEAs increased to 76.3 percent from 72.4 percent, whereas the matched comparison LEAs' rates held nearly constant, changing from 68.5 percent to 68.9 percent over the same time. The change in the comparison LEAs represents the change that would have occurred in the treatment LEAs in the absence of CEP participation. Thus, subtracting out the 0.4 percent change experienced by the comparison group from the 4.0 percent change experienced by the treatment groups produces the impact of the CEP: a 3.5 percentage point *increase* in school meal program participation.[79] This impact is statistically significant at the one percent level. As an indicator of the relative magnitude of the impact, the NSLP participation rate in CEP LEAs was 5.2 percent higher than expected in the absence of the program (as represented by the comparison group's pre-intervention mean participation rate). Results from the full model (explained in Section 5.4) appear in Appendix 5A.

Exhibit 5.1: Impact on NSLP Participation Rate

	Comparison	Treatment	Impact	Percent Impact
Mean Pre-Intervention Average Daily Participation (ADP) Rate	68.5%	72.4%		
Mean Post-Intervention ADP Rate	68.9%	76.3%		
Difference = (Post-Intervention ADP—Pre-Intervention ADP)	0.42 percentage pts	3.96 percentage pts	3.54 percentage pts***	5.2%
Number of LEAs in sample	525	286		

For the purposes of this table, the average treatment effects are for Year 1 States LEAs that adopted the intervention in SY 2011–12. The Average Pre-Intervention ADP is the average of the regression-adjusted ADP for 2009 and 2010. The Average Post-Intervention ADP is the average of the regression-adjusted ADP for 2011 and 2012. The pre- and post-intervention time periods for LEAs that implemented the CEP in 2012 are different, and so the regression-adjusted means are different, but the estimated impact is the same because it derives from the same parameter in the model.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: State-provided administrative data.

The same methods were used to estimate the CEP's impact on participation in the SBP. Exhibit 5.2 displays the regression-adjusted means for the participating (treatment) LEAs and non-participating (comparison) LEAs.[80] The adjusted average daily participation rates in SBP for the treatment LEAs increased from 46.2 percent to 52.3 percent while the matched comparison LEAs' participation rate increased from 38.3 percent to 40.7 percent over the same time. Taking the difference between these two differences yields the CEP's impact on SBP participation: 3.6 percentage points. This impact is

[79] The estimated impact of 3.5 percent differs from the computed difference between the treatment and control group differences (4.0 percent -0.4 percent) due to rounding. The more precise estimates are: treatment group difference, 3.96 percent; comparison group difference, 0.42 percent; difference in differences, 3.54 percent.

[80] As in Exhibit 5.1, estimates are for LEAs that implemented the CEP in SY 2011–12.

also statistically significant, and represents a 9.4 percent increase in the participation rate for the SBP. Results from the full model (explained in Section 5.4) appear in Appendix 5A.

Exhibit 5.2: Impact on SBP Participation Rate

	Comparison	Treatment	Impact	Percent Impact
Average Pre-Intervention ADP	38.3%	46.2%		
Average Post-Intervention ADP	40.7%	52.3%		
Difference = (Post-Intervention ADP – Pre-Intervention ADP)	2.4pts	6.0pts	3.6pts***	9.4%
Number of LEAs	520	286		
Number of observations	1,995	1,124		

For the purposes of this table, the average treatment effects are for Year 1 States LEAs who adopted the intervention in SY 2011–12. The Average Pre-Intervention ADP is the average of the regression-adjusted ADP for 2009 and 2010. The Average Post-Intervention ADP is the average of the regression-adjusted ADP for 2011 and 2012. The pre- and post-intervention time periods for LEAs that implemented the CEP in 2012 are different, and so the regression-adjusted means are different, but the estimated impact is the same because it derives from the same parameter in the model.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: State-provided administrative data..

Results from the PEAR survey provide information for addressing the two exploratory questions regarding possible reasons for the observed impacts on CEP participation. Seventy-one percent of the participating LEAs perceived that their ADP for the SBP had increased since January 2011, compared to 45 percent of non-participating LEAs. Similarly, more than three-fifths of the treatment LEAs perceived an increase in their ADP for the NSLP, compared to one-quarter of the comparison LEAs (see Exhibit 5.3). Among LEAs that reported an increase in their ADP (both treatment and comparison LEAs), the most commonly cited factors for this increase were a greater percentage of students participating in the program (about 60 percent of LEAs cited this) and a greater number of meals taken per week, for both SBP and NSLP (see Exhibit 5.4). Additionally, about 50 percent of the LEAs that reported an increase in their SBP's ADP identified elementary schools in their LEA as the having the highest increases in ADP rates (see Exhibit 5.5).

The few treatment LEAs that reported decreases in their ADP attributed that decrease to different factors for the NSLP and the SBP, respectively. For the NSLP, they attributed the decrease in ADP to a decline in student enrollment,[81] but for the SBP, they attributed the decrease to a decline in the percent of students participating in the program (see Exhibit 5.6). In contrast, among the comparison LEAs that reported ADP decreases, more than three-fourths attributed these decreases to a combination of a smaller percentage of students participating in school meal programs and fewer meals taken per week (for both SBP and NSLP). Among those reporting decreases, a plurality of both treatment and comparison LEAs identified high schools as having the highest decreases in ADPs (see Exhibit 5.7).

[81] LEAs attributing a decline in ADP (a per-student measure) to declining enrollment may have been confused by the question and intended to explain a decline in total meals served. Due to the small number of respondents indicating declines in ADP, this pattern was considered a minor anomaly.

Exhibit 5.3: Percentage of Participating and Non-Participating LEAs Reporting Changes in ADP for SBP and NSLP

Perceived change in ADP in the program since January 2011	Breakfast		Lunch	
	Comparison	Treatment	Comparison	Treatment
Increased ADP	45%	71%***	25%	61%***
Decreased ADP	15%	11%	35%	16%***
Stayed the same	40%	17%***	40%	23%***
Total	95	133	96	134

Percentages reported in round numbers due to small sample size.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey.

Exhibit 5.4: Percentage of Participating and Non-Participating LEAs Citing Reasons for a Reported Increase in ADP for SBP and NSLP

Biggest factor in perceived increase in ADP	Breakfast		Lunch	
	Comparison	Treatment	Comparison	Treatment
More schools offering school breakfast	5%	1%		
An increase in student enrollment	10%	14%	17%	17%
An increase in the percentage of students participating	59%	60%	61%	54%
An increase in the number of meals per week taken	27%	24%	22%	28%
Total	41	91	23	81

Percentages reported in round numbers due to small sample size.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey.

Exhibit 5.5: Percentage of Participating and Non-Participating LEAs Attributing a Reported Increase in ADP for SBP and NSLP to Particular School Level

Type of school with greatest perceived increase in ADP	Breakfast		Lunch	
	Comparison	Treatment	Comparison	Treatment
Elementary school	46%	52%	40%	44%
Middle school	8%	7%	0%	8%**
High school	14%	21%	10%	19%
No difference by type	32%	21%	50%	29%*
Total	37	92	20	79

Percentages reported in round numbers due to small sample size.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey.

Exhibit 5.6: Percentage of Participating and non-Participating LEAs Citing Reasons for a Reported Decrease in ADP for SBP and NSLP

Biggest factor in perceived decrease in ADP	Breakfast		Lunch	
	Comparison	Treatment	Comparison	Treatment
A decrease in student enrollment	18%	64%***	24%	38%
A decrease in the percentage of students participating	45%	29%	30%	52%
A decrease in the number of meals per week taken	36%	7%*	45%	10%***
Total	11	14	33	21

Percentages reported in round numbers due to small sample size.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey.

Exhibit 5.7: Percentage of Participating and Non-Participating LEAs Attributing a Reported Decrease in ADP for SBP and NSLP to Particular School Level

Type of school with greatest perceived decrease in ADP	Breakfast		Lunch	
	Comparison	Treatment	Comparison	Treatment
Elementary school	15%	8%	12%	11%
Middle school	15%	15%	15%	0%**
High school	38%	31%	38%	47%
No difference by type	31%	46%	35%	42%
Total	13	13	34	19

Percentages reported in round numbers due to small sample size.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey.

5.5.1 Discussion of Participation Results

The CEP's impact on student participation in school meal programs was surprisingly consistent, for both programs, increasing participation by 5 to 9 percent (about 3.5 percentage points for the NSLP and SBP participation).[82] Nevertheless, the estimates produced by this analysis must be interpreted carefully. These estimates, at best, measure the effect of the CEP on the specific group of LEAs that were observed: those that *chose* to participate in the first two years of availability in the Year 1 States (Illinois, Kentucky and Michigan) and those that *chose* to participate in the first year of availability in the three Year 2 States (New York, Ohio, and West Virginia). These estimates do not generalize to LEAs in these States that are not comparable to the participating LEAs, nor do they generalize to LEAs in other States.

The extent to which the study's analyses effectively identify the true impact of adopting the CEP depends on how well the experiences of the untreated comparison group represent what would have happened to schools in the treatment group had they not chosen to participate in CEP. In this case, selection bias may result from the fact that LEAs chose the schools to implement the CEP. When making this decision, presumably the LEA considered whether participating or not would produce

[82] These findings are robust to alternative model specifications presented in Appendix 5A.

better outcomes for the schools within the LEA. Therefore, it can be expected that schools within a given LEA that did participate likely differed systematically from schools in the LEA that did not participate in ways that directly affect the outcomes of interest. Moreover, the propensity score matching approach identified comparison LEAs using characteristics that were measureable and easily accessible. These characteristics do not account for other, potentially important, unmeasurable characteristics that determine the take-up decisions of LEAs, such as the perception that the LEA will benefit from adopting the CEP. On the other hand, given that in the average participating LEA, 94 percent of eligible schools participated in CEP, the effect of differences between schools within the LEA may be modest.[83] In addition, the propensity score matching and comparative interrupted time series (CITS) approach provided the most rigorous and feasible way to separate the impact of the CEP from the other factors that could have affected NSLP and SBP participation in the sample. Moreover, additional tests showing the robustness of the results (see Appendix 5A) provides additional confidence in the conclusion that the CEP did indeed increase NSLP and SBP participation, as do the PEAR survey results. Both of the estimated relative impacts (5.2 percent and 9.4 percent) are of sufficient magnitude that they are likely to be seen as not only statistically significant but also substantively important.

5.6 Impacts of CEP on LEA Revenues from the School Meal Programs

A key question about the CEP is whether it increases Federal reimbursements to LEAs. Section 5.6.1 presents results on the impact of the CEP on the Federal reimbursement per meal and total Federal revenue per student for LEAs participating in the CEP, compared with LEAs not participating in the CEP.

The impact of the CEP on revenues from non-Federal Sources is of particular interest to State and local decision-makers. States anticipating the national rollout of the CEP will want to know whether the implementation of the provision is associated with an increase in State funding for LEA foodservice operations. Similarly, stakeholders at all levels will want to know whether implementing the CEP leads to an increase in local funding for foodservice programs. Section 5.6.2 addresses these questions, explores the relationship between implementation of the CEP and revenues from payments for non-reimbursable foods, and considers the potential relationship between the provision and revenues from student payments for reimbursable meals.

5.6.1 Federal Revenues

As was the case for participation, the evaluation considered Federal reimbursement outcomes for the NSLP and SBP, using the Federal reimbursement rate (i.e., average dollars per meal) for the NSLP and SBP. In addition, the analysis considered impacts on total Federal revenue per student. These analyses used the LEA-level CITS analysis described in Section 5.4 (additional details and results for the full models appear in Appendix 5A).

Federal Reimbursement per Meal for NSLP and SBP

The impact of the CEP on revenue was examined first by comparing the Federal reimbursement per reimbursable meal for NSLP before and after the intervention among those LEAs that took up the CEP relative to a matched comparison group of non-participating LEAs. Exhibit 5.8 displays the

[83] This statistic is for all participating LEAs, not just those in the analysis sample.

regression-adjusted means and pre-post differences for the treatment LEAs and comparison LEAs and the estimated impact of the CEP. (See the table for important notes.) The average Federal reimbursement per meal for NSLP for the treatment LEAs increased $0.30 (from $2.45 to $2.75) compared to an increase in the matched comparison LEAs of $0.18 (from $2.31 to $2.49) over the same time period. The net difference between the increases observed in the treatment versus comparison LEAs is equal to a $0.13 larger increase in the treatment LEAs. This estimated impact of the CEP is statistically significant at the 1 percent level. In relative terms (the impact estimate divided by the comparison group's pre-intervention mean), the CEP's effect was to increase the Federal reimbursement per meal by 5.6 percent.

Exhibit 5.8: Impact on Federal Reimbursement per Meal for NSLP

	Comparison	Treatment	Impact	Percent Impact
Mean Pre-Intervention Federal Reimbursement per Meal	2.31	2.45		
Mean Post-Intervention Federal Reimbursement per Meal	2.49	2.75		
Difference = (Post-Pre Intervention Federal Reimbursement per Meal)	0.18	0.30	0.13***	5.6%
Number of LEAs in sample	525	286		

For the purposes of this table, the average treatment effects are for Year 1 States LEAs who adopted the intervention in SY 2011–12. The mean pre-intervention Federal reimbursement per meal is the average of the regression- adjusted Federal reimbursement per meal for 2009 and 2010. The mean post-intervention Federal reimbursement per meal is the average of the regression-adjusted Federal reimbursement per meal for 2011 and 2012. The pre- and post-intervention time periods for LEAs that implemented the CEP in 2012 are different, and so the regression-adjusted means are different, but the estimated impact is the same because it derives from the same parameter in the model.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: State-provided administrative data.

The same method was used to estimate the CEP's impact on Federal reimbursement per meal for the SBP. As shown in Exhibit 5.9,[84] the average Federal reimbursement per meal for SBP for the treatment LEAs increased $0.11 (from $1.67 to $1.78) while the increase in matched comparison LEAs' Federal reimbursement per meal was $0.08 (from $1.64 to $1.72) over the same time period. Thus, the increase in CEP-participating LEAs exceeded the increase in non-participating LEAs by a net $0.03. This impact of the CEP is statistically significant at the 1 percent level, and represents a 2 percent increase in the Federal reimbursement per meal.

[84] As in Exhibit 5.1, estimates are for LEAs that implemented the CEP in SY 2011–12.

Exhibit 5.9: Impact on Federal Reimbursement per Meal for SBP

	Comparison	Treatment	Impact	Percent Impact
Mean Pre-Intervention Federal Reimbursement per Meal	1.64	1.67		
Mean Post-Intervention Federal Reimbursement per Meal	1.72	1.78		
Difference = (Post-Pre Intervention Federal Reimbursement per Meal)	0.08	0.11	0.03***	1.9%
Number of LEAs	507	286		

For the purposes of this table, the average treatment effects are for Year 1 States LEAs who adopted the intervention in SY 2011–12. The mean pre-intervention Federal reimbursement per meal is the average of the regression-adjusted Federal reimbursement per meal for 2009 and 2010. The mean post-intervention Federal reimbursement per meal is the average of the regression-adjusted Federal reimbursement per meal for 2011 and 2012. The pre- and post-intervention time periods for LEAs that implemented the CEP in 2012 are different, and so the regression-adjusted means are different, but the estimated impact is the same because it derives from the same parameter in the model.

***=p<0.01, **=p<0.05, *=p<0.10.

Source: State-provided administrative data.

Total Federal Revenue per Student

The same method was used to estimate the CEP's impact on total monthly Federal revenue from reimbursable meals per student enrolled, as an indicator of the overall level of Federal funding for school foodservice programs. Exhibit 5.10 displays the regression-adjusted means for the participating (treatment) LEAs and non-participating (comparison) LEAs.[85] The average total Federal revenue per student for the treatment LEAs increased $9.51, while the matched comparison LEAs' total Federal revenue per student increased $4.18. Thus, the estimated impact of the CEP on total Federal revenue per student was $5.33, which is statistically significant and represents about a 13.5 percent increase in the total Federal revenue per student.

Exhibit 5.10: Impact on Total Federal Revenue per Student Enrolled

	Comparison	Treatment	Impact	Percent Impact
Average Pre-Intervention Total Federal Rev per Student	$39.48	$44.50		
Average Post-Intervention Total Federal Rev per Student	43.65	54.01		
Difference = (Post-Intervention Total Federal Rev per Student – Pre-Intervention Total Federal Rev per Student)	4.18	9.51	$5.33***	13.5%
Number of LEAs	525	286		
Number of observations	2,025	1,120		

***=p<.01, **=p<.05, *=p<.10.

Source: State-provided administrative data.

[85] As in Exhibit 5.1, estimates are for LEAs that implemented the CEP in SY 2011–12.

5.6.2 Non-Federal Revenue

The analysis of non-Federal revenue sources considered the impact of the CEP on revenue from State payments, transfers from other local sources to foodservice, payments for non-reimbursable foods and student payments for reimbursable foods. These analyses used an approach similar to that used to estimate the impact of the CEP on student participation rates and revenues from Federal sources. The analyses used data on revenue from four school years (2009–10, 2010–11, 2011–12, and 2012–13) collected primarily through the PEAR survey.[86] For LEAs in Year 1 States (Illinois, Kentucky and Michigan), this time period includes two pre-intervention and two post-intervention school years. For LEAs in Year 2 States (New York, Ohio and West Virginia), the time period includes three pre-intervention and one post-intervention school year.[87] Although multiple years of pre-intervention data were available, preliminary analyses of the pre-intervention years did not demonstrate a pattern of increasing or decreasing revenue for any of the non-Federal revenue types. For this reason, the variable representing time was omitted from the CITS model.

Fall State Revenue per Student

To estimate the CEP's impact on State revenue, pre- and post-implementation measures of fall State revenue per student for participating LEAs were compared to those from non-participating LEAs.[88] Exhibit 5.11 displays the regression-adjusted means for the participating (treatment) LEAs and non-participating (comparison) LEAs.[89] The total fall State revenue per student for the treatment LEAs increased $1.38 whereas the matched comparison LEAs' fall State revenue per student *decreased* by $1.11 over the same time. Thus, compared to what would have happened in the absence of CEP participation, treatment LEAs experienced a net increase of $2.49 per student in State revenues. However, this estimated impact of CEP is not statistically significant, so one cannot conclude that the CEP increased State revenues per student.

Exhibit 5.11: Impact on State Revenue

	Comparison ($ per student)	Treatment ($ per student)	Impact
Mean Pre-Intervention State Revenue	4.33	12.89	
Mean Post-Intervention State Revenue	3.23	14.27	
Difference = (Post-Pre Intervention State Revenue)	-1.11	1.38	2.49
Number of LEAs in sample	45	54	

***=p<.01, **=p<.05, *=p<.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey; State-provided administrative data.

[86] The analysis of State Revenue combined data from State Administrative Data (Illinois PEAR survey respondents) and from the PEAR survey (PEAR survey respondents in Kentucky, Michigan, New York, Ohio and West Virginia). The analyses of Local Revenue, Payments for Non-Reimbursable Foods and Student Payments for Reimbursable Foods only used PEAR survey data.

[87] Data on the 2009–10 school year were not collected for New York LEAs.

[88] State revenue per student was used as the outcome because State revenues were not broken down between NSLP and SBP.

[89] As in Exhibit 5.1, estimates are for LEAs that implemented the CEP in SY 2011–12.

As discussed in Section 5.4, the matching process used to select a comparison group for this analysis was not fully successful in balancing all of the pre-intervention characteristics with those in the treatment group (i.e., the participating LEAs). As a result, the model used to estimate the impact of CEP on State revenues included covariates for the unbalanced baseline characteristics: ISP, percent of Title I schools, charter status and the percent of students who are Hispanic.[90]

Local Revenue

A similar approach was used to estimate the CEP's impact on the proportion of LEAs that transferred funds from other local sources to the foodservice program. Exhibit 5.12 displays the regression-adjusted mean proportion of treatment and comparison LEAs that received funding from local sources.[91] The proportion of treatment LEAs that received local funds decreased 3.7 percentage points, compared to a decrease of 1.2 percentage points in the comparison LEAs during the same time. The estimated impact of the CEP on the proportion of LEAs is a non-statistically-significant decrease of 2.5 percentage points. Thus, the analysis did not detect any change in the proportion of LEAs that transferred funds from other local sources to the foodservice program that resulted from CEP participation.

Exhibit 5.12: Impact on Presence of Local Revenue

	Comparison	Treatment	Impact
Proportion of LEAs Reporting Local Revenue Pre-Intervention	26.5	24.7	
Proportion of LEAs Reporting Local Revenue Post-Intervention	25.3	21.0	
Difference = (Post-Intervention – Pre-Intervention)	-1.2	-3.7	-2.5
Number of LEAs in sample	64	97	
Number of observations	283	389	

***=p<.01, **=p<.05, *=p<.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey; State-provided administrative data.

Revenue from Payments for Non-Reimbursable Foods

The impact of the CEP on the proportion of LEAs that generate revenue from payments for non-reimbursable foods is estimated using the approach described in for local revenue. As shown in Exhibit 5.13, the proportion of treatment LEAs that generated revenues from non-reimbursable foods decreased 6.2 percentage points compared to a decrease of 2.8 percentage points in the proportion of comparison LEAs generating such revenue. The difference between these differences is the impact of the CEP on the proportion of LEAs generating revenues from the non-reimbursable foods: a decrease of 3.5 percentage points, which is not statistically significant. However, an alternative specification of the impact model (used to check the robustness of the principal analysis result) found a statistically significant result (as discussed in Appendix 5A.) Thus, there is some suggestive evidence that the CEP reduces the probability that an LEA will generate revenue through sales of non-reimbursable foods, although the analyses did not produce a firm conclusion.

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90 The full results of this analysis are available in Appendix 5A.

91 These results are based on a linear probability model following the specification in section 5.4 above. A longitudinal logistic regression confirmed the findings of the linear probability model.

Exhibit 5.13: Impact on Presence of Non-Reimbursable Foods Revenue

	Comparison	Treatment	Impact
Proportion of LEAs Reporting Non-Reimbursable Foods Revenue Pre-Intervention	66.6	70.1	
Proportion of LEAs Reporting Non-Reimbursable Foods Revenue Post-Intervention	63.9	63.9	
Difference = (Post-Intervention – Pre-Intervention)	-2.8	-6.2	-3.5
Number of LEAs in sample	61	86	
Number of observations	232	325	

***=p<.01, **=p<.05, *=p<.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey; State-provided administrative data.

Revenue from Student Payments for Reimbursable Meals

Exhibit 5.14 presents the regression-adjusted mean revenue from student payments for reimbursable meals. Among treatment LEAs the regression-adjusted mean student revenue decreased by $12.83 per student, while the mean student revenue for comparison LEAs decreased by $4.58 per student. This suggests that the implementation of the CEP corresponds to a reduction in student revenues of $8.24 per student.

Exhibit 5.14: Impact on Revenue from Student Payments for Reimbursable Meals

	Comparison ($ per student)	Treatment ($ per student)	Impact
Mean Pre-Intervention Student Payments	69.13	79.76	
Average Post-Intervention Student Payments	64.55	66.93	
Difference = (Post-Pre-Intervention Student Payments)	-4.58	-12.83	-8.24
Number of LEAs in sample	29	53	

***=p<.01, **=p<.05, *=p<.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey; State-provided administrative data.

The regression-adjusted means presented in Exhibit 5.14 have already accounted for the baseline differences explained by the baseline covariates included in the model: ISP and percent of Title I schools.[92] These covariates were selected based on the observed imbalances in the sample at baseline.

The magnitude of this estimate is biased downwards, potentially causing the analysis to miss a true, negative impact. The bias results from the construction of this outcome measure, which systematically over-represents LEAs that report generating no revenue from student payments for reimbursable meals as mentioned above and detailed in Appendix 5A. Hence, the student payments outcome measure underestimates student payments, on average. The magnitude of the underestimate appears to differ systematically between comparison and treatment LEAs at baseline.[93] Further, the magnitude of the underestimate is expected to be directly affected by the implementation of the CEP, which requires that fully participating LEAs generate no revenue from student payments. Had administrative data on student revenue been available, the findings of the impact of the CEP on

[92] The full results of this analysis are available in Appendix 5A, Exhibit 5A.26.

[93] See Exhibit 5A.26 in Appendix 5A for details.

student payments for reimbursable meals would likely have differed from those detailed above, given that participating schools do not collect payment from students for reimbursable meals.

5.6.3 Discussion of Revenue Results

The CEP's impact on Federal reimbursements per meal were positive and significant for both outcomes (about 6 percent for the NSLP and 2 percent for the SBP) and over various alternative specifications (see Appendix 5A). The same was true of total Federal revenue per student, which had a 13.5 percent increase. No impact of the CEP was found on any of the types of non-Federal revenue. In all cases, these impact estimates must be interpreted carefully, as was the case for participation rates. These estimates do not generalize to LEAs in these States that are not comparable to the participating LEAs, nor do they generalize to LEAs in other States.

As described in the discussion of participation results, the analyses depend on how well the increases in revenues in untreated comparison group represent what would have happened to schools in the treatment group had they not chosen to participate in the CEP. Because LEAs chose which schools adopted the CEP, participating and non-participating schools may differ systematically in ways that directly affect the outcomes of interest. However, this problem is likely modest, given that in the average participating LEA, 94 percent of eligible schools participated.[94] While the propensity score matching approach identified comparison LEAs with similar characteristics to their treatment counterparts, these characteristics do not account for other, potentially important, and unmeasurable characteristics that may influence the take-up decisions of LEAs, such as the expectation that the LEA will benefit from adopting the CEP. Nevertheless, the propensity score matching and the difference-in-difference analytic approach provide the strongest possible way to separate the impact of the CEP from the other factors that affected NSLP and SBP participation in the sample. Moreover, the robustness of the results provides additional confidence in the conclusion that the CEP did indeed increase Federal reimbursement per meal for NSLP and SBP and the total Federal revenue per student. The estimated relative impacts (5.6 percent Federal reimbursement per NSLP lunch and 13.5 percent for total Federal revenue per student) are of sufficient magnitude that they are likely to be seen as not only statistically significant but also substantively important. However, the estimated impact on Federal reimbursement per meal is quite small relative to the cost of a paid meal, so LEAs would have to have a very low percentage of paid meals to have the same total revenue per meal. This finding is relevant to considerations of whether the current multiplier for claiming percentages is equitable. Taken together, the finding of increased Federal funding and the lack of evidence that other revenues significantly declined suggest that the CEP did not have an adverse overall effect on LEA foodservice revenues, and may have produced a net gain for participating LEAs.

5.7 Impact on the Availability of the School Breakfast Program and Types of School Breakfast Service

This section draws on a variety of data sources, including the Participation, Enrollment, Attendance and Revenue (PEAR) Survey, the Implementation Web Survey of Participating LEAs and the Pre-visit Questionnaire administered as part of the Menu Survey.[95] As each of these data sources draws

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[94] This statistic is for all participating LEAs, not just those in the analysis sample.

[95] See Chapter 2 for more information on each data source and the sample for which data are available.

on slightly different sample, key characteristics of the sample and data source are mentioned in the discussion of the results for each question below.

5.7.1 Presence of the School Breakfast Program

Although the CEP requires that all participating schools offer the School Breakfast Program (SBP), the potential impact of the CEP on the presence of the SBP is limited to schools that do not offer the SBP and are among those schools that are likely to implement the CEP.

Exhibit 5.15 below displays the unadjusted proportions of LEA PEAR survey respondents that offered the SBP in SY 2012–13 at all schools, by treatment group and State. Among PEAR respondents in the comparison group, 94 percent offered the SBP at all schools; among PEAR respondents in the treatment group of LEAs, 99 percent offered the SBP at all schools. Many States mandate that the SBP be offered at schools where more than a certain fraction of students qualify for free or reduced price lunch (FRAC, 2013). Among the 252 LEAs in the PEAR survey sample, only 8 LEAs did not offer the SBP at all schools (6 treatment and 2 comparison).[96]

Exhibit 5.15: Proportion of LEAs that Offer the SBP at All Schools, by Treatment Group and State

	Comparison		Treatment	
	N	SBP in All Schools (Percent)	N	SBP in All Schools (Percent)
Illinois	19	94.7	23	100.0
Kentucky	24	95.8	24	100.0
Michigan	32	90.6	43	95.3
New York	8	87.5	12	100.0
Ohio	10	100.0	26	100.0
West Virginia	15	100.0	16	100.0
Total	108	94.4	144	98.6

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey.

Exhibit 5.16 below presents the regression-adjusted proportion of LEAs that offer SBP at all schools. As the sample is unbalanced on ISP and average daily participation (ADP) in SBP, these means are obtained from a regression that controlled for ISP and SBP ADP.[97] The analysis found no effect of the CEP on the presence of the SBP.

[96] The two treatment LEAs that did not offer the SBP at all schools have not implemented the CEP district wide. The requirement to offer the SBP at all CEP schools does not apply at non-CEP schools in partially participating LEAs.

[97] These results were obtained from an ordinary least squares regression assuming a linear probability model. A logistic regression yielded the same results: the difference is not significantly different from zero when controlling for the covariates on which the sample was imbalanced. Baseline balance tests for this sample appear in Exhibit 2.7.

Exhibit 5.16: Impact on Presence of SBP

	Comparison (Percent)	Treatment (Percent)	Difference (Percentage Points)
Regression-adjusted proportion of LEAs with SBP at all schools	90.4	94.1	3.7
Number of LEAs	103	142	

***=p<.01, **=p<.05, *=p<.10.

Source: Participation, Enrollment, Attendance, and Revenue (PEAR) survey.

The absence of observed impact on whether LEAs offer SBP does not preclude the possibility that CEP participation impacted the availability of the School Breakfast Program in other ways. Other data sources suggest such impacts. For example, among the 347 participating LEAs that responded to the Implementation Web Survey, 9 percent reported implementing or expanding their breakfast program due to the CEP. Below, results of correlational analyses of the relationship between participation and changes in SBP are reported, beginning with the relationship between participation in the CEP and the type of breakfast service offered.

5.7.2 Type of Breakfast Service Offered

Through the CEP, schools offer free breakfast to all enrolled students. Because they do not have to collect payment for reimbursable meals, schools implementing the CEP have more flexibility in how they serve breakfast to their students. Thus, participating schools may differ from non-participating schools in terms of the types of breakfast service offered. This section examines the relationship between CEP participation and types of breakfast service.[98] Data are from the Pre-Visit Questionnaire administered to the sample of treatment and comparison schools selected for the Menu Survey (a sub-sample of the PEAR sample).

Exhibit 5.17 presents the combination of types of breakfast service utilized in each sampled cafeteria, by treatment group. Foodservice directors indicated if their cafeteria used traditional line service, grab-and-go breakfast, in-classroom breakfast or other type of service. About one quarter of foodservice directors (24 percent) indicated multiple types of breakfast service. Traditional line service was the most common mode of breakfast service in both groups: 94 percent of comparison and 74 percent of treatment cafeterias used traditional line service (either alone or in combination with other models) at breakfast.[99] In cafeterias utilizing traditional line service, another type of breakfast service was sometimes indicated as well: 18 percent of all comparison and 20 percent of all

[98] This section presents data on the characteristics of the School Breakfast Program from the Pre-Visit Questionnaire administered as part of the Menu Survey. In the recruiting process for on-site data collection, schools operating universal free meals programs other than the CEP were screened out. The survey was fielded to each cafeteria representing the schools selected for Component 3 on-site data collection. This analysis examines the experience of 146 cafeterias representing 156 schools. All cafeterias in both the treatment and comparison groups offer breakfast.

[99] Note that the proportion of cafeterias that used traditional line service is found by summing across all the rows in Exhibit 5.17 that include traditional line service.

treatment cafeterias reported both traditional line service and grab and go breakfast. Foodservice directors for four cafeterias indicated a type of service other than the listed types.[100]

Exhibit 5.17: Prevalence of Combinations of Types of Breakfast Service, by Treatment Group

Type of Breakfast Service	Comparison (Percent)	Treatment (Percent)
Traditional line service only	75.0	45.9
Traditional and grab and go	18.1	20.3
Grab-and-go breakfast only	5.6	9.5
In-classroom breakfast only	0.0	13.5
Traditional and in-classroom	1.4	2.7
Traditional and other type of service	0.0	2.7
Traditional, in-classroom and grab and Go	0.0	2.7
Other type of service	0.0	1.4
Grab-and-go and other type of service	0.0	1.4
Number of cafeterias	72	74

Source: School Pre-Visit Questionnaire/Menu Survey.

Exhibit 5.18 compares the prevalence of each type of breakfast service between the comparison and treatment groups.[101] CEP participation is associated with a statistically significant reduction in the proportion of LEAs that utilize traditional line service at breakfast, and a statistically significant increase in the proportion of LEAs that utilize in-classroom breakfast. Although the proportion of LEAs utilizing grab and go breakfast is higher in the treatment group, the difference is not significant.

Exhibit 5.18: Prevalence of Each Type of Breakfast Service, by Treatment Group

	Comparison	Treatment	Difference
Traditional Line Service	94.4%	74.3%	–20.1%***
In-classroom	1.4%	18.9%	17.5%***
Grab-and-go	23.6%	33.8%	10.2%
Number of LEAs in sample	25	27	
Number of cafeterias	72	74	

Percentages do not sum to 100 because schools could offer more than one of these models.

***=p<.01, **=p<.05, *=p<.10.

Source: School Pre-Visit Questionnaire/Menu Survey.

To investigate which alternative types of breakfast service were retained as ongoing practice, rather than being implemented for a single year as one-time "experiment," Exhibit 5.19 presents the prevalence of each model of breakfast service by duration of CEP participation in the Year 2 States (Illinois, Kentucky and Michigan). In these States, the treatment group included schools in their first

[100] The four foodservice directors that indicated another type of service described these services as "Food Court," "Vending Machines," "To Go Boxes/Student Choice" and "Cart Out to Common Area." All of these cafeterias are in the treatment group.

[101] Each of these results were obtained from a regression that assumed a linear probability model, clustered standard errors by LEA and included no covariates. Logistic regression yielded qualitatively similar results. Although schools could offer more than one of each type of breakfast service, the analyses were conducted separately. As this analysis is exploratory, no adjustments were made to account for multiple comparison issues or correlations across outcomes.

year of implementation of the CEP as well as schools that in their second year of implementation. Among cafeterias that were in their second year of CEP, 71 percent utilized traditional line service, the same proportion as in cafeterias in their first year of implementation. In comparison group LEAs, 97 percent of cafeterias utilized traditional line service. This pattern reinforces the finding presented in 5.19 that participation in the CEP is associated with a decrease in the use of traditional line service at breakfast. Similarly, the prevalence of in-classroom breakfast in comparison, first year treatment and second year treatment LEAs (0, 24 and 19 percent, respectively) reinforces the association between CEP participation and an increased likelihood of offering breakfast in the classroom. These patterns suggest that the changes in breakfast service are not the result of a one year trial of a new model of breakfast service, but an ongoing shift in practice.

Exhibit 5.19: Prevalence of Models of Breakfast Service in Year 2 States (Illinois, Kentucky and Michigan), by Duration of CEP Participation

	Comparison	First Year of Treatment	Second Year of Treatment
Traditional Line Service	97.2%	70.6%	71.4%
In-classroom	0.0%	23.5%	19.0%
Grab-and-go	13.9%	41.2%	19.0%
Number of cafeterias	36	17	21

Source: School Pre-Visit Questionnaire/Menu Survey.

5.7.3 Student Choice of Foods at Breakfast

To address the research question on whether the identical breakfast is served to all students, this section relies on data describing whether students have a choice of foods to select from at breakfast. [102] Exhibit 5.20 compares proportions of cafeterias in which students have a choice of breakfast between the comparison and treatment groups, after controlling for differences between the treatment and comparison schools.[103] While students have a choice of breakfast in 89 percent of treatment cafeterias, participation in the CEP is associated with a statistically significant, 9.4 percent smaller likelihood that a cafeteria will offer students a choice of food at breakfast.

Exhibit 5.20: Percentage of LEAs reporting that Students Have a Choice of Foods at Breakfast, by Treatment Group

	Comparison	Treatment	Difference
Students have a choice of foods at breakfast	98.6%	89.2%	-9.4%**
Number of LEAs in sample	25	27	
Number of cafeterias	72	74	

Source: School Pre-Visit Questionnaire/Menu Survey.

[102] As in the previous section, this section presents data on the characteristics of the School Breakfast Program from the Pre-Visit Questionnaire administered as part of the Menu Survey. The survey was fielded to each cafeteria representing the schools selected for Component 3 on-site data collection. This analysis examines the experience of 146 cafeterias representing 156 schools. All cafeterias in both the treatment and comparison groups offer breakfast.

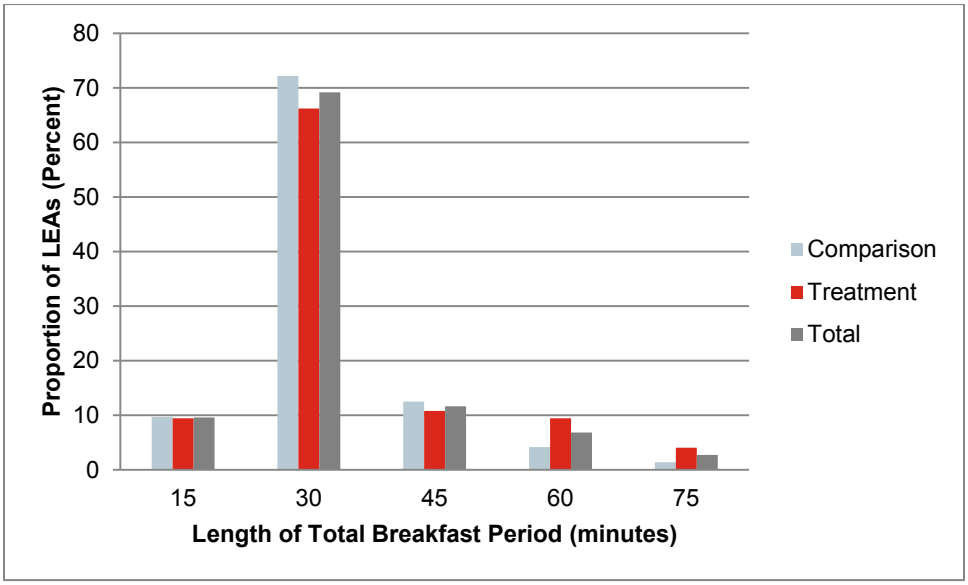
[103] These results were obtained from a regression that assumed a linear probability model, clustered standard errors by LEA and included no covariates. Logistic regression yielded qualitatively similar results.

5.7.4 Time Allowed for Students to Eat Breakfast

In both the treatment and comparison groups, the typical cafeteria allows students 30 minutes to eat breakfast.[104] These data are obtained from the Pre-Visit Questionnaire administered to Component 3 LEAs as part of the Menu Survey.

Exhibit 5.21 displays the distribution of the length of the breakfast period in minutes for the treatment group, the comparison group, and all cafeterias. The distribution is very similar across the three groups.

Exhibit 5.21: Length of Breakfast Period, by Treatment Group



Source: School Pre-Visit Questionnaire/Menu Survey.

5.7.5 Discussion of School Breakfast Program Results

The School Breakfast Program was widely available in LEAs that are not participating in the Community Eligibility Provision but are likely to take up the CEP:[105] among LEAs in the matched comparison group that completed the PEAR survey, 94 percent offered the SBP at all schools in school year 2012–13. This level of availability of the SBP in LEAs likely to implement the CEP means that relatively few LEAs implementing the CEP option will be required to offer a "new" breakfast program. Indeed, the data from the PEAR survey demonstrated no statistically significant difference in SBP availability between the treatment and comparison groups. This finding suggests that the requirement that schools participating in CEP offer a SBP is not a barrier to implementation of the CEP, but also that the CEP will not increase the availability of the SBP.

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[104] The median and modal length of breakfast period is 30 minutes for both groups. The mean is slightly higher because a few cafeterias reported breakfast periods of 75 minutes.

[105] Comparison LEAs were selected through a propensity score matching process that identified them as approximately equally likely to take up the CEP as a treatment LEA. See Chapter 2 for details.

Other findings demonstrate that implementation of the Community Eligibility Provision is associated with changes in the model of breakfast service. Implementation of the CEP is associated with a decrease in the use of traditional line service at breakfast and an increase in the use of in-classroom breakfast, which is often recommended as a way to increase SBP participation but complicated to implement under conventional meal counting and claiming procedures.

Participation in the CEP is also associated with a decrease in the likelihood that students are offered a choice of foods at breakfast. The reduction in choice of foods is potentially linked to the change in the model of breakfast service. A shift from traditional line service to in-classroom breakfast could plausibly involve a move from service that offers students choice to one that does not.

Although the sample used to investigate the impact on ADP in the SBP is quite different and much larger than the one used to investigate the characteristics of the SBP, taken together, the two analyses tell a coherent story. Both in-classroom breakfast and reduced choice represent strategies that an LEA might use to increase the number of breakfasts served within the constraints of its schedules and facilities. This interpretation is consistent with the increase in average daily participation in the School Breakfast Program described earlier in the chapter.

6. CEP Impacts on Staffing, Administrative, and Meal Production Costs

This chapter reports the effects of CEP participation on staffing, administrative, and meal production costs, specifically addressing three research questions:

1. To what extent did the administrative burden of operating the NSLP and SBP change under the CEP?

2. What is the difference in administrative costs associated with the Option to the LEA compared to the costs in the absence of the option?

3. To what extent did the costs of producing reimbursable meals change under the CEP?

All data on administrative cost and staffing impacts were collected from samples of treatment (CEP) and comparison (non-CEP) LEAs and schools. The comparison schools were selected from LEAs matched to the treatment LEAs using the propensity score method described in Chapter 2. The estimates of impacts on administrative costs and staffing are specific to the respective samples of schools observed. These estimates do not represent the impact of CEP on other participating schools not represented by the sample, including schools that did not meet the sampling criteria and schools in other States.

All impact measures are based on a posttest-only comparison group design, which relies on the matched sample and regression models that control for differences between treatment and comparison schools other than whether they use the CEP. It is important to note that analyses based on data collected after a policy has been implemented may be subject to selection bias or may reflect confounds arising from other systematic differences. For example, because the evaluation has no pre-program observations for either the treatment or comparison group members, one cannot know whether the posttest observations differ from the pre-intervention levels. As discussed in Chapter 2, the use of matched comparison groups and regression models reduces, but does not eliminate, the selection bias inherent in comparisons when treatment is voluntary. In particular, the posttest-only comparison design does not control for unobserved differences that are not highly correlated with the known characteristics of the LEAs and schools in the sample. Nevertheless, this was the most feasible strategy for estimating the impact of the CEP, by providing some contrast to a non-CEP condition that is the best estimate of the counterfactual that can be identified. As such, the method represents an improvement over a purely descriptive estimate of treatment group outcomes, by accounting for systematic differences in school characteristics that may affect the outcomes.

The analyses in Chapters 6, 7, and 8 should be considered exploratory and viewed with more caution than the analyses in Chapter 5. As discussed in Chapter 2, the evaluation included a large number of outcomes, and so the design specified two outcomes as confirmatory (NSLP participation and Federal NSLP revenue per meal) and the rest of the outcomes as exploratory. The statistical tests have not been adjusted for multiple comparisons, i.e., the likelihood of finding a statistically significant impact in numerous tests as a result of chance. Therefore, readers are advised to view individual results as only suggestive of probable impacts, unless they have an especially high degree of confidence (i.e., significance at the 1 percent level), and to focus on more systematic patterns of similar results for related outcomes.

6.1 Expectations for CEP Impacts on Staffing, Administrative, and Meal Production Costs

A major objective of the CEP is to eliminate the time and cost burden of processing applications for FRP meals. CEP participation also has the potential to reduce effort and costs associated with counting meals, collecting student payments for meals, and claiming reimbursements. Moreover, CEP participation may alter the per meal production costs if schools simplify menus or otherwise streamline operations to meet increased demand associated with CEP participation, or if fixed costs of foodservice operations are spread over an increased number of meals served due to increased student participation.

Although the CEP is expected to reduce the costs of SBP and NSLP administration overall, the extent of this reduction is uncertain. While participating LEAs and schools are not required to process and verify FRP applications, some LEAs may collect alternate household income forms for purposes other than those required by FNS. Although the costs of doing so should not be attributed to school meal programs and were not measured for this evaluation, from a broader perspective they remain part of the LEA's overall administrative costs. Direct certification effort and costs could potentially increase with CEP participation, if LEAs and schools devote more effort to maximizing their ISPs either to qualify for the CEP or to achieve higher reimbursement rates. On the other hand, CEP LEAs are not required to conduct direct certification, so effort and costs for this function could drop. Similarly, LEAs and schools participating in the CEP might simplify meal counting and claiming procedures, yet some may maintain existing processes to assure accurate meal counts and avoid duplicate participation. Anticipated reductions in meal production costs may not be realized if LEAs use the cost savings from other tasks to upgrade menus, resulting in the same or higher meal production costs. It is also worth noting that costs associated with all of these activities could initially rise as LEAs and schools transition to new systems.

6.2 Outcome Measures

To address these issues, this chapter presents analytic impact estimates on administrative effort and costs in two ways. First, it presents impacts for the five functions that were expected to be affected by the CEP:

A. Distributing and processing applications for free or reduced-price meals;
B. Direct Certifications;
C. Verifying income of free/reduced price students;
D. Meal payment collections and accounting; and
E. Counting and claiming reimbursable meals.

CEP participation could also shift the distribution of effort and cost across different staff within the LEA. Thus, to address this question, this chapter also presents estimated impacts on administrative effort and costs for four staff types:

A. LEA staff;
B. School foodservice staff;
C. School non-foodservice staff; and
D. School staff, role indeterminate or mixed.

The final section of this chapter provides results on LEA foodservice directors' impressions of cost impacts based on questions from the PEAR survey and the administrative cost and staffing interview.

6.3 Data and Methods

6.3.1 Data

The impact estimates in this and the next section are derived using the posttest-only comparison group design outlined in Chapter 2. Chapter 2 also described the data collection for these analyses.[106] Briefly, average hourly labor rates were calculated for each position in each school and in the LEA central office based on staff roster data. The hourly rates were then linked to data on annual hours spent by each staff position on the applicable administrative tasks to derive an annual cost.[107] The annual time and labor cost data were then divided by the school's enrollment (for school-level tasks) or LEA enrollment (for LEA-level tasks) and summed by task and position type for each school or for the LEA. The LEA-level time and labor costs per student were added to the corresponding time and labor costs for each school (this entails the assumption that LEA-level costs for each school are proportional to enrollment). The analytic variables represent each school's per student annual hours and labor costs for each administrative task and position type. As noted in Chapter 2, the analysis file comprised data on 247 schools (123 treatment and 124 comparison) in 100 LEAs (52 treatment and 48 comparison). Appendix 6A presents detail about the characteristics of the analysis sample.

Five questions from the PEAR survey pertained to changes in meal production costs over the past two years. An average of 218 respondents (129 treatment and 89 comparison LEAs) replied to these questions. The results are tabulated in Section 6.5. At the end of the administrative cost interview, conducted as part of Component 2 data collection, nine questions were asked of CEP participating LEAs. There were 54 respondents to these interview questions (some LEAs had more than one respondent). Two of the nine questions pertained to meal production costs. The results are also presented in Section 6.5.

6.3.2 Analytic Model

The impact results presented in this chapter (and in Chapters 7 and 8) rely on the posttest-only comparison group design to assess the impact of the CEP administrative staff and time costs for tasks associated with FRP certification and meal counting and claiming. Schools were used as the unit of analysis, since a significant portion of these activities occur at the school level (as opposed to LEA central offices). The model used to estimate impacts was:

$$Y_{si} = \beta_0 + \beta_1 T_i + \beta_2 \mathrm{Z} + \varepsilon_{si} \qquad \text{(Eq. 6.1)}$$

where

[106] Complete details on the construction of the cost analysis file will be provided in the final database and accompanying documentation deliverable.

[107] The original plan was to include position-specific data on fringe benefits rates and LEA-specific data on indirect cost rates in the hourly rate calculations. However, inconsistencies in the availability of some data elements required the use of common fringe and indirect cost rates of 30 and 12.75 percent, respectively (based upon the study sample median rates)

Y_{si} is the annual labor time or cost per enrolled student for school s in LEA i;

T_i is the treatment indicator (=1 if LEA i participates the CEP; =0 otherwise);

Z_{si} is a vector of characteristics of school s in LEA i; and

ε_{si} is the error term.

The error term is assumed to be correlated within LEAs, and the standard errors of coefficients are adjusted to account for this clustering.

The coefficient of the treatment indicator, β_1, is the impact estimate. The coefficient vector β_2 reflects the effects of other variables included in the model as statistical controls. The first parameter, β_0, describes the hypothetical outcome in the absence of the treatment and with all the Z variables set to zero.

The vector of school characteristics, Z, included:

- the school's grade level (i.e., whether elementary, middle, or high), with high school as the reference category;
- the State, with West Virginia as the reference State; and
- school enrollment, school percentage of students certified for FRP meals, and LEA ISP (the LEA and school-level features where balance testing discerned a difference between treatment and comparison LEAs that was statistically significant at the 10 percent level).

The impact estimates presented in the results section draw on the results of the above model. The impact estimate, or the coefficient of the treatment indicator, β_1, is labeled "T-C Difference (Impact)" in these Exhibits. The column labeled "Comparison schools" is the average of the outcome for schools in the comparison group, and the column labeled "Treatment schools" is the average of the outcome for schools in the comparison group *plus* the impact estimate. This latter quantity may be thought of as a regression-adjusted average outcome for schools in the treatment group, or, alternatively, the average outcome schools in the comparison group if they participated in the CEP program.

Additional details on the data used in the model, the balance tests used to determine which covariates to include, and the complete regression model results are presented in Appendix 6A.

6.4 CEP Impacts on Administrative Staff Time and Costs

6.4.1 CEP Impacts on Administrative Staff Effort and Costs Overall and by Type of Activity

Estimated impacts of CEP participation on staff effort and costs devoted to the different types of administrative functions are shown in Exhibit 6.1. Results are displayed as regression-adjusted means for the treatment group, actual means for the comparison group, differences in means, and percentage differences in means. The CEP reduced staff time and costs for distributing and processing applications for free or reduced-price meals, verifying income of free/reduced price students, and meal payment collections and accounting, but increased staff time and costs for counting and claiming reimbursable meals. There was no impact on effort and time for direct certification, which was the function with the least time per student in the comparison group.

Exhibit 6.1: Estimated Impacts of CEP Participation on Annual Time and Labor Costs for Administrative Tasks, by Task Domain

	Comparison Schools	Treatment Schools	T-C Difference (Impact)	Percent Impact
Hours per enrolled student				
A. Distributing and processing applications for free or reduced-price meals	0.46	0.12	-0.34***	-74.8
B. Direct certifications	0.09	0.09	0.00	4.4
C. Verifying income of free/reduced price students	0.12	0.01	-0.11***	-94.2
D. Meal payment collections and accounting	1.92	1.24	-0.68**	-35.5
E. Counting and claiming reimbursable meals	0.43	0.87	0.44***	103.8
Total	3.01	2.32	-0.69	-23.0
Cost per enrolled student				
A. Distributing and processing applications for free or reduced-price meals	13.78	2.93	-10.84***	-78.7
B. Direct certifications	3.45	3.46	0.01	0.4
C. Verifying income of free/reduced price students	3.99	0.11	-3.88***	-97.1
D. Meal payment collections and accounting	41.71	27.61	-14.10*	-33.8
E. Counting and claiming reimbursable meals	9.45	21.54	12.09***	127.9
Total	72.38	55.66	-16.72	-23.1
Number of schools	124	123		
Number of LEAs	48	52		

***=p<0.01; **=p<0.05; *=p<0.10.

Source: Administrative Cost Interview and Staff Roster data.

Total administrative time and costs for the five functions were lower for the treatment group but the differences were not statistically significant.[108] Schools in the comparison group averaged about 3 hours and $72 per enrolled student per year on the specified administrative activities associated with the SBP and NSLP. The point estimates suggest that schools in the treatment group spent about 0.7 hours (40 minutes) and $17 per student less than the comparison group. A modest reduction in overall administrative costs is consistent with data from the administrative cost interviews with foodservice directors in CEP LEAs, where 15 percent reported a reduction in administrative staffing and 6 percent reported re-assigning staff compared with 4 percent who reported increased administrative staffing.

The largest impact of the CEP on labor time and costs occurred in two functions: distributing and processing applications for free or reduced-price meals, and verifying income of free/reduced price students. Comparison schools spent about a half hour, at a cost of $13.78, per student per year, distributing and processing applications for free or reduced-price meals; the CEP was estimated to

[108] The results for total administrative time and costs are not statistically significant, yet the pattern is suggestive, as results are significant under slight differences in model specification, and there are effects on the components of total costs, which, taken together, may point to plausible impacts on total costs.

reduce the time spent on this activity to 7 minutes and costs to less than $3 per student per year. Likewise, comparison schools spent nearly $4 per student annually verifying income of free/reduced price students; the CEP reduced this cost to $0.11.[109]

Most effort was spent on meal payment collections and accounting in both treatment and comparison groups. Consistent with expectations, CEP participation reduced the time and cost associated with this activity by about 35 percent. In terms of labor costs, for example, schools' average annual costs per student associated with meal payment collections and accounting were $42 in comparison schools and $28 in treatment schools.

Taken together, CEP participation appears to reduce time spent on distributing and processing applications for free or reduced-price meals, verifying income of free/reduced price students, and meal payment collections and accounting by 68 minutes, and reduces labor costs for these activities by about $29 per student per year. The CEP had no impact on the staff time and costs associated with Direct Certification.

A surprising result is that the CEP more than doubled staff time and cost of counting and claiming reimbursable meals. Comparison schools devoted less than half an hour, or $9.45, per student per year to this activity; treatment schools spent almost an hour, or $21.54 per student per year. Increased participation in school meal programs—discussed in the preceding chapter—may partially explain the higher counting and claiming costs, but the difference seems too large to be fully accounted for by increased participation.

States did not report any LEA concerns about increased time for meal counting and claims, and in fact expected that simplified procedures resulting from the CEP would result in less time needed for these processes. Qualitative data from LEA cost interviews suggest simplifications or cost savings—the opposite of analytic results—associated with meal counting processes. A substantial proportion of LEA foodservice directors (41 percent) reported that data processing, including systems of counting meals, had changed as a result of the CEP; of these FSDs, reported types of changes included the following:

"Not using software; only counting how many students take breakfast/lunch daily."

"Saves money because they no longer need the POS. Simplified the entire process. POS systems are very expensive to buy, maintain, annual fees and support."

"Implemented tally sheet in elementary school—faster."

"At breakfast in elementary schools, students no longer have to enter ID number as they go through the line."

[109] There are two possible explanations for why the estimated effort and cost for processing applications and verification are not zero for treatment schools. First, some treatment LEAs in the Component 2 sample had non-CEP schools, and these may have had LEA-level costs for application processing and/or verification. Second, although interviewers specifically asked about applications for FRP meals, some treatment schools or LEAs may have reported costs of processing and verifying household income forms collected in lieu of FRP meals applications. These costs are not true school meals program costs. Thus, some treatment schools or LEAs may have overstated their application processing and verification costs, so the actual reduction in effort and costs attributable to the CEP may be understated.

As discussed in Chapter 3, all six CEP States in the Impact Study provided automated systems for LEAs to submit claims for meal reimbursements. Some States modified their systems to automate the computation of free and paid meal counts, while others provided spreadsheets for LEAs to make these computations. In both cases, the LEAs had to use a new process, and this process may have taken longer than the conventional claims process, particularly when the LEA used a spreadsheet to compute the meal counts before entering them.[110] Also, some LEAs stopped using their point-of-sale systems and switched to manual procedures for counting meals, in order to speed up cafeteria lines (as noted in the quotes above). This change would contribute to the reduction in time for meal payments and collections, but it would then require workers to total up meal counts on the tally sheets or other manual documents. The CEP could produce net savings in meal counting and claiming costs in the long run, if schools no longer had to bear the cost of automated systems for meal counting and payments (provided that changes in cafeteria procedures do not increase labor costs by the same amount or more). Since data were not collected on these latter costs, such savings (if any) could not be reflected in the analysis.[111]

6.4.2 CEP Impacts on Administrative Staff Effort and Costs by Type of Staff

The analytic results presented in this subsection are derived from the same data and methods described above. Here, however, impacts on different kinds of staff are examined. Although almost all of the point estimates for CEP impacts by staff type are negative, none are statistically significant.

Exhibit 6.2 shows estimated CEP impacts on schools' annual administrative staff time and labor costs per enrolled student for different kinds of staff. In comparison schools, school foodservice staff spent the most staff time (1.77 hours per student, or about 60 percent of the total staff time allocated to the specific administrative activities examined in this analysis), at a cost of $36 per student (50 percent of total labor costs analyzed). CEP participation was associated with roughly 20 percent less time and cost, although the difference was not statistically significant.

LEA and school non-foodservice staff in comparison had roughly equivalent shares of the remainder of the effort and cost, amounting to about 30 minutes (one half-hour) or $14–19 per student per year for each. Except for school non-foodservice staff, the adjusted treatment group means are less for these staff types, implying a reduction in effort and costs, but none of the estimated impacts for any particular type of staff is statistically significant. These results, combined with those in the previous section, suggest that CEP changes what staff do while reducing the administrative effort of all staff. In other words, the time and cost savings on administrative tasks associated with CEP participation are not concentrated in a single category of worker, but are broadly dispersed.

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[110] There was not a significant difference in meal counting and claiming costs between LEAs in the Year 1 and Year 2 States, or between LEAs with full versus partial CEP participation. However, the sample was not designed to test for such differences, or for differences between States with fully-automated claims systems and those that used a less automated process for the CEP. The interviews asked only about operational tasks performed by LEA staff, so the costs do not include modifications to LEA systems.

[111] Collection of data on automated systems costs was not attempted because such systems are usually integrated and support multiple functions, so the costs associated with the functions not needed under CEP would be difficult if not impossible to break out. Furthermore, systems to track meals served at the student level may be required to assure that the LEA claims only one meal per participating student.

Exhibit 6.2: Estimated Impacts of CEP Participation on Annual Time and Labor Costs for Administrative Tasks, by Staff Type

	Comparison Schools	Treatment Schools	T-C Difference (Impact)	Percent Impact
Hours per enrolled student				
A. LEA staff	0.54	0.42	-0.12	-22.1
B. School foodservice staff	1.77	1.46	-0.31	-17.5
C. School non-foodservice staff	0.56	0.39	-0.18	-31.1
D. School staff, role unknown	0.14	0.05	-0.09	-63.3
Total	3.01	2.32	-0.69	-23.0
Cost per enrolled student				
A. LEA staff	19.03	11.58	-7.45	-39.2
B. School foodservice staff	35.91	27.81	-8.11	-22.6
C. School non-foodservice staff	13.83	14.34	0.51	3.7
D. School staff, role unknown	3.61	1.93	-1.68	-46.5
Total	72.38	55.66	-16.72	-23.1
Number of schools	124	123		
Number of LEAs	48	52		

***=p<0.01; **=p<0.05; *=p<0.10.

Source: Administrative Cost Interview and Staff Roster data.

6.5 Descriptive Findings for CEP Impacts on Meal Production Costs

Impacts on meal production costs were assessed in two ways: the PEAR survey and interviews with CEP-participating LEA foodservice directors, both of which asked whether costs had increased or decreased and whether LEAs had allocated more or fewer staff to food production activities. Although responses to these questions cannot serve as hard evidence of cost impacts, they provide useful descriptive information. Overall, they present a mixed picture. Some results suggest cost savings or greater ease in breaking even, while others suggest increased costs.

Exhibit 6.3 shows responses to the question asked of foodservice directors in CEP participating LEAs: "Have you made any changes to food production staffing (that is, the number of person hours) as a result of implementation of the Community Eligibility Option?" The majority of LEA (56 percent) reported no change. Thirty-two percent reported an increase while 7 percent reported a decrease. This suggests that some CEP-participating LEAs may have increased total meal production effort in response to increased participation, but it does not necessarily indicate a change in production costs per meal. In fact, if the number of meals served increased more than staff costs, the staff cost per meal would go down.

Exhibit 6.4 presents data about meal production costs from the PEAR survey administered to respondents in treatment and comparison LEAs. Large majorities (about 78 percent for breakfast and 85 percent for lunch) of both treatment and comparison LEAs reported increased food costs over the past two years. Somewhat higher proportions of comparison than treatment LEAs reported higher labor costs (52 versus 47 percent for breakfast and a statistically significant 67 versus 55 percent for lunch). This suggests that meal production labor costs may have increased more for comparison than for treatment LEAs, and thus that the CEP may have helped to offset the labor cost increase as both groups implemented new meal pattern rules. However, slightly more treatment than comparison LEAs (56 versus 51 percent) indicated that cafeteria workers' average hourly pay had increased over last two years, suggesting the opposite.

Exhibit 6.3: Responses to the question: "Have you made any changes to food production staffing (that is, the number of person hours) as a result of implementation of the Community Eligibility Option?"

	Percent
Yes—reduced staff hours	7.4
Yes—increased staff hours	31.5
No changes	55.6
Don't know	1.9
Missing	3.7
Total	100.0
Number of observations	54

Source: Administrative Cost Interview.

Exhibit 6.4: Responses to PEAR Survey Meal Production Cost Questions

	Treatment	Comparison
Labor cost per breakfast increased over last two years	47.3 (N=129)	51.8 (N=85)
Food cost per breakfast over the last two years	78.5 (N=130)	78.4 (N=88)
Labor cost per lunch increased over last two years	54.6 (N=130)	67.4 (N=89)
Food cost per lunch over the last two years	85.0 (N=133)	85.4 (N=96)
Cafeteria workers' average hourly pay increased over last two years	55.6 (N=124)	51.1 (N=88)

Source: PEAR Survey.

Finally, Exhibit 6.5 summarizes FSD responses (from CEP LEAs) about how CEP participation affected LEAs' ability to balance revenues and costs. The results suggest that, for the majority of LEAs, the CEP has made it easier for LEAs to break even or at least had no impact. Forty-four percent of respondents replied that it was easier to break even under CEP and 19 percent reported no change, while 11 percent reported that it was more difficult.

Exhibit 6.5: Responses to the question: "Has the Community Eligibility Option affected whether your LEA foodservice is able to break even, that is, whether revenues from all sources are at least equal to costs?"

	Percent
Yes—easier	44.4
Yes—harder	11.1
No change	18.5
Don't know	18.5
Did not respond to question	7.4
Total	100.0
Number of observations	54

Source: Administrative Cost Interview.

7. Program Integrity Impacts

This chapter presents the findings about the impacts of the Community Eligibility Provision (CEP) on the integrity of the NSLP and SBP. The specific research questions regarding program integrity were:

1. What is the impact on administrative errors associated with the certification process?
2. What is the impact on errors in:
    a. meal counting by cashiers and
    b. computing claims for reimbursement?

There are three dimensions of program integrity corresponding to these three questions. The CEP was expected to simplify program administration and therefore reduce errors in two of these dimensions: certification for FRP meals, and counting and claiming of reimbursable meals. For meal counting by cashiers (i.e., the identification of which meals are reimbursable), there were some reasons to expect reduced error, and some reasons to expect that errors could increase, as discussed below.

All such errors are important to USDA, LEAs, and other stakeholders, because they may result in LEAs claiming too much or too little reimbursement. Certification errors result in too many or too few students being approved for FRP meals; this in turn affects the rate of reimbursement received by LEAs for meals taken by students (e.g., when ineligible students receive free meals, LEAs are paid more than when students were denied free meals and their meals were claimed at the paid meals rate). Meal counting errors by cashiers result in too many or too few meals claimed for reimbursement. Similarly, errors in computing claims for reimbursement also result in LEAs claiming too much or too little reimbursement. Improvements in program integrity can reduce improper payments to LEAs, increase legitimate payments to LEAs, or both.

All data on program integrity impacts were collected in samples of treatment (CEP) schools and comparison (non-CEP) schools. The comparison schools were selected in LEAs matched to the LEAs in the treatment group using the propensity score method described in Chapter 2. Certification error data were collected in 248 schools in the Component 2 sample. Cashier error data were collected in 155 schools in the Component 3 sample, and meal counting and claiming error data were collected in 137 schools in the same sample. The estimates of impacts for each of these error types are specific to the respective samples of schools observed (for that type of data), including both selected treatment cases and their matched comparison counterparts. These estimates do not represent the impact of CEP on other participating schools not represented by the sample, such as schools that did not meet the sampling criteria and schools in other States. As discussed in Chapters 2 and 6, the comparisons may be subject to selection bias, to the extent that the matched sample and regression models do not control for all relevant differences between the treatment and comparison groups; however, the evaluation used the strongest feasible method for these analyses. Finally, because the analyses in this chapter are exploratory, readers are cautioned to consider individual results as only suggestive of probable impacts, unless they have an especially high degree of confidence (i.e., significance at the 1 percent level), and to focus on more systematic patterns of similar results for related outcomes.

This chapter provides separate discussions of the outcomes, data and methods, models, and results for each of the three dimensions of program integrity. Section 7.1 addresses the evaluation of impacts

certification error. Section 7.2 discusses the evaluation of impacts on cashier error in identifying reimbursable meals. Section 7.3 presents the evaluation of impacts on meal counting and claiming error at the school and LEA levels. Section 7.4 summarizes the overall findings on the program integrity impacts of the CEP.

7.1 Administrative Errors Associated with the Certification Process

This section examines the impact of the CEP on errors in the certification of students for FRP meals. These errors occur when LEAs do not comply with requirements for processing applications for FRP meals or for identifying students as eligible for free meals without applications. (These "identified students" are approved based on direct certification or other list-based certification, e.g., lists of foster children.)[112] The basic requirements for correct certification are (1) adequate documentation of eligibility, and (2) correct FRP status determination (from this documentation) based on program eligibility criteria. When either requirement is not met, there is an **administrative error:** the LEA has incorrectly administered the program rules**.** When the second requirement is not met, the FRP status is incorrect, and a **certification error** has occurred.

Not all administrative errors result in certification errors. For example, a student might be approved for FRP meals based on an application considered incomplete because an adult household member is listed without providing income or an indication of zero income. This represents an administrative error. However, if the income shown on the application is consistent with the LEA's determination of the student's eligibility status, then there is not clear evidence of a certification error. One plausible interpretation of the data in this scenario is that the LEA could have confirmed that the household member had no income, but the LEA failed to record this on the application. Likewise, the inability of an LEA to locate documentation supporting a student's direct certification for free meals constitutes an administrative error, but does not in itself provide evidence that the student was wrongly certified. In this chapter, administrative errors that do not clearly represent certification errors are considered **procedural errors** (i.e., a flaw in the procedure but not in the result)**.**

The analysis presented in this section distinguishes between certification and procedural errors. There are three types of certification errors: overcertification (when students receive higher benefit levels than their correct eligibility status indicates), undercertification of approved students (when students receive lower benefit levels than their correct eligibility status indicates), and denial of benefits to eligible students (another form of undercertification). When the review of applications and other certification records identified an administrative error, absent clear evidence of certification error, such errors were considered procedural..

This chapter does not consider errors that occur when households misreport information used to determine their eligibility for FRP meals. Such errors can result in either over- or under-certification. By eliminating FRP meals applications, the CEP also eliminates these types of errors. Nor does the chapter consider undercertification errors when the LEA fails to identify students as eligible when they appear on SNAP, TANF, or other lists used for certification without application. Determination of household reporting error and students missed in the identification of students from SNAP, TANF, or other lists would require intensive data collection beyond the scope of the current study. Thus, the

[112] Other lists used to identify students eligible for free meals include homeless, migrant, runaway, and Head Start children/youth.

results may understate the impact of the CEP on total certification errors. The discussion of results considers relevant information on household reporting errors from the most recent study conducted for FNS (Ponza et al., 2007). As a further caution, the sample for this study is not nationally representative, and the rates of certification and procedural errors reported herein should considered **only for the purposes of assessing the impact of the CEP** on errors in LEAs likely to take up the CEP.

7.1.1 Expectations for CEP Impacts on Certification and Procedural Errors

For schools operating under the CEP, application processing errors disappear because no applications are processed. The CEP impact on both certification and procedural errors associated with applications can therefore be expected to be a 100 percent reduction in CEP schools. (LEAs with a mix of CEP and non-CEP schools may have application errors in non-CEP schools). Certification and procedural errors associated with identified students may also disappear for some LEAs because, after establishing their claiming percentages in the first year of implementing the CEP, they are not required to conduct direct certification for four years. However, they may continue to conduct direct certification in the hope that they may achieve higher ISPs and claiming percentages. [113] If LEAs continue to conduct direct certification and other processes for identifying students as eligible for free meals based on other lists, errors in this "student identification" process may rise or fall.[114] Results from the previous chapter suggest that participating LEAs usually maintained direct certification processes. Thus, the expected direction of impacts on certification and procedural errors for identified students is uncertain. Prior research (Ponza et al., 2007) indicates that the the types of administrative errors unique to applications are more common than the errors that occur both for applications and for identified students, so impacts on total error should be driven mostly by the elimination of errors associated with applications.

7.1.2 Outcome Measures

Two broad types of error were measured, as discussed above: certification error and procedural error. **Certification errors** – those which resulted in a student being certified for the wrong level of FRP meals eligibility – were:

- Undercertification

  Undercertification occurs when a student is certified to receive a lower level of FRP benefits than supported by the application or other documentation. For example, if a student has been denied FRP meals but has an application that supports the student's eligibility for free or RP meals, the student has been undercertified. Applications approved for RP meals when the application

[113] Direct certification is required for non-CEP LEAs and recommended but not mandatory for CEP LEAs during the four-year cycle of CEP participation. CEP LEAs must conduct direct certification at least every four years to establish claiming percentages. As discussed in Chapter 3, CEP LEAs may choose to or be required to conduct direct certification in order to provide data on student poverty for use in educational programs.

[114] Errors would rise if LEAs seek to identify more students as eligible for free meals at the expense of accuracy. Errors would fall if LEAs shift resources from application processing to identifying students eligible for free meals based on SNAP and other lists, and therefore conduct the process more thoroughly and carefully.

indicates eligibility for free meals also are considered to be undercertified. Identified students are eligible for free meals; if identified students are listed as eligible for reduced price rather than free meals, they too are undercertified. Only applications with complete income reporting were flagged as undercertifications. [115]

- Overcertification

  Overcertification occurs when an application is approved for a higher level of benefits than supported by the information contained in the application. For example, if a student is approved for free meals, but the income reported on the application is too high (for the household size) for the student to be eligible, this constitutes an overcertification error. An approved application that is incomplete might be considered a case of overcertification. However, since this situation does not provide definite evidence of overcertification, it is considered a procedural error for the purposes of this study. Identified students are eligible for free meals and cannot be overcertified.

The analysis also measured two kinds of **procedural errors** for identified students and seven kinds for applications. As discussed above, procedural errors occur when the LEA does not maintain proper documentation of certifications, but there is not clear evidence that the LEA made a certification error. The reader is cautioned that these errors should not be construed as resulting from an audit, and are likely to overstate actual error. LEAs were under no legal compulsion to comply with this evaluation's data collectors, and apparent procedural errors might have been resolved had LEAs expended the effort to do so.[116]

For identified students in treatment and comparison schools, the categories of procedural errors were:

- No supporting documentation for free-eligible without application

  This error occurred when a student name appeared on a school's list of directly certified or other identified students, and no supporting documentation could be found. That is, the student could not be found on direct certification or other lists that would qualify the student for free meals.

- Mismatched identifiers between lists of students approved for FRP meals and supporting documents.

  This error occurred when documentation existed to support a given student's FRP eligibility without application, but there was reasonable doubt about whether the documentation was for the right student. This represents a procedural error because the documentation does not clearly support the eligibility determination. Mismatched names were the most common error. The remaining cases had matched names, but mismatched birth dates or grades.

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[115] Incomplete income reporting on documents available to the evaluation team results in total income computations that are too low, because missing items are treated as zero. However, due to the uncertainty about the missing information, these cases are treated as procedural errors, not undercertification.

[116] The analysis of procedural errors for applications focused on those errors that might be interpreted as indicating the presence of a certification error. Other violations of rules, such as a missing signature or Social Security Number, were observed but are not included in the analysis here.

In addition, for comparison schools, rates were measured for the following procedural errors for applications:

- Application missing or no eligibility determination could be made based on the application

  This error occurred when a student was listed as being certified for FRP based on an application, but no application was found, or the information on the application was insufficient to compute FRP eligibility.

- Mismatched identifiers between FRP certification lists and supporting documents

  This error occurred when an application was found but there was reasonable doubt about whether the application or the LEA's determination was for the right student. As with identified students, mismatched names were the most common error. The remaining cases had matched names, but mismatched birth dates or grades.

- TANF or SNAP case number has the incorrect number of digits (for categorically certified applications only)

  An application can be approved based on providing a case number for TANF or SNAP, instead of providing household income. The number of digits in the case number on the application was compared to the valid number for the State to determine if the case number was valid.[117]

- Certified before start of the school year (July 1, 2012)

  Students eligible by application must submit an application and be certified for FRP meals every school year. If a student was certified for FRP meals for the 2012-13 school before July 1, 2012, it suggests that the certification from the prior school year was used.

- Income is the basis of eligibility determination, but no income reported

  This error occurred if the LEA indicated that the student was certified on the basis of income, but no income was reported on the application. Note that if the household reported an income of zero, the application would not be considered to have an error.

- Income not reported for at least one household member whose income should be counted.

  If an individual is listed on the household roster section of the application, either "no income" for that person must be indicated or an amount must be provided. If neither was provided on an approved application, it was counted as a procedural error.[118]

- An amount for income is reported, but the associated time period is missing.

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[117] This type of error has not been treated as a certification error in the Application, Participation, Eligibility, and Certification (APEC) study (Ponza et al., 2007) or FNS reviews of applications, so it is treated as a procedural error.

[118] The application form used by the LEA may not clearly indicate to the household that the lack of income should be reported. In such cases, non-reporting of zero income might not be considered a procedural error. However, the lack of this information is inconsistent with the FNS Eligibility Manual for School Meals.

For any amount of income reported on the application, an associated time period (e.g., weekly, monthly) must also be reported. If no time period was reported, it was counted as a procedural error.[119]

7.1.3 Data and Methods

As described in Chapter 2 and further explained in Appendix 7A, certification records and FRP applications were sampled and collected from schools within the Component 2 sample of treatment and comparison LEAs (see Exhibit 7.1).[120] The analysis file comprised data on 248 schools (119 treatment and 129 comparison) in 102 LEAs (51 treatment and 51 comparison).[121] A total of 9,257 records of identified students were sampled (5,401 from treatment schools and 3,856 from comparison schools). These were students who did not apply for meal benefits but were directly certified from SNAP, TANF, or other lists of eligible households. In addition, 2,920 FRP applications were sampled from comparison schools. Of these applications, 1,764 were approved and 1,156 were denied.

The methods used to analyze certification and application records were necessarily different than those used for other impact analyses, due to the particular nature of the data. That is, there were no applications and hence no application errors for CEP schools. Thus, no analysis is required to estimate the program's impact on these errors. Whatever those errors are, the CEP will reduce them to zero. The "impact" will therefore vary from sample to sample—and indeed from school to school—in known and predictable fashion. This report shows what those errors were in the study comparison schools; as noted above, however, these schools were not selected in such a way to be representative of any national or State population of schools.

Exhibit 7.1: Certification Records Review Sample Sizes

	Treatment	Comparison
Number of LEAs	51	51
Number of schools	119	129
Number of certification records		
Direct Certifications	5,290	3,770
Other Free Eligibility List	111	86
Approved applications		1,764
Denied applications		1,156
Total	5,401	6,776

Source: Certification Record and Application Reviews.

For identified students, the analysis estimates CEP impacts on procedural errors using the model for the posttest-only comparison group design from Chapter 2; the form of the estimation model for these

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[119] LEAs may specify on their application that income should be reported on a monthly basis, or that income will be assumed to be on a weekly basis unless otherwise specified.

[120] Complete details on the construction of the certification error analysis file are/will be included in the technical specifications accompanying the analytic files.

[121] All treatment group schools in the sample were CEP schools and therefore did not collect applications. LEAs in the treatment group sample had at least 70 percent of schools with the CEP. For those treatment LEAs with some non-CEP schools, the results represent impacts on the CEP part of the LEA.

specific analyses is described in Chapter 6. Only impacts on procedural error were estimable – for reasons detailed below.

Appendix 7A presents the characteristics of the analysis sample. In brief, treatment and comparison schools and LEAs were statistically indistinguishable on 23 of the 26 variables tested, with three exceptions: enrollment (treatment schools had fewer students, on average), FRP eligibility (treatment schools had higher average FRP eligibility), and the LEA's ISP (treatment LEAs had higher average ISPs). The analytic model controlled for these differences, as explained in Appendix 7A.

7.1.4 Impacts on Schools' Certification Error

Certification error consists of under- or overcertification. For identified students, overcertification is infeasible (they are all eligible for free meals) and undercertification is extremely rare. Only 7 of the 3,770 identified students in comparison schools – and none of the 5,290 identified students in CEP schools – were certified as eligible for reduced-price, not free, meals. This suggests that there may have been an impact on these extremely rare errors, but it was not statistically estimable because the outcome measure for all treatment schools was zero. Thus, the analysis of certification error focused on approved and denied applications, and the objective was to estimate error rates for these applications.

Exhibit 7.2 shows certification error rates for applications in the sample of comparison schools. For approved applications, the school average undercertification percentage was 1.5 percent, and the overcertification percentage was 5.0 percent. The school average undercertification rate for denied applications was 8.3 percent. By definition, denied applicants cannot be overcertified.

The total certification error rate for all applications cannot be computed for the study sample, because denied applications were disproportionately sampled, and not all schools provided the total numbers of approved and denied applications required to weight the data appropriately to obtain school-level estimates. Instead, Exhibit 7.2 presents an illustrative total error estimate based on the sample median ratio of denied to total applications for the sampled schools that provided these data. This procedure yields school-average under- and overcertification rates of 2.1 and 4.6 percent, respectively. Thus, the rates shown in Exhibit 7.2 roughly suggest the magnitude of potential reduction in certification error for applications that may be associated with CEP implementation . Although the sample for this study is not nationally representative, these figures are roughly comparable to the under- and overcertification rates of 2.1 and 6.2 percent found for certified students and denied applicants (combined) in the SY 2005–06 Application, Participation, Eligibility, and Certification (APEC) study (Ponza et al., 2007).122

[122] The estimates provided here from Ponza et al. (2007) are for administrative errors and do not include household reporting errors. Ponza et al. do not report separate administrative error rates for approved applications versus identified students, so these figures understate the truly comparable error rates.

Exhibit 7.2: Average School Certification Error Rates for Applications

	Approved Applications	Denied Applications	Total[a]
Undercertified	1.5	8.3	2.1
Overcertified	5.0	0.0	4.6
Total	6.5	8.3	6.6
Number of schools	127	128	
Number of LEAs	51	51	

[a] Computation of total assumes 8 percent of applications are denied; in this sample of schools, 8 percent is the median percentage of applications that were denied.

Source: Certification Record and Application Reviews.

7.1.5 Impacts on Schools' Procedural Errors

Procedural errors are those that violate program requirements but do not provide sufficient information to determine that the student received the wrong FRP certification. Exhibit 7.3 shows estimated impacts of the CEP on two kinds of procedural errors for identified students. Results are displayed as regression-adjusted means for the treatment group, actual means for the comparison group, differences in means, and percentage differences in means. Lack of supporting documentation (when the student could not be found on a direct certification list or other document substantiating categorical eligibility) was the most prevalent error, occurring for 3.0 percent of identified students in comparison schools and 2.1 percent of identified students in treatment schools. In both comparison and treatment schools, 1.2 percent of identified students had mismatched identifiers between FRP certification lists and supporting documents. Overall, the CEP was associated with a 1 percentage point reduction in certification error for identified students, from 4.3 percent in comparison schools to a regression-adjusted 3.3 percent in treatment schools. This impact was not statistically significant, however.

Exhibit 7.3: CEP Impacts on School Procedural Error Rates for Identified Students

	Comparison Schools	Treatment Schools	T-C Difference (Impact)	Percent Impact
No supporting documentation for free-eligible without application	3.0	2.1	-1.0	-32.3
Mismatched identifiers between FRP certification lists and supporting documents	1.2	1.2	0.1	6.3
Any procedural error	4.3	3.3	-1.0	-23.7
Number of schools	129	119		
Number of LEAs	51	51		

***=p<0.01; **=p<0.05; *= p<0.10.

Source: Certification Record and Application Reviews. Means for treatment schools are regression-adjusted for differences in sample characteristics.

Exhibit 7.4 reports on the actual error rates for various types of procedural errors for both approved and denied applications. As in Exhibit 7.2, an illustrative total application error estimate is shown based on the sample median ratio of denied to total applications for the sampled schools that provided these data.

Exhibit 7.4: Average School Procedural Error Rates for Applications

	Approved Applications	Denied Applications	Total[a]
Application missing	1.6	1.7	1.6
Mismatched identifiers between FRP certification lists and supporting documents	3.0	4.0	3.1
TANF or SNAP case number has the incorrect number of digits (categorically certified only)	1.6	0.0	1.5
Certified before 1 July 2012	0.6	0.8	0.6
Income is the basis of eligibility determination, but no income reported	1.5	1.4	1.5
Income not reported for at least one household member whose income should be counted.	9.7	7.5	9.5
An amount for income is reported, but the associated time period is missing.	3.4	3.8	3.4
Any procedural error	20.2	16.9	19.9
Number of schools	127	128	
Number of LEAs	51	51	

[a] Computation of total assumes 8 percent of applications are denied; in this sample of schools, 8 percent is the median percentage of applications that are denied.

Source: Certification Record and Application Reviews.

Overall, about 20 percent of approved applications and 17 percent of denied applications had some sort of procedural error. Error rates for approved and denied applications were, in most cases, within roughly one percent of one another. Applications were missing in about 1.6 percent of both approved and denied applications, and mismatched identifiers occured in 3.0 to 4.0 percent of applications. About 1.6 percent of approved applications had the wrong number of digits in the TANF or SNAP case number provided to support categorical eligibility; this error never occurred for denied applications because no denied applications were based on categorical eligibility. The prevalence of income reporting errors was similar on approved and denied applications, although approved applications had a somewhat higher percentage of applications where income was not reported for at least one household member whose income should be counted (9.7 versus 7.5 percent).

7.2 Cashier Errors

This section assesses the effects of the CEP on cashier error rates. Using the posttest-only comparison design described in Chapter 2 as background, this section (1) discusses expectations about why and how effects might arise; (2) presents the specific outcome measures used; (3) provides more detail about data collected; and (4) describes the specifics of the model used for analysis, and (5) presents the results about cashier error rate.

7.2.1 Expectations about CEP Impacts on Cashier Errors

There are several steps in the process of counting and claiming meals served under the NSLP and SBP. The first step is cashier determination and entry of whether a meal is eligible, based on (a) whether it is taken by a student, and (b) whether the student has taken the required meal components. In later steps, the school aggregates these counts and reports them to the LEA central foodservice office, and the LEA submits the claim for reimbursement with meal counts. This section discusses the error rate for the first step, and Section 7.3 discusses the error rates for the remaining steps.

Counting errors occur when cashiers make mistakes in determining whether specific meals are reimbursable. Under the CEP, counting and claiming errors could rise or fall. Under conventional meal counting procedures, the cashier determines whether the student is approved for free or reduced price meals, as well as whether the meal is reimbursable. The error rate may fall as the checkout process is simplified by the elimination of distinctions based on certification status, which also may lead to fewer errors in the process of aggregating cashiers' determinations under the CEP. Also, if menus are simplified or alternate serving methods are used under CEP, these could reduce cashier errors. In particular, if all students are served the same meal (as is sometimes the case, particularly when breakfast is served in the classroom), then the cashier does not need to determine whether each individual meal is reimbursable. On the other hand, cashiers might make more errors if LEAs increase the variety of their menus as a result of the CEP, or if LEAs respond to an increase in meal participation by requiring the same number of cashiers to work faster.

As noted in Chapter 2, the evaluation addressed the following exploratory research question on this topic area:

- How did the CEP impact errors in meal counting by cashiers?

7.2.2 Outcome Measures

As with certification error, the analysis of cashier error is based on an algorithm for determining when errors occur. Specifically, two types of errors are identified through analysis of the observation data discussed in the next section: over-claiming (counting meals as reimbursable when they are not) and under-claiming (not counting meals as reimbursable when they are). The data included a determination of the correct status of each meal based on the items selected by the observed student. The cashier error rate is the sum of the over-claiming and under-claiming error rate.[123] All three rates were calculated separately for NSLP and SBP.

$$Overclaiming\ error\ rate\ = \frac{Number\ of\ Non{-}Reimbursable\ Meals\ counted\ as\ Reimbursable}{Total\ Number\ of\ Meals} \quad \text{(Eq. 7.1)}$$

$$Underclaiming\ error\ rate\ = \frac{Number\ of\ Reimbursable\ Meals\ counted\ as\ Non{-}Reimbursable}{Total\ Number\ of\ Meals} \quad \text{(Eq. 7.2)}$$

$$Cashier\ error\ rate\ = Overclaiming\ error\ rate + Underclaiming\ error\ rate \quad \text{(Eq. 7.3)}$$

7.2.3 Data and Final Analytic Sample

The impact of the CEP was examined by comparing the cashier error rates in counting the meals (lunch or breakfast) after the intervention was implemented in these schools to a matched group of non-participating schools at the same time point. As discussed in Chapter 2, a systematic subsample of 52 LEAs was sampled for Component 3; the sample includes 27 treatment (participating) LEAs matched with 25 comparison (non-participating) LEAs using a propensity score.[124] Within these LEAs, 81 treatment and 75 comparison schools were sampled. Exhibit 7.5 presents the final analytic

[123] Overclaims represent a cost to the taxpayer. Underclaims represent a cost to the child who must pay the price of a non-reimbursable meal; the cost is the difference between the actual price paid and what the child would have paid if the meal had been classified as reimbursable (which could be zero or a fraction of the non-reimbursable meal price).

[124] The count of comparison LEAs excludes two LEAs subsequently found to be ineligible.

samples of LEAs, schools, and cashier observations. (Observation procedures are discussed below.) The table notes the reasons for deviations from the original sample of schools. Appendix 7B shows the difference between the LEA and school characteristics of the applicable sample of treatment and comparison schools. In brief, treatment and comparison schools were statistically indistinguishable on all LEA-level covariates tested (as the matching was done at the LEA level). Out of the 11 school level characteristics, the differences between treatment and comparison schools were statistically significant for the percentage of students who qualified for free or reduced price meals in the school, whether a school was Title I, whether the school was a charter school, and the percentage of students who were Black in the school. These characteristics were used in the analytic model (presented in the next section) to control for potential bias due to imbalance; State indicators also were included in the model.

Exhibit 7.5: Sample for Cashier Observations

	Treatment	Comparison	Total
For NSLP			
Matched LEA sample for cashier observations	27	25	52
Schools for cashier observations	80	75	155
Cashier observations	5,300	4,916	10,216
For SBP			
Matched LEA sample for cashier observations	27	25	52
Schools for cashier observations	75	73	148
Cashier observations	3,225	3,288	6,513

See Appendix 7B for discussion of sample.

As described in Chapter 2, the data collection for cashier observations was conducted in conjunction with the menu survey collection.[125] Using the menu survey, coders decided whether a meal selected by a student in each observation was reimbursable.[126] Error rates for cashier determinations were computed for each school separately for breakfast and lunch. The analysis compared the resulting cashier error rates between the treatment and comparison groups.

7.2.4 Analytic Model

The posttest-only comparison group design was used to assess the impact of the CEP on errors in meal counting by cashiers. As explained in Chapter 2, this design compares the treatment group with a matched comparison group after the treatment has been implemented. The comparison group's mean outcome represents the closest possible counterfactual, that is, what would have happened without the CEP, and the analysis compares that to the outcomes observed in CEP schools to produce an estimate of the CEP's impact, after adjusting the treatment group mean for differences in school

[125] In each school participating in Menu Survey data collection, observers positioned themselves on cashier lines, recording the meal selections of a sample of students, and for each observation, recorded the cashiers' determination of the reimbursable status for the meal. A total of 100 observations were obtained at lunch (60) and at breakfast (40) during one day in the week when Menu Survey activities took place.

[126] Coders used two main steps to determine the reimbursable status of each meal observed. First, the meal component codes of the food items in each observation were reviewed, and then the information from the Menu Survey was used to determine whether a selected food met the requirements for a reimbursable food. Second, coders determined whether the number of reimbursable items selected qualifies for the reimbursable meal, under offer-versus-serve guidelines, if applicable for the school.

characteristics using the parameters from a regression model. The estimation model for posttest-only comparisons at the school level is described in Chapter 6. Because the treatment group includes only LEAs that take up the CEP in all schools, the effect of participating is the effect of fully participating in the treatment; that effect may differ from the effect of take up on only a subset of schools within an LEA.

7.2.5 Cashier Error Impact Results

As noted above, two sets of cashier error outcomes were tested: one for lunch (NSLP) and one for breakfast (SBP). This analysis used the school-level posttest-only comparison group design described in the above section.

Exhibit 7.6 provides the regression-adjusted cashier error means for the treatment and comparison schools by school grade level and overall for NSLP. The overall average cashier error was 3.7 percent for the comparison schools, and the adjusted mean (controlling for differences in schools) was 2.9 percent for the treatment schools. The estimated difference of 0.8 percent was not statistically different from zero. Thus, the CEP apparently had no overall impact on cashier error for the NSLP.

The results varied across grade levels. For elementary and middle schools, the results indicated a slight increase in the error rate in the treatment group, but this change was not statistically different from zero. For high schools, the estimated impact was a 4.3 percentage point decrease in cashier errors for NSLP, and this difference was statistically significant as well as large in magnitude: that 4.3 point decrease represents a 60 percent relative decrease in errors. Additional details of the analysis are presented in Appendix 7B. It appears that the overall lack of significant impact on cashier errors at lunch reflects the lack of impact at the elementary and middle school levels, offsetting the impact at the high school level.

Exhibit 7.6: Impact of CEP on Cashier Error Rate in National School Lunch Program by Grade Level

	Comparison Schools	Treatment Schools	T-C Difference (Impact)	Percent Impact
Elementary schools	2.05%	3.17%	1.1%	54.8%
Middle schools	2.15	3.30	1.2	53.5
High schools	7.15	2.88	-4.3*	-59.7
All schools	3.72	2.92	-0.8	-22.8
Number of Schools	155			
Number of LEAs	52			

Means for comparison group are unadjusted (actual means). Means for treatment group are regression-adjusted to control for differences between treatment and comparison schools. The regression with covariates results appear in Appendix 7. Information from the first three rows comes from one regression and the information from the last row comes from a separate regression that combines all grades.

***=p<0.01; **=p<0.05; *=p<0.10.

Source: Cashier Observation and Menu Survey Data.

The same methods were used to estimate the CEP's impact on cashier counting errors for breakfast. Exhibit 7.7 displays the regression-adjusted cashier error means for the treatment and comparison schools by school grade level and overall for SBP. The average cashier error rate for treatment and comparison schools was not statistically different (5.3 and 6.4 percent, respectively). As was the case for lunch meals, the results varied across grade levels. For middle and high schools, there was no significant impact on the error rate. For elementary schools, however, the estimated impact was a 4.9

percent decrease in cashier errors for meal counting during breakfast, representing a statistically significant and large, 73 percent relative decrease in the error rate. The shift to classroom breakfast (as discussed in Chapter 5) in the CEP schools may have been a contributing factor in this impact. As was the case for the NSLP, the impact in one category of schools was offset by a lack of impact in the other two, resulting an overall finding of no impact. Additional details of the analysis are presented in Appendix 7B.

Exhibit 7.7: Impact of CEP on Cashier Error Rate in School Breakfast Program by Grade Level

	Comparison Schools	Treatment Schools	T-C Difference (Impact)	Percent Impact
Elementary schools	6.75%	1.85%	-4.9%**	-72.6%
Middle schools	5.80	5.88	0.1	-1.5
High schools	6.62	8.45	1.8	27.6
All schools	6.40	5.25	-1.1	-18.0
Number of schools	148			
Number of LEAs	52			

Information from the first three rows comes from one regression and the information from the last row comes from a separate regression that combines all grades. The results are from the regression with covariates and appear in Appendix 7B.

***=p<0.01; **=p<0.05; *=p<0.10.

Source: Cashier Observation and Menu Survey Data.

7.2.6 Discussion of the Results

The CEP's impact on cashier error rate was negligible for both the NSLP and SBP. Though cashier error rates appeared to decrease modestly across both outcomes, the differences were generally not statistically significant (except for high school for lunch and elementary school for breakfast). These estimates should be interpreted carefully. As discussed in the introduction to this chapter, these estimates are specific to the group of schools that were observed, and they are based on a relatively weak evaluation design using posttest-only comparisons.

7.3 LEA Claiming Errors

This section assesses the effects of the CEP on LEA claiming error rates. Using the posttest-only comparison design detail described in Chapter 2 as background, this section (1) discusses expectations about why and how effects might arise; (2) presents the specific outcome measures used; (3) provides more detail about data collected; and (4) describes the specifics of the model used for analysis, and (5) presents the results about claiming error rates.

7.3.1 Expectations about CEP Impacts on Claiming Errors

As discussed in the introduction to this Chapter, the evaluation addressed the following exploratory research question regarding claiming error:

- How did the CEP impact errors in computing claims for reimbursement?

As noted in the previous section, there are several steps in the process of counting and claiming meals served under the NSLP and SBP. The first step is cashier entry and determination of whether a meal is eligible, based on (a) whether it is taken by a student, and (b) whether the student has taken the required meal components. The second step is aggregating these counts and reporting to the LEA

central foodservice office. The third step is submitting the claim for reimbursement with meal counts to the State. Claims in the study States are submitted on a monthly basis, so daily totals for schools must be summed. Depending on the State, claims may be submitted for individual schools or the entire LEA. Errors in the second and third steps are referred to as claiming errors. This section discusses the claiming error rate; the previous section discussed the error rate for the first step.

Claiming errors can occur at three points. First, errors may occur at the individual school level when consolidating the different cashier totals or adding up tally sheets in a school. Second, there may be an error when the meal counts reported by the school are recorded by the LEA foodservice office. Third, errors may occur when the LEA computes the totals for the claim period, either for individual schools or for the LEA (if totals for schools are consolidated into a single LEA claim).

Under the CEP, claiming errors in the first two parts of the claiming process were expected to fall. At the school level, the CEP simplifies the claiming process, because the school only needs to compute and record the total meals served for NSLP and SBP. Under conventional claiming procedures, schools must compute and record totals for free, reduced-price, and paid meals. Reporting from the school to the LEA is simplified in the same way, so there is less potential for error.

In the third stage of the claiming process, the CEP could reduce or increase error. On the one hand, computations use only the total meal counts from the schools, so in one way the process is simpler than conventional claiming. On the other hand, the CEP introduces a new step in the process of submitting the claim to the State: the LEA must compute the counts of meals to be claimed at the free and paid levels, using the appropriate claiming percentage. As discussed in Chapter 1, the claiming percentage is based on the ISP for the school, a group of schools, or the LEA, depending on how the LEA chooses to submit its claims. If the LEA uses the wrong claiming percentage or makes an error in the computation of the free and paid meal counts, the claim will be wrong. On the other hand, if the claiming system automatically provides the correct claiming percentage and computes the free and paid meal counts, there will be no new error, and overall, the expected result would be lower error.

7.3.2 Outcome Measures

The analysis of claiming error examined errors rates for claims for NSLP, SBP, and the two programs combined. These errors were defined in two ways: signed and unsigned. With signed errors, a positive sign indicates that the amount claimed for a school was more than the LEA was entitled to (i.e., an overclaim), and a negative sign indicates that the claim was less than the LEA was entitled to (an underclaim). An overclaim represents a loss to USDA; an underclaim represents a loss to the LEA. Thus, an impact on signed errors would represent a shift of funds, on average, between LEAs and USDA.

An unsigned error is the absolute value of a signed error. The reason for using unsigned errors is that there may be concern about whether the overall accuracy of claims has increased. It is possible that a group of LEAs and schools could have small average signed claiming errors while having substantial average unsigned claiming errors: this could occur if over-claim errors approximately offset under-claim errors within the group. Since average signed errors can therefore give an incomplete picture of the extent of claiming errors, it was useful to also examine average unsigned errors.

The data analyses reported below used error rates rather than errors (in dollars) as outcomes. For a specific meal program (NSLP or SBP), a school's *signed error rate* is

$$\frac{dollar\ amount\ claimed\ by\ the\ LEA\ for\ the\ school - dollar\ amount\ to\ which\ it\ is\ entitled}{dollar\ amount\ claimed\ by\ the\ LEA\ for\ the\ school} \quad \text{(Eq. 7.4)}$$

For example, a school's signed error rate for the NSLP is the signed NSLP claiming error (in dollars) divided by the dollar amount that the LEA claimed for that school for the NSLP. A positive signed claiming error rate of 5 percent would indicate that the LEA was overpaid by 5 percent. For a specific meal, a school's *unsigned error rate* is the absolute value of its associated signed error rate, so a negative signed error rate becomes positive as an unsigned error rate.

A school's *total signed error rate* is

$$\frac{total\ dollar\ amount\ claimed\ by\ the\ LEA\ for\ the\ school - total\ dollar\ amount\ to\ which\ it\ is\ entitled}{total\ dollar\ amount\ claimed\ by\ the\ LEA\ for\ the\ school} \quad \text{(Eq. 7.5)}$$

where total dollar amount claimed is the sum of the dollar amounts claimed for breakfast and for lunch, and the total dollar amount to which the LEA is entitled is the sum of the dollar amounts for breakfast and for lunch to which the school is entitled. A school's total unsigned error rate is the absolute value of its total signed error rate.

In summary, the six outcome measures were:

- Signed error rates for NSLP, SBP and combined programs
- Unsigned error rates for NSLP, SBP, and combined programs

7.3.3 Data and Final Analytic Sample

The impact of the CEP on participating schools was examined by comparing the six claiming error rates after the intervention was implemented in these schools to a matched comparison group of non-participating schools. As discussed in Chapter 2, a systematic subsample of 52 LEAs was selected for Component 3, matching 27 participating "treatment" LEAs with 25 non-participating "comparison" LEAs using propensity scores.[127] Three schools were sampled in each LEA to represent the elementary, middle and high school grade levels.

Exhibit 7.8 presents the final analytic sample for the claiming errors. The matching was done at the LEA level. Appendix 7C shows the difference between the LEA and school characteristics of the applicable sample of participating and non-participating schools, and discusses differences between the overall Component 3 sample and the sample for this analysis. The treatment and comparison groups were well-balanced on all LEA characteristics except number of schools, but there were several school characteristics that showed imbalance: urban, percent Black, percent Hispanic, charter school, percent FRP. These unbalanced characteristics were used as predictors in the analytic model (discussed in the next section) to control for potential bias due to the imbalance on these factors.

[127] Two LEAs, both comparison group members, were found to be ineligible for the Impact Study after completion of the data collection.

Exhibit 7.8: Sample Design for Community Eligibility Option Evaluation Sample Design for Community Eligibility Option Evaluation

	Treatment	Comparison	Total
Matched LEA sample for claiming errors	24	23	47
Schools for claiming errors	70	67	137

As stated in Chapter 2, the data collection for assessing claiming errors was conducted by field interviewers during site visits to schools and to LEAs. During site visits to schools, field interviewers recorded the numbers of SBP and NSLP meals of each category (free, reduced, price, and paid) according to school records and separately verified these data using the supporting documentation that the school used to produce meal counts. The school counts from school records and the verified counts were for a single specified school day. During site visits to LEAs, field interviewers obtained LEA records of meal counts from the schools, as well as the number of meals claimed for reimbursement by the LEA. The LEA records of school meal counts were both for the day specified for the school visit data collection and for an entire reporting period; the meals claimed were for the entire reporting period. For CEP schools, data collectors obtained the claiming percentage used for each school (or for the entire LEA, if school counts were consolidated before computing free and paid meals). The correct claiming percentage for each school/LEA was obtained from State administrative data.

7.3.4 Analytic Model

The posttest-only comparison group design was used to assess the impact of the CEP on claiming errors. As explained in Chapter 2, in this design the treatment group is compared with a comparison group after the treatment has been implemented.

For claiming errors, the outcome was measured at the school level and was likely to vary by grade level. The analysis was, therefore, done at the school level using both school- and LEA-level control variables. The regression models to estimate impacts followed the form discussed in Chapter 6. The models included the treatment indicator, school grade level, and State, as well as the school characteristics that were unbalanced between treatment and control groups (as discussed above). To estimate impacts for each school grade level, the regression models included interactions of treatment with grade level. The regression model specification and results are presented in Appendix 7C. These results were used to compute the regression-adjusted mean error rates for the treatment group, as presented in the tables in the next section.

7.3.5 Claiming Error Results

Exhibit 7.9 presents the estimated impacts of the CEP on signed error rates for the NSLP, SBP, and combined programs. As discussed above, signed error rates are positive if the LEA overclaims, and negative if the LEA underclaims.

The results in Exhibit 7.9 follow a consistent pattern: treatment schools had negative signed error rates on the order of -1 to -2 percent (after the regression adjustment), while comparison schools had positive signed error rates of less than 1 percent overall and for elementary and middle schools, and close to 2 percent for NSLP and overall among high schools. Thus, treatment group schools tended to underclaim, while comparison group schools overclaimed, and the error rates were quite small. The results for all schools suggest that the CEP may have had a negative impact on signed error rates for

NSLP, SBP, and combined programs, but these results were not statistically significant at the 5 percent level. .

Exhibit 7.9: Impact of CEP on Signed Claiming Error Rated in NSLP, SBP, and Combined Programs (by School Type and Pooled Across Schools)

	Comparison	Treatment	T-C Difference (Impact)
NSLP Impacts			
Elementary schools	0.0	-1.2	-1.2
Middle schools	0.1	-1.2	-1.2
High schools	1.8	-2.5	-4.2
All schools	0.6	-1.6	-2.2*
SBP Impacts			
Elementary schools	0.0	-0.6	-0.6
Middle schools	0.0	-1.5	-1.5
High schools	0.1	-2.3	-2.4
All schools	0.1	-1.4	-1.4*
Combined Impacts			
Elementary schools	0.0	-1.0	-1.0
Middle schools	0.1	-1.2	-1.3
High schools	1.6	-2.4	-4.0
All schools	0.6	-1.5	-2.0*
Number of Schools	70	67	
Number of LEAs	24	23	

Treatment group means are adjusted to represent expected results in comparison schools if they participated in CEP. Estimates for grade-level and total impacts are obtained using slightly different models. Grade-level estimates are derived by including interactions between grade-level and treatment status in the model. The results are from the regressions are presented in Appendix 7C.

***=p<0.01; **=p<0.05; *=p<0.10.

Source: Meal counting and claiming data collection.

Exhibit 7.10 presents the estimated impacts of the CEP on the **unsigned** error rates for the NSLP, SBP, and combined programs. The unsigned error rates for the treatment group (after the regression adjustment) were between 3 and 5 percent, depending on the program and the grade level, while the unsigned error rates for the comparison group were less than 1 percent overall and less than 2 percent in all grade levels. The results indicate that CEP increased the unsigned SBP error rate for all schools (the result is significant at the 5 percent level), but did not have a significant effect on this measure for NSLP or overall.

Exhibit 7.10: Impact of CEP on Unsigned Claiming Error Rate in NSLP, SBP, and Combined Programs (by School Type and Pooled Across Schools)

	Comparison	Treatment	T-C Difference (Impact)
NSLP Impacts			
Elementary schools	0.0	2.8	2.7
Middle schools	0.1	4.9	4.8
High schools	1.8	3.2	1.4
All schools	0.6	3.6	3.0
SBP Impacts			
Elementary schools	0.0	2.9	2.9
Middle schools	0.0	5.0	4.9*
High schools	0.1	2.9	2.7
All schools	0.1	3.6	3.5**
Combined Impacts			
Elementary schools	0.0	2.8	2.8
Middle schools	0.1	4.8	4.8
High schools	1.6	3.2	1.5
All schools	0.6	3.6	3.0
Number of Schools	70	67	
Number of LEAs	24	23	

Treatment group means are adjusted to represent expected results in comparison schools if they participated in CEP. Estimates for grade-level and total impacts are obtained using slightly different models. Grade-level estimates are derived by including interactions between grade-level and treatment status in the model. The results are from the regressions are presented in Appendix 7C.

***=p<0.01; **=p<0.05; *=p<0.10. Source: Meal counting and claiming data collection.

7.3.6 Discussion of the Results

Examination of the underlying data provides some insight into why the CEP increased the unsigned error rates for the SBP and may have also affected signed error rates. For the SBP, only four comparison schools had errors, and these were evenly divided between errors at the first stage (within school) and at the third stage (claim submitted to the State). In contrast, 14 treatment schools had errors, and 12 of these had their errors at the third stage. The same pattern was observed in the claiming errors for NSLP. The primary reason for errors in claims submitted for CEP schools to the State was that the LEA used the wrong claiming percentage, and usually the claiming percentage used was less than the one the LEA was entitled to use.[128] Several CEP States have already implemented automated systems to prevent errors in the use of claiming percentages. As this practice becomes more widespread, it would presumably eliminate the main source of claiming error observed in CEP schools.

From a larger perspective, the estimates of claiming error are roughly consistent with the findings of the APEC study (Ponza et al., 2007), which estimated comparable measures of claiming error at 3.5 percent of NSLP reimbursements and 6.0 percent of SBP reimbursements. Therefore, there is

[128] This determination was based on claiming percentages provided by the States in the fall of 2012. It is possible that some claiming percentages were revised, in which case the amount of error may be overstated. Also, the data collection relied on the LEA's records of the claim. If the State corrected the claim, then there would have been no actual over- or under-payment.

relatively little room for the CEP to increase accuracy in what already appears to be a highly accurate process.

8. Nutritional Quality Impacts

The Healthy Hunger-Free Kids Act (HHFKA) of 2010 revised the nutrition standards for the National School Lunch Program (NSLP) and School Breakfast Program (SBP). The final implementing rule was issued in January 2012 (Federal Register, 2012); it outlines changes in NSLP and SBP meals to align closely with the latest *Dietary Guidelines* and reflects recommendations from the National Academies' Institute of Medicine (IOM, 2010). Key changes in the meal standards include: (1) offering fruit daily at breakfast and lunch; (2) increasing the amount and variety of vegetables at lunch; (3) offering more whole grain-rich foods; (4) limiting fluid milk choices to fat-free (unflavored or flavored) and unflavored low fat milk; (5) establishing minimum and maximum calorie levels for each age/grade group; (6) increasing the emphasis on limiting saturated fat; (7) seeking gradual but major reductions in the sodium content; and (8) eliminating *trans* fat in purchased products and ingredients used in school meals.

The new meal standards require schools to follow one food-based meal pattern for each of three age/grade groupings for NSLP and SBP, rather than choosing one of the five previous options using food-based or nutrient-standard menu planning.[129] The new meal patterns are expected to supply most of the "nutrient targets" identified by the IOM in developing the recommendations. Under the final rule, schools are responsible for offering meals that meet the meal pattern with daily and weekly minimums for specific food components, as well as specific standards for average calories, saturated fat, and sodium, over the five-day school week for each age/grade group. The new meal standards for NSLP became effective in SY 2012–13, although the sodium specifications are being phased in gradually over a 10 year period with the first of two intermediate targets (Target 1) beginning in SY 2014–15 for both breakfast and lunch. The new meal standards for SBP are effective as of SY 2013–14; the exception is the limits on milk offerings in the SBP, which were implemented in SY 2012–13. See Appendix 8A for details of the new meal standards for both the NSLP and SBP that were in place for SY 2012–13.

This chapter describes the impact of the CEP on meal quality in lunches and breakfasts by comparing a sample of CEP schools to a matched sample of non-participating schools. This analysis uses the relevant meal standards in place at the time of the data collection (Winter and Spring 2013). As in Chapters 6 and 7, the analysis uses the posttest-only comparison design, and the results should be considered exploratory, not definitive. In particular, Chapter 8 presents a large number of statistical tests, some of which could be significant by chance. Another important caveat is that, because all LEAs were required to implement the new meal standards for lunch in SY 2012–13, the outcomes

[129] Prior to the implementation of the new meal standards, schools could opt to use five different approaches to planning menus for reimbursable meals. They had two food-based options: "Traditional" or "Enhanced" food-based menu planning options. Although similar in structure, the Enhanced option allowed for more weekly servings of bread/grains and larger servings of fruits and vegetables. Two other options were the Nutrient Standard Menu Planning (NSMP) and the Assisted Nutrient Standard Menu Planning (ANSMP) which both require school menus to be planned using a USDA-approved computerized nutrient analysis program, offering schools more flexibility in planning menus as long as they met defined nutrient standards. (ANSMP relied on an outside resource to plan and conduct nutrient analysis on a school or SFA's menus.) Finally, schools could elect a fifth option: "any reasonable approach" to planning menus as long as they met the defined nutrition standards and State Agency guidelines for the modified approach.

were measured in the context of substantial changes in the NSLP, and the levels of compliance with lunch standards may reflect implementation challenges unrelated to the CEP. The methods used by the study to assess meal quality emulated, to extent practical, the methods used by FNS and State Agencies to measure compliance with the meal component standards. However, the study simplified the approach to assessing schools' compliance with meal component standards in order to reduce burden on participating schools. Therefore the research team did not have access to all of the information States routinely use for this purpose. While the study's simplified methods allowed objective comparisons of CEP and non-CEP schools on meal components, the study results should not be interpreted as representing the same results FNS or State agencies would generate when they assess compliance with NSLP standards. Finally, readers are reminded that the sample was chosen to estimate the impact of the CEP and does not represent the broader population of LEAs in the six evaluation States, let alone the nation.

8.1 Expectations about CEP Impacts on Meal Quality and Variety

The CEP is intended to improve access to healthy school meals by providing free lunch and breakfast to all students in participating schools, and to reduce administrative burden for school foodservice operations. It was unclear at the start of the evaluation how the CEP might affect meal quality in participating schools versus those not participating. Hypotheses suggesting both positive and negative outcomes were plausible, as discussed below.[130]

On one hand, the CEP might *increase* meal quality and/or variety of foods offered to students by easing the administrative burden on school foodservice operators, allowing them to devote more time and resources to preparing higher quality meals. The CEP was expected to reduce administrative effort associated with household applications, the verification process, and tracking students based on meal eligibility status. In addition, participation in NSLP and SBP might increase under the CEP, potentially allowing participating schools to realize cost and production efficiencies. These changes might free up resources for higher quality meals and increase the variety of choices offered.[131]

Alternatively, the CEP might *decrease* meal quality and/or variety of foods offered for one of three reasons. First, changes in foods offered, particularly increased use of pre-prepared foods—which often have higher sodium content than similar school-prepared foods—could lead to higher overall sodium levels of meals offered. Second, increased NSLP and SBP participation in CEP schools might tax available school foodservice operator resources and lead to changes to streamline operations. Especially in those CEP schools experiencing increased SBP participation, one might reasonably expect some operational changes to accommodate such increases (e.g., serving breakfast in classrooms or grab-and-go style breakfasts) to minimize service time. Such a shift in meal service operations could, in turn, affect the variety or number of choices available to students on any given day. It may also limit the likelihood of serving certain types of breakfast foods to students due to service type limitations or clean-up concerns. For example, schools offering breakfast in the classroom may be challenged to offer hot foods if they lack the equipment or supplies required to

[130] For this evaluation, the measure of meal quality is based on how well schools met the relevant food component and nutrient specification standard for breakfasts and lunches offered during a specified week.

[131] In schools not previously offering SBP, of course, CEP participation will unambiguously increase the variety of SBP foods offered to students.

keep foods hot while delivering to classrooms. Third, if Federal revenues do not offset the loss of student payments for reimbursable meals and non-reimbursable foods, LEAs might need to reduce food costs in order to balance costs with revenues. Such cost-saving measures might reduce the quantities of more expensive foods such as whole-grain products.

8.1.1 Research Questions Related to Meal Quality and Variety

There are three exploratory research questions about the potential impact of the CEP on the nutritional quality of breakfasts and lunches served by schools:

- Did the nutritional profile of school meals offered improve?
- Did compliance with USDA nutrition standards improve, compared with similar LEAs that are not participating in the CEP?
- Did the variety of food choices offered to students in school meals increase?

The first two research questions deal with meal quality and the last question addresses meal choice and variety.

The analysis uses a matched sample to compare outcomes in treatment versus comparison schools, controlling for differences in LEA- and school-level covariates, rather than examining changes over time associated with CEP participation. As discussed in Chapter 2, this posttest-only comparison design was the most feasible approach to estimate the difference in outcomes attributable to the implementation of the CEP in the treatment schools.

To address the exploratory research questions, the evaluation collected information on reimbursable lunches and breakfasts offered using a self-administered Menu Survey in schools participating in the CEP and in non-participating schools in similar LEAs. The survey of cafeteria managers was designed to provide comprehensive information on the nutritional profile of meals and food choices these schools offered to students. The nutritional profiles of meals were compared to the then-applicable nutrition standards for school meals. The sections below describe the outcome measures and the data, as well as the methods used to address the research questions.

8.2 Outcome Measures

The Menu Survey instrument collected detailed information on reimbursable meals offered in a full week of lunches and breakfasts, which was used to construct the profile of meals offered in the study sample. (To be eligible for reimbursement, school meals must meet established nutrition standards as determined by averaging nutrients in meals offered over a school week, and by quantifying minimum daily and weekly food components for each grade grouping.) A USDA-approved nutrient analysis software package[132] was used by trained coders to conduct the nutrient and food component analysis of all menus. Further details about data processing are described in Appendix 8B.

A weighted average approach to analysis was used for the nutrient specifications (calories, saturated fat and sodium levels), based on the planned number of servings and portion sizes of foods offered at

[132] NUTRIKIDS version 14.0.0 from Heartland School Solutions, which included the USDA Child Nutrition Database Release CN16.

each meal and the planned total number of meals, consistent with the methodology State agencies follow in assessing the nutrient specification compliance for NSLP and SBP meals offered under the new meal standards. A weighted analysis takes into account the number and types of foods planned for meals, and gives greater weight to foods offered more frequently to students, thereby emphasizing the relative nutrient contribution of foods offered, rather than weighting all foods equally within each meal component group.

For the meal component analysis, an unweighted assessment of meal components offered for each school's week of lunch menus was completed. The analysis used specifications to replicate as closely as possible the functionality of the certification tool and guidance provided by FNS on May 31, 2012 to all State CN directors for measuring compliance with the new meal component requirements.[133] (LEAs must be certified as meeting the meal component requirements in order to receive the additional 6 cents per meal reimbursement authorized by the HHFKA.)

8.2.1 Measures Used for NSLP Meal Quality Assessment

Depending on the meal component, the new meal pattern for lunch requires either a minimum number or a range of daily and weekly servings, as measured in either cups or ounce equivalents. To determine whether lunch menus met the new meal component requirements for meals offered, the servings offered in each food group (and subgroup) category were assessed based on combinations of food items and portion sizes offered in the various reimbursable meal choices reported in the Menu Survey for the target week for lunch.[134]The minimum quantity of daily and weekly amounts of food components and vegetable subgroups offered in reimbursable meals were compared with the prescribed minimums for a given grade/age grouping in lunch, in addition to the subgroup requirements as indicated in Exhibit 8.1 below. Details on grade-specific daily and weekly minimums in the Final Rule are included in Appendix 8A.

In addition, compliance with key dietary specifications for lunches offered in all schools was assessed in each grade/age grouping, using the daily average from a five-day week for calories, and percent of calories from saturated fat. Although the Target 1 sodium standards were not yet in effect during the study's data collection, these standards were used as a benchmark to describe the sodium content of breakfasts and lunches offered.[135] Due to concerns about respondent burden, the evaluation team did

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[133] The Certification Tool, developed by FNS to assist SFAs and State agencies in measuring compliance with the new school nutrition standards, includes menu worksheets to assess compliance with daily and weekly meal pattern requirements. SFAs must complete the worksheet for one week of menus offered by grade group (K-5, 6-8, and 9-12), showing food components and quantities by each reimbursable meal offered or use a UDSA-approved tool provided by a software vendor, and submit the worksheet to their State agencies to be certified to receive the additional 6 cent lunch reimbursement.

[134] The study did not collect data on every possible combination of reimbursable meals offered at each meal (information routinely collected by State agencies); consequently, the evaluation team made assumptions about possible combinations based on available information from the menu survey, printed menus, and production records.

[135] The Final Rule established a 10-year phase-in period for sodium standards in school meals, with three sodium level targets by grade for breakfasts and lunches over the 10-year period, the first of which takes effect in SY 2014–15. The evaluation team, in consultation with FNS, used the Target 1 sodium standards for both breakfast and lunch comparisons. See Appendix 8A.

not collect the data (labels of pre-prepared foods used in meals) needed to assess the compliance with the *trans* fat requirement.

Exhibit 8.1: Meal Component and Subcomponent Measures for NSLP Meals Offered

- Fruit: daily and weekly minimum (cups)
  - Fruit juice limit to no more than half of weekly total fruit
- Vegetables: daily and weekly minimum (cups)
  - Dark green vegetables (weekly cups)
  - Orange vegetables (weekly cups)
  - Legumes (weekly cups)
  - Starchy vegetables (weekly cups)
  - Other vegetables (weekly cups)
  - Vegetable juice limit to no more than half of weekly total vegetable
- Grains: daily and weekly minimum (ounce equivalents)*
  - Half the total weekly amount of grain must be whole grain-rich
  - Grain-based desserts limit to no more than 2 oz equivalents per week
- Meats/meat alternates: daily and weekly minimum (ounce equivalents)*
- Fluid milk: daily and weekly minimum (cups)
  - Milk Types can include only fat free (flavored or unflavored) and unflavored low-fat milk

* FNS Policy Memorandum SP 26-3013 (February 25, 2013) waived the weekly maximums on grains and meat/meat alternates through SY 2013-14 and considers SFAs compliant if weekly minimums of grains and meat/meat alternates are met.

8.2.2 Measures Used for SBP Meal Quality Assessment

During SY 2012–13, when Menu Survey data were collected, the new meal standards for the SBP were not yet in effect, except for the fat restrictions on fluid milk for meals offered. All but two LEAs (one CEP and one comparison LEA) reported using a traditional component-based menu planning approach (as indicated in response to the pre-visit telephone survey). The evaluation team, in consultation with FNS, therefore decided to use the traditional meal pattern requirements for the SBP comparison on meal standard compliance for all schools in the sample.

The traditional meal pattern for school breakfast requires minimum component-specific quantities, and the same standards apply to all grades from K-12. Schools using Food-Based Menu Planning must offer food items in the specified minimum amounts. These are:

- 1 serving of juice/fruit/vegetable, and
- 1 serving of milk, and
- A combination of grains/breads & meat/meat alternate components consisting of:
  - 2 servings of grains/breads, OR
  - 2 servings of meat/meat alternate, OR
  - 1 serving of meat/meat alternate and 1 serving of grains/breads, OR
  - An equivalent combination of meat/meat alternate and grains/breads

An "equivalent combination" means food items in total are credited as meeting 1 or more of required servings of these components. For example, if a breakfast pizza consists of 1¼ servings of grains/breads and ¾ serving of cheese (a meat alternate), this combination food would be credited with 2 total servings of these components. (See Appendix 8A for the Traditional Food-Based Meal Pattern for Breakfast, which describes the minimum amounts of food components and items for grades K-12.) In addition, the evaluation team assessed compliance with the daily milk types offered. Finally, the evaluation team measured the sodium levels of all breakfasts offered using the daily average from a week of menus, and compared those with the Target 1 standards for breakfasts.[136]

8.2.3 Measures Used for the Variety of Food Choices for NSLP and SBP

Schools often provide students with a choice of entrée and other meal components as part of the planned menu. To construct measures of variety of food choices offered, it is necessary to develop an appropriate classification of these offerings. Within a single planned meal, students may be offered choices of milk, fruit, vegetable, meat/meat alternate, or grain food components, with entrées often comprising more than one food component. For example, a hamburger on a bun includes both meat/meat alternate and grain food components, and students typically have no choice about accepting just one of those two components—the bun without the hamburger, or vice versa. It was therefore deemed inappropriate to implement a component-based variety measure for entrées. Instead, each entrée was considered a single "choice," even if comprised of multiple food components.

To assess the variety of food choices offered for lunches, the evaluation team quantified the number of choices available to students in each school and meal within each food component category: milk, fruit, vegetables, grains (not part of an entrée), entrées (including meat/meat alternates as well as meat/meat alternate combined with a grain and sometimes a vegetable), and desserts (if offered). Desserts included grain-based desserts such as cakes, cookies, cobblers, and pastries, as well as other desserts such as gelatin, pudding, sherbet or ice cream. Similarly, to assess the choice and variety of foods offered for breakfasts, the evaluation team quantified the number of choices available to students in each school and meal within each breakfast food component category: milk, fruit/vegetables/juice, meat/meat alternates (not part of a combination entrée), bread/grains (not part of a combination entrée), and combination entrées that included two or more food components (for example, a breakfast sandwich). A higher count of available choices for each meal was interpreted as greater variety offered.

8.3 Data and Methods

Menu Survey data were collected from cafeteria managers in an elementary, middle, and high school in 52 LEAs, amounting to 81 treatment schools and 75 comparison schools (see Exhibit 8.2 for details).[137] In cafeterias identified as "shared" between two schools in the sample, the cafeteria manager completed one Menu Survey but the evaluation team coded data separately for each grade grouping to provide information on the portion sizes and number of planned servings for each respective grade grouping. Trained coders reviewed the Menu Survey data and systematically processed the data using the NUTRIKIDS menu planning software system.

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[136] As above, sodium content was assessed using grade-specific Target 1 standards for SBP.

[137] 54 LEAs, 27 treatment and 27 comparison, were initially selected. Two comparison LEAs were subsequently found to be ineligible for this portion of the evaluation.

Exhibit 8.2: Sample Design for Community Eligibility Option Evaluation

	Treatment	Comparison	Total
For NSLP			
Matched LEA sample for Menu Survey	27	25	52
Schools for Menu Survey	81	75	156
Number of daily lunch menus	401	362	763
For SBP			
Matched LEA sample for Menu Survey	27	25	52
Schools for Menu Survey	81	75	156
Number of daily breakfast menus	402	362	764

Target week in most LEAs consisted of 5 days. In 17 schools for lunch and 16 schools for breakfast the target week consisted of 4 days. See Chapter 2 for more details on the matching process.

To assess the impact of the CEP on the quality and variety of meals offered, the evaluation team used a posttest-only comparison group design, which compares outcomes for CEP and a matched comparison group of non-CEP schools while controlling for various school characteristics. Outcomes were measured only after the CEP was implemented. The analytic model used was similar to the one used to generate findings discussed in Chapters 6 and 7.

As in the other school-level analyses, matching occurred at the LEA level, and so the school samples were not balanced. Appendix 8C presents descriptive statistics on the characteristics of the LEA and school samples for the Menu Survey data collection. The results in this chapter use regression-adjusted treatment group means to control for the significant differences in school characteristics, including the percentage of students approved for FRP meals in the school, indicators for charter schools and Title I eligibility, and the percentage of students who are Black in the school. Appendix 8C presents the details of the regression analysis that supports the impact estimates. Unlike the data from administrative sources and for Components 1 and 2, the treatment group data for Component 3 came only from LEAs that took up the CEP in all schools.[138] Therefore, the impact estimates should be interpreted as the treatment effect for LEAs in which all the schools participated in the CEP.

Appendix 8C reports descriptive statistics related to meal quality and variety, and presents statistically significant differences between the treatment and comparison schools, according to t-tests. It also presents statistics for more detailed meal component subgroups and other standards for which the meal analysis software provided results. Descriptive results should be viewed with caution because of the differences in school characteristics, which may affect comparisons.

8.4 Meal Quality and Choice Results

This section presents exploratory findings on the impact of the CEP on meal quality (described in terms of meeting food component and nutrient standards) and the variety of menu choices, based on comparisons of these outcomes between CEP and non-CEP schools. The outcomes for meal quality indicate whether schools met the then-applicable food component and nutrient standards for lunch and breakfast (as of Winter/Spring 2013) and also the sodium targets that will be effective in SY 2014–15. The outcomes for menu choice relate to the variety of food options within specific

[138] Component 3 included data collection on two domains: meal quality/choice and errors in counting and claiming reimbursable meals.

component categories available to students during lunch and breakfast. Both analyses rely upon the school level posttest-only comparison group design described above.

8.4.1 Meal Quality

A school met the requirement for a lunch food component if it met the grade-specific criteria for daily minimum for each food component, in each of the days for which menu data were collected, and the weekly minimum for that food component. The other subcomponent requirements were considered separately (see Appendix 8C for results, and results of daily and weekly minimums reported separately). For nutrient specifications of calories and percent of calories from saturated fat, a school met the requirement if the daily average (over all days within the week for which data were collected) met the grade-specific standard for that nutrient in a weighted analysis. The Target 1 sodium comparison was also included in this analysis.

Exhibit 8.3 shows the regression-adjusted differences between treatment and comparison schools in the food components for lunches offered on three, four, or all five days of the week. There were no significant differences between treatment and comparison schools with the specified minimums for most food components in lunches offered, including fruits, grains, milk and meat, whether the measure was for three, four, or five days,[139] although treatment schools were significantly more likely to offer vegetables (79 versus 57 percent). To meet the requirement for food components offered, schools had to meet the minimums both for all five days and the weekly component minimum.[140]

Appendix 8C provides additional detailed information on meal quality in treatment and comparison schools, by presenting results separately for daily and weekly meal components. There were no significant differences between treatment and comparison schools in the proportion meeting these minimums.

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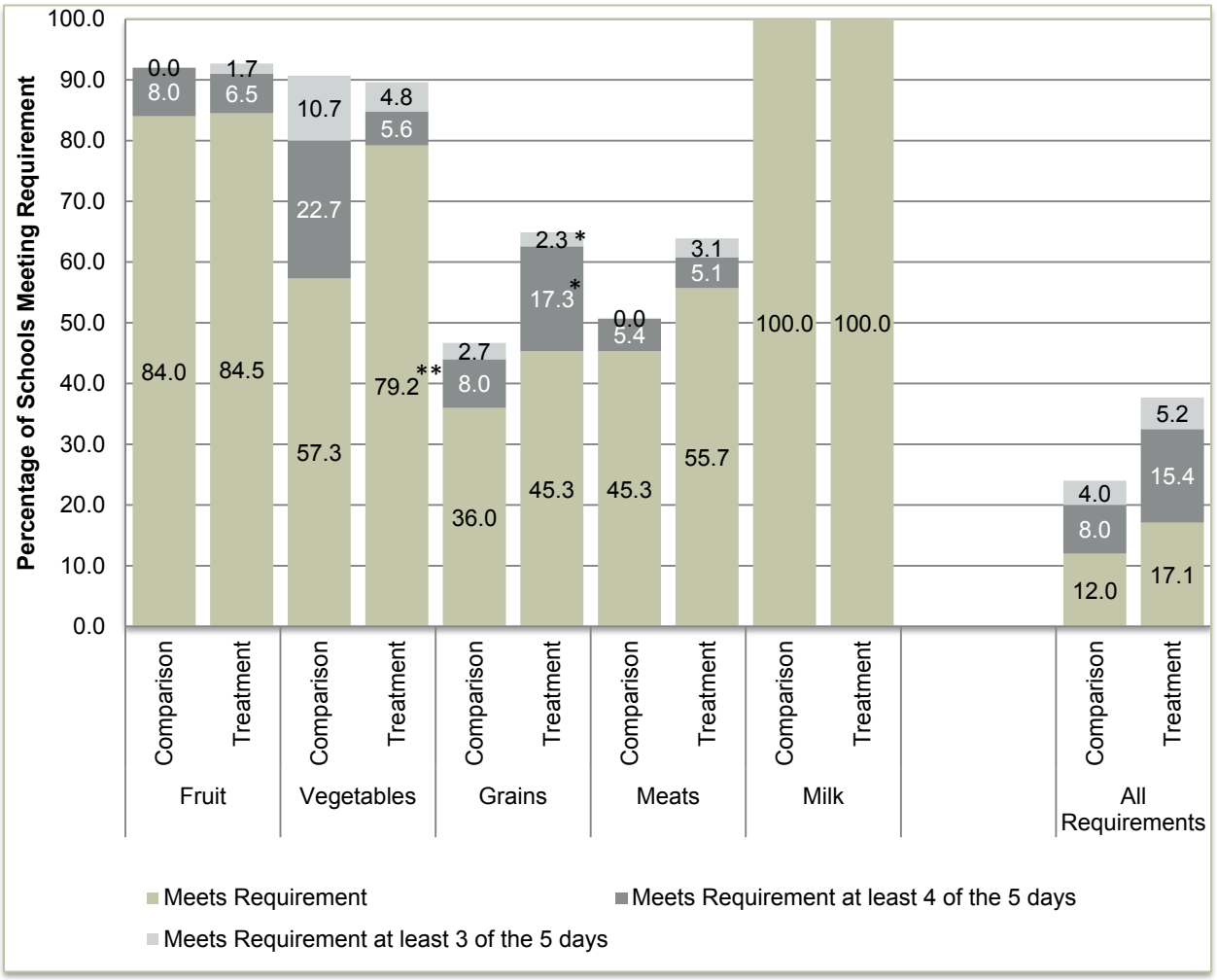
[139] As Exhibit 8.3 indicates, the difference in the percentage of schools meeting the grains standard for all five days approached significance, with the treatment group having the higher estimate.

[140] Only four days of menus were reported for a some schools due to scheduling, school holidays, or teacher conference days during the Target Week (15 schools had four days of breakfast menus, and 17 schools had four days of lunch menus. Schools that met standards for all four reported days and the prorated weekly standard were characterized as having met the standard for the week.

Exhibit 8.3: Differences between Treatment and Comparison Schools: Food Component Minimums for 3, 4 or all 5 Days of the Week for Lunches Offered



Means for comparison group are unadjusted (raw means). Means for treatment group are regression-adjusted to control for differences between treatment and comparison schools. The results from the regression, including all covariates, appear in Appendix 8C.

Meeting Requirements for a component means that the school met the daily minimum requirements for the school's grade range on all days and also met the weekly minimum requirement. Meeting "All Requirements" means the school met all daily and weekly minimums for all meal components combined.

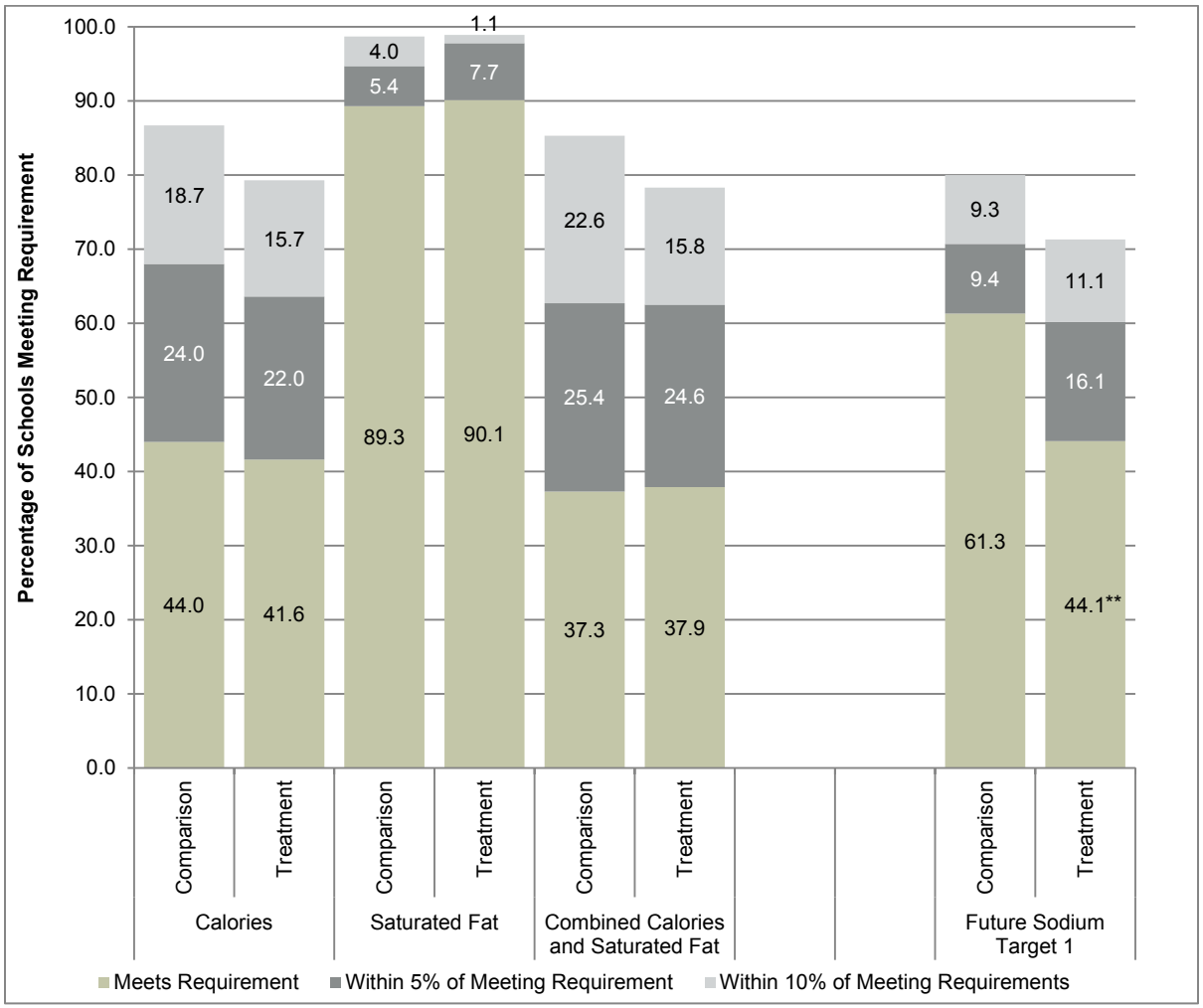
***=p<0.01, **=p<0.05, *=p<0.1.

Source: Menu Survey.

Exhibit 8.4 provides the regression-adjusted percentage of treatment schools and the average percentage of comparison schools meeting the nutrient specifications and the future Target 1 for sodium for the lunches offered. There were no statistically significant differences between treatment and comparison schools for meeting nutrient specifications for calories and saturated fat. About four out of five schools in both groups came within 10 percent of the specifications for average calories. Appendix 8C (Exhibit 8C.4) provides details on the percent of schools that fell below or above the target calorie ranges for age/grade grouping. Nearly all treatment and comparison schools met or came within 10 percent of meeting the saturated fat standard for lunches offered. However, treatment

schools were significantly less likely than comparison schools to meet the Target 1 sodium standard (which will not be in effect until SY 2014-15). Sixty-one percent of comparison schools met the future sodium target, as compared to 44 percent of treatment schools.

Exhibit 8.4: Differences between Treatment and Comparison Schools: Nutrient Specifications and Sodium Target 1 for Lunches Offered



Means for comparison group are unadjusted (raw means). Means for treatment group are regression-adjusted to control for differences between treatment and comparison schools. The results from the regression, including all covariates, appear in Appendix 8C.

The first of two intermediate sodium targets was used in the analysis (Target 1) for comparison purposes and will be in effect in SY 2014–15 but was not in effect when the Menu Survey data were collected.

Meeting Requirements for a nutrient means that the school met the average daily requirements, based on the weekly menu for the school's grade range.

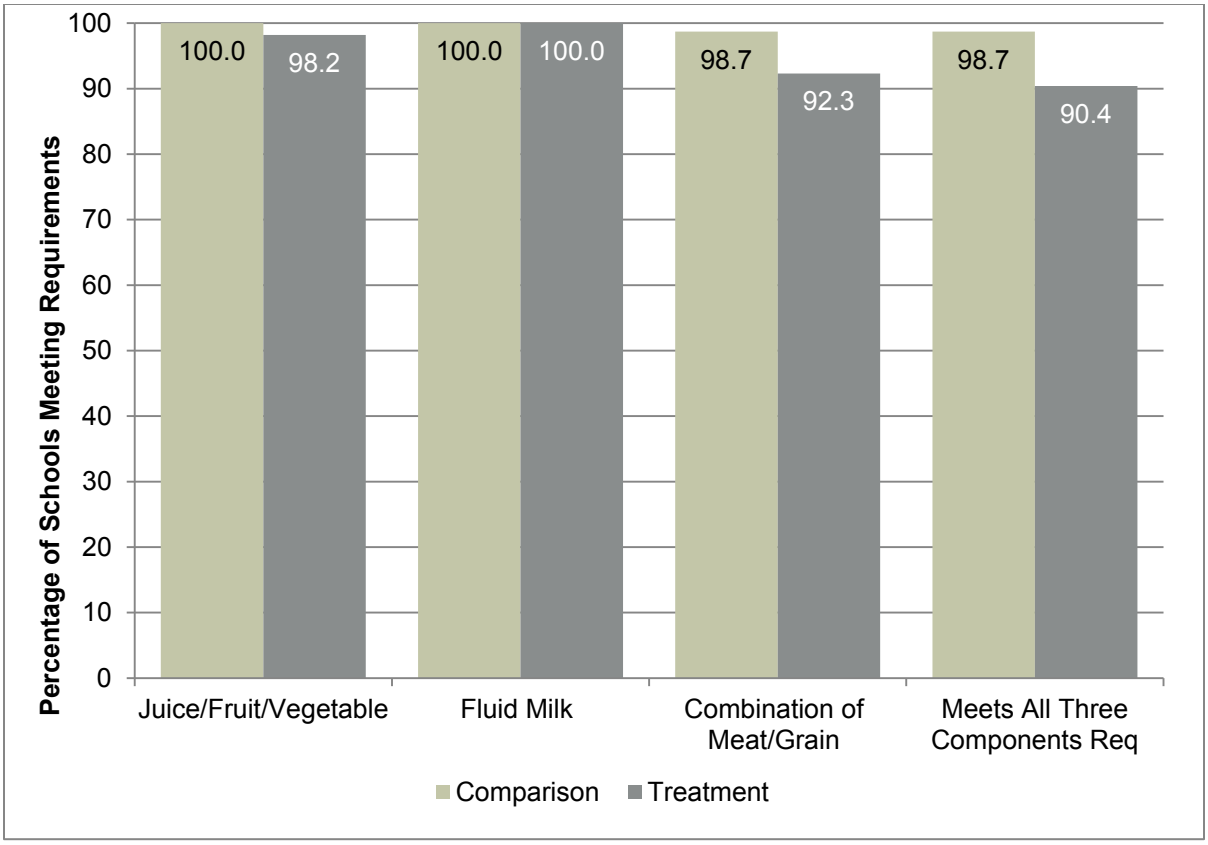
***=p<0.01, **=p<0.05, *=p<0.1.

Source: Menu Survey.

The same methods were used to estimate the CEP's impact on meal quality for breakfasts offered. Exhibit 8.5 shows the regression-adjusted differences on the specified food component requirements for the treatment and comparison schools for breakfasts offered. Differences between treatment and

comparison groups were not statistically significant for the percentages meeting the food component requirements for juice/fruit/vegetable, milk, and the meat/grain combination, as well as all three food components combined. Compliance with requirements for juice/fruit/vegetables and fluid milk was universal or nearly so in both groups and only slightly less (92 percent) for the meat/grain standard among treatment schools.

Exhibit 8.5: Differences between Treatment and Comparison Schools: Food Component Requirements for Breakfasts Offered



Means for comparison group are unadjusted (raw means). Means for treatment group are regression-adjusted to control for differences between treatment and comparison schools. The results from the regression, including all covariates, appear in Appendix 8C.

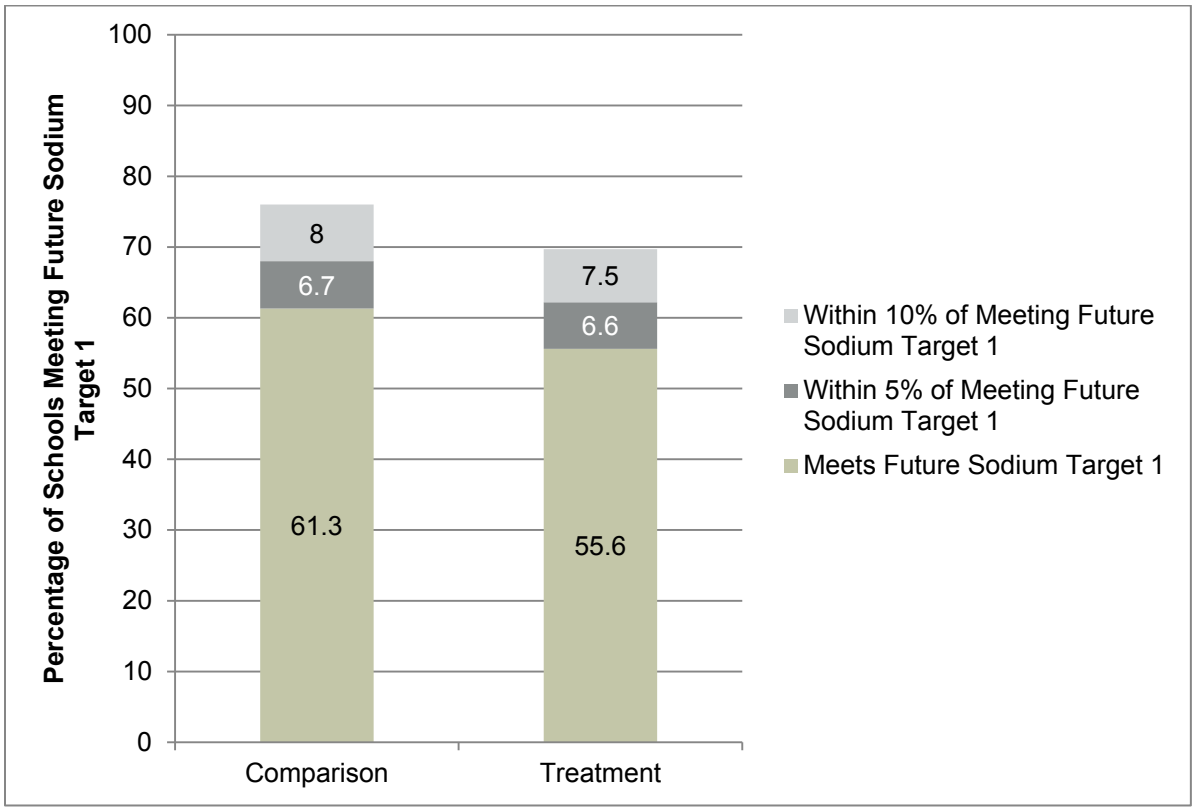
***=p<0.01, **=p<0.05, *=p<0.1.

Meeting Requirements means that the components meet the daily minimum quantities specified for the respective grade range on all days. Meets All Three Components requirement means schools met all meal component minimums combined.

Source: Menu Survey.

Unlike the analysis for lunches offered, the difference in the percentage of schools meeting the future Target 1 sodium standard for breakfast was not significant (see Exhibit 8.6). Seventy-six percent of comparison and 70 percent of treatment schools met or came within 10 percent of meeting the future Target 1 sodium standard.

Exhibit 8.6: Differences between Treatment and Comparison Schools: Future Sodium 1 Target for Breakfasts Offered



Means for comparison group are unadjusted (raw means). Means for treatment group are regression-adjusted to control for differences between treatment and comparison schools. The results from the regression, including all covariates appear in Appendix 8C.

The Target 1 sodium standard was used in the analysis for comparison purposes and will be in effect in SY 2014–15, but was not in effect when the Menu Survey data were collected.

***=p<0.01, **=p<0.05, *=p<0.1.

#- varies by grade.

Source: Menu Survey.

8.4.2 Menu Choice and Variety

The evaluation team also explored whether the CEP induced changes in the variety of food choices that schools offered to students in lunches and breakfasts, to address the final research question about meal quality and variety. Exhibit 8.7 provides the regression-adjusted number of food group choices offered for lunches for the treatment and comparison schools. The CEP did not have a statistically significant impact on choices offered for fruits, vegetables, grains, milk, and entrées. The estimated difference between treatment and comparison schools was less than 0.3 items for these categories, except for the difference of about 0.4 in the number of entrées offered. The only significant effect was

the difference of 0.09 in the average number of desserts offered.[141] Given the small number of desserts offered at both treatment and comparison schools, the impact on the number of desserts did not substantially alter the overall pattern that food choices at lunch were not different under the CEP.

Exhibit 8.7: Impact of CEP on Average Number of Choices in Food Groups Offered at Lunch

	Comparison	Treatment	Impact	Percent Impact
Number of fruits and 100% juices	2.58	2.36	-0.22	-8.36%
Number of vegetables	2.32	2.41	0.09	3.72%
Number of separate grains/breads	0.52	0.66	0.14	26.15%
Number of types of milks	2.96	2.84	-0.12	-4.2%
Number of entrées	3.72	3.34	-0.38	-10.15%
Number of desserts	0.07	0.16	0.09**	117.93%

Means for comparison group are unadjusted (raw means). Means for treatment group are regression-adjusted to control for differences between treatment and comparison schools. The results from the regression, including all covariate results, appear in Appendix 8C.

Entrées for lunches include meat/meat alternates and combination entrées (meat/meat alternates combined with grains, vegetables, or both).

***=p<0.01, **=p<0.05, *=p<0.1.

Source: Menu Survey.

Exhibit 8.8 provides the regression-adjusted number of food group choices offered for breakfasts for the treatment and comparison schools. There was no statistically significant impact of CEP participation on choices offered for grains, meat, milk, and entrées. The only suggestive evidence of an effect (at the 10 percent significance level) was on the number of fruits and vegetables offered. The number of choices of fruits/vegetables offered at treatment schools was approximately three, and at comparison schools was approximately three and a half. The difference of half an extra choice is the estimated impact of the CEP, which represents a 15 percent decrease in number of choices available in relative terms, but this finding is only suggestive and not significant at the standard 5 percent level.

[141] At most schools, only one type of dessert is offered for a given meal, so the mean number of desserts reflects the percentage of schools offering dessert (see Appendix 8C for percentage of schools offering dessert).

Exhibit 8.8: Impact of CEP on Choices Offered at Breakfast

	Comparison	Treatment	Impact	Percent Impact
Number of fruits/vegetables/100% juices	3.44	2.91	-0.53*	-15.4%
Number of separate grains/breads	5.92	5.27	-0.64	-10.9%
Number of separate meats/meat alternates	0.92	0.75	-0.17	-18.2%
Number of types of milks	2.63	2.48	-0.15	-5.7%
Number of combination entrées	0.78	0.61	-0.17	-21.5%

Means for comparison group are unadjusted (raw means). Means for treatment group are regression-adjusted to control for differences between treatment and comparison schools. The results from the regression, including all covariates results appear in Appendix 8C.

Combination entrées for breakfasts include only entrées composed of a meat/meat alternate and at least one other meal component (typically a grain). Counts of meat/meat alternates and grains that were not part of a multi-component item were computed separately.

***=p<0.01, **=p<0.05, *=p<0.1.

Source: Menu Survey.

8.4.3 Discussion

Overall, the analysis indicates few significant differences in meal quality indicators and in food choices between the treatment and comparison schools. These are exploratory findings suggestive of impacts. Were the analysis to control for the multiple hypothesis tests being conducted, the conclusion might be that no between-group differences exist.[142] A further caution is that, given the observed differences between the samples, it is also likely that the groups are different on unobserved characteristics for which the available covariates do not control, and these unobserved characteristics might have contributed to the differences in outcomes.

Meal Quality

There were no statistically significant differences between treatment and comparison schools in meeting the food component minimums for fruits, grains, meat/meat alternates or milk for lunches offered. The slight increase in the percentage of schools meeting the vegetable component minimum among the treatment schools is consistent with the results of the administrative cost interview (described in Chapter 3), which indicated that, among the one-third of the foodservice directors in treatment schools reporting that the quality of foods increased, the addition of fruits and/or vegetables was the most common specific change reported.

Similarly, there were no statistically significant differences between the treatment and comparison schools for meeting the nutrient specifications for the calorie range or the percent of calories from saturated fat. However, comparison schools were significantly more likely to meet the relevant first intermediate sodium target (Target 1) than the treatment schools. As stated previously, schools were not expected to meet Target 1 until SY 2014–15, and so this analysis simply provides context about the actual sodium values reported relative to the future target.

[142] As discussed in Chapter 2, the evaluation specified confirmatory outcomes in advance and treated all other outcomes as exploratory, in order to maximize the power to detect impacts on the most important outcomes. Adjustment for multiple hypothesis tests would substantially reduce the power to detect any impacts.

The evaluation provides some evidence suggesting a possible explanation for higher sodium values for lunches in treatment schools: that the schools may have made changes to offerings that allowed them to serve lunch more quickly. Evidence for this explanation comes from the one-third of CEP foodservice directors that reported menu changes attributable to the CEP in the Administrative Cost Interview. An increased reliance on pre-prepared or processed foods could lead to an increase in sodium, which is typically higher in processed foods than those prepared from scratch. However, the evaluation did not specifically classify foods to allow an analysis of food sources of sodium, so this is only one plausible explanation for the result.

For breakfasts offered, the meal quality analysis found no significant differences between treatment and comparison schools in the food component requirements for juice/fruit/vegetable, milk, and the meat/grain combination. Unlike the results seen in lunches offered, the comparison of schools meeting the future sodium target (Target 1) revealed no statistically significant difference.

As noted above, the methods used by the study to assess meal quality emulated the methods used by FNS and State Agencies to measure compliance with the meal pattern and nutrient standards, although the study did not have access to the same information available to FNS and the States. Consequently, the study's approach likely resulted in a more conservative assessment of school meals. See Appendix 8B for discussion of this aspect of the methods.

Choice and Variety Offered

For lunches offered, there were no statistically significant differences in the number of choices offered for fruits, vegetables, grain, milk and entrées between the treatment and comparison schools. These results appear to be consistent with the responses of the LEA foodservice directors surveyed in the Administrative Cost Interview, described in Chapter 3, which indicated that the majority reported no change to the variety of foods offered as a result of the CEP. The only significant impact of the CEP was the evident increase in the number of desserts offered. While the new meal pattern for lunches does allow for desserts to be offered, they must be accounted for in the overall dietary specifications (calories, saturated fat, *trans* fat and sodium) (USDA, 2013d), and meal pattern requirements limit grain-based desserts to no more than two oz per week, providing an inherent constraint to including them with lunches.[143] It is also important to note that given the small number of desserts offered at both treatment and comparison schools, the impact on the number of desserts did not substantially alter the overall pattern that food choices at lunch were not different under the CEP.

For breakfasts offered, the results suggest that the CEP may have reduced the number of choices of fruits, vegetables, and juices by an estimated one-half item. This finding, and the consistently negative (though not statistically significant) impact estimates for other choices are consistent with self-reports from Administrative Cost Interview data. As discussed in Chapter 3, the majority of LEA foodservice directors in treatment LEAs reported no change to the overall variety of foods offered as a result of CEP participation. However, about one-third reported changes to the types of food served to allow for quicker meal service. Offering grab-and-go food was the most common change reported.

[143] FNS Guidance indicates that a school may offer a total of 2 oz equivalent or less of grain-based desserts each week, but the distribution across the week can vary. For example, a 2 ounce equivalent dessert may be offered once per week, or a 0.5 oz equivalent dessert may be offered four times per week (USDA, 2013c).

This operational change, or others such as breakfast in the classroom in CEP schools, may help to explain why the data reflect slightly fewer choices of some types of foods offered in CEP schools.

The results about meal quality and choice suggest few meaningful differences in outcomes for CEP and comparison school menus. For the levels of meal quality and choice in both groups, the timing of the data collection relative to the shift in applicable nutritional standards may well be an explanatory factor. The new NSLP standards were in their first year of operation.

From a broader perspective, the findings from this assessment about levels of meal quality and variety are comparable to past national studies that have assessed the nutrient content of the NSLP and SBP, which indicate both progress and challenges in meeting USDA standards. Since the early 1990s, FNS has sponsored the School Nutrition Dietary Assessment (SNDA) studies to provide information on key characteristics of the school meal programs and the food and nutrient content of school meals. Most recently, the fourth SNDA study (SNDA-IV) collected data from national samples of school districts and schools in school year (SY) 2009–10. For the SNDA studies, the nutrient content of the average meals offered and served in the nation's schools was compared with standards in effect at the time—the School Meals Initiative (SMI) nutrition standards—as well as several recommendations from the *Dietary Guidelines for Americans*. Past SNDA studies documented progress toward meeting the goals for nutrients in NSLP lunches, but found that a considerable percentage of schools continued to offer lunches that did not meet SMI standards, particularly for fat, saturated fat, and calories. (Fox et al., 2012) From the most recent study, SNDA-IV, few schools offered average NSLP lunches that met all of the SMI standards; only 14 percent of schools offered NSLP lunches that met all of the SMI standards Similarly, SNDA-IV also reported that only 15 percent of schools offered average SBP breakfasts that met all of the SMI standards.

9. Conclusions

Data collected for this report provide a broad perspective on the implementation and impacts of the Community Eligibility Provision (CEP). This chapter summarizes the main findings of the Implementation and Impact Studies of the CEP.

9.1 Implementation Study Results

The Implementation Study drew on four main data sources. The first seven CEP States provided data from administrative records on participating, eligible non-participating, and near-eligible LEAs and schools. State Child Nutrition Officials participated in three rounds of telephone conversations in 2012 and one in 2013 about their experiences with the CEP. LEA foodservice directors in the first seven CEP States provided data on their experiences and perceptions regarding the CEP via the implementation web surveys. These data reflect the specific experiences of participating States and LEAs, and the process and issues could well have been different elsewhere. Reaching beyond the first seven CEP States, telephone interviews with Title I directors in all 51 State Education Agencies provided insights into the use of FRP meals eligibility data for educational programs, and how these programs might be affected by the elimination of FRP meals applications under the CEP.

Three States—Illinois, Kentucky, and Michigan—and their LEAs began implementing the CEP in SY 2011–12, and continued operating the CEP in SY 2012–13. Four additional States, including the District of Columbia, New York, Ohio, and West Virginia, and their LEAs implemented the CEP in SY 2012–13. Four more States—Florida, Georgia, Maryland, and Massachusetts—were well-positioned to implement during SY 2013–14 despite numerous challenges. The first seven implementing States identified, notified and recruited LEAs to participate. In turn, the LEAs learned about the CEP, made decisions about whether to implement and in which schools, and communicated with schools and the community. Some States and LEAs had already noticed increased meal participation, and according to States, LEAs were excited about the CEP. According to the first seven States, key challenges at the State level were (1) the limited time during initial implementation to understand the CEP, make decisions about participation, and implement it, and (2) understanding and addressing the implications of the CEP for educational programs that use individual student FRP meals certification data. At the LEA level, the most frequently reported barriers included financial concerns and uncertainty about the impacts of the CEP on NSLP and SBP participation. Equity issues and operational challenges (especially for LEAs with both eligible and non-eligible schools) were also important concerns. Addressing the timing and information issues for States is a relatively straightforward problem. However, telephone interviews with all 51 State Title I directors indicated that States routinely use FRP data for multiple education-related purposes, so the lack of such data under the CEP represents a widespread challenge.

Across the first seven States, a total of 420 LEAs and 2,312 schools participated in the CEP in SY 2012–13. On average, 32 percent of eligible regular and charter LEAs, and 29 percent of eligible schools, participated in the CEP. Participation rates for eligible regular and charter LEAs ranged considerably—from 24 percent in Michigan to 65 percent in West Virginia. Based on the number of near-eligible LEAs, it appears that the potential to increase the number of eligible LEAs was small in most States; only Illinois and Ohio had more than 50 near-eligible LEAs.

Among participating LEAs eligible to participate LEA-wide, 92 percent offered the CEP at all schools, and 97 percent of schools offered the CEP, on average. On the other hand, among participating LEAs that were not eligible LEA-wide, 53 percent offered the CEP at all eligible schools, and on average, 79 percent of eligible schools offered the CEP.

Compared with eligible non-participating regular and charter LEAs, participating LEAs of these types had more students, on average, higher ISPs and FRP meals eligibility percentages, higher percentages of students in grades K–5, and higher percentages of students who are Black. Despite their larger average size, participating regular and charter LEAs were more often very small (with enrollments under 500 students); they also were more often urban and more often charter schools. These patterns were replicated in most (although not all) of the first seven States.

Four factors were significantly associated with CEP participation by LEAs: ISP, enrollment, State, and charter status. The odds of participation rose dramatically with each additional 10 percentage points in the ISP, especially between 40 and 70 percent. The odds of participation also increased for LEAs with larger numbers of schools. However, LEAs with below-average-size schools were more likely to participate, possibly because of differences in school-level eligibility. Although charter LEAs were more likely to participate than regular public LEAs, this finding was significant only in Ohio. The above relationships were observed *after* controlling for the other factors in the analytic model, so they may differ from the descriptive results (such as the participation rates by State computed without controlling for differences in LEA demographics). Evidence from State CN interviews suggests that the differences by State and charter status may reflect how the CEP was implemented; differences in school-level eligibility may also have contributed to variation in participation across LEA types.

9.2 Impact Study Results

As discussed in Chapter 2, the Impact Study used a matched comparison design, and impact estimates were computed from differences in outcomes between the treatment group (participating LEAs and schools) and the comparison group (non-participating LEAs selected to be similar in likelihood of CEP take-up, and selected schools in these LEAs). Outcome data were drawn from State administrative records, the PEAR survey, in-person interviews and other on-site data collection, with the largest samples devoted to the participation and revenue impacts.

While the impact estimates control statistically for known differences between the groups, there are some caveats to the findings, and the results must be interpreted with appropriate caution. These estimates, at best, measure the effect of the CEP on the specific group of LEAs that were observed: those that *chose* to participate in the first two years of availability in the Year 1 States (Illinois, Kentucky and Michigan) and those that *chose* to participate in the first year of availability in the three Year 2 States (New York, Ohio, and West Virginia). (The District of Columbia was excluded because the matched comparison design could not be used there.) These estimates generalize neither to LEAs in these States that are not comparable to the participating LEAs, nor to LEAs in other States. The matching and statistical controls do not account for potentially important, unmeasurable characteristics that determine the take-up decisions of LEAs, such as the perception that the LEA will benefit from adopting the CEP. Nevertheless, the study used the most rigorous and feasible methods to separate the impact of the CEP from the other factors that could have affected the outcomes of interest. The results for impacts on participation and revenues for NSLP and SBP are based on the

strongest component of the evaluation, which uses a time-series of pre- and post-implementation data to strengthen the controls for differences in relevant characteristics between the treatment and control groups. Other impact results are based on a posttest-only comparison design and should be considered exploratory.

Judged by the confirmatory outcome selected for the evaluation, the CEP was clearly successful: it significantly increased student participation in NSLP and SBP, and Federal reimbursements per reimbursable meal for these programs were significantly greater among the participating LEAs. The CEP's impact on student participation in school meal programs was surprisingly consistent across programs, increasing participation by 5 to 9 percent (relative to the lunch and breakfast programs' participation in the matched comparison schools, after controlling for differences between the two groups). The CEP's impact on Federal reimbursements per meal was a significant increase of about 6 percent for the NSLP and 2 percent for the SBP. Total Federal revenue per student increased by 13.5 percent. On the other hand, the CEP did not appear to have an impact on any of type of non-Federal revenue. Taken together, the finding of increased Federal funding and the lack of evidence that other revenues significantly declined suggest that the CEP did not have an adverse overall effect on LEA foodservice revenues, and may have produced a net gain for participating LEAs.

The CEP requires LEAs to offer the SBP, and it was available in all schools in nearly all participating LEAs and non-participating LEAs in the comparison group. Study data did not indicate that the CEP had an impact on availability of the SBP. After controlling for differences between groups, participating LEAs used traditional line service less often at breakfast and served breakfast in the classroom more often, as is recommended to increase SBP participation (USDA, 2013e) but complicated to implement under conventional meal counting and claiming procedures. Participating LEAs were less likely to report that they offered a choice of foods at breakfast. The reduction in choice of foods may be linked to the greater use of in-classroom breakfast.

As expected, CEP participation appeared to reduce time spent by school and LEA staff on distributing and processing applications for free or reduced-price meals, verifying income of free/reduced price students, and meal payment collections and accounting. The combined savings for these activities were 68 minutes per student per year, representing labor cost savings of about $29 per student per year. The CEP had no impact on the staff time and costs associated with direct certification. On the other hand, the CEP appeared to increase the staff time and cost of counting and claiming reimbursable meals from less than 30 minutes per student per year to almost an hour, offsetting half of the savings in other activities. Possible reasons for this result include: increased participation in school meal programs, and new (and sometimes more manual) meal counting and claiming procedures. It is too early to tell whether the increased time for meal counting and claiming reflects an early implementation challenge, and adaptation to the new procedures and planned automation by States might reduce this impact over time. On the other hand, the CEP could produce net savings in meal counting and claiming costs in the long run, if schools could reduce the complexity and cost of automated systems for meal counting and payments. Treatment and comparison schools did not differ in the total time and cost spent on administrative tasks overall or for any category of worker. Descriptive data from interviews and surveys suggest that, for the majority of LEAs, the CEP did not require LEAs to increase staff, the time spent on meal counting and claims was not a concern, and the CEP made it easier for LEAs to break even or at least had no impact on the foodservice bottom line.

The CEP reduced the overall rate of certification errors and had little or no impact on errors in counting meals (at the cashier level) and claiming meals for reimbursement. The CEP did not appear to affect errors in direct certification, which are rare. The CEP eliminated application processing errors that, in the comparison schools, resulted in approximately 6.6 percent of applicants having the wrong certification level (too high or too low). The CEP also eliminated procedural errors in application processing that, in the comparison schools, affected 20.2 percent of approved applicants and 16.9 percent of denied applications. Procedural errors (such as missing certification documents or incomplete applications) do not necessarily result in certification errors but indicate a lack of integrity in the process. The CEP had no significant impact on cashier error in identifying reimbursable meals, despite concerns that increased participation might lead to more error by speeding up service lines. One measure of meal claiming error was significantly higher in participating schools, but there was no impact on overall meal claiming error. The primary reason for errors in claims submitted for CEP schools to the State was that the LEA used the wrong claiming percentage, and usually the claiming percentage used was lower than the LEA was entitled to use. This problem might be readily addressed through training or through claims processing by the State (which may have corrected some or all of the detected errors in claiming percentages). The baseline levels of claiming error in the NSLP and SBP appear to be quite small, at least in the sample, so the lack of a positive impact from the CEP is not a reason for concern.

For a broad range of meal quality outcomes, there was no evidence that the CEP had a significant impact. At lunch, CEP schools tended to offer more vegetables, but were less likely than comparison schools to have met the (soon-to-be-required) Target 1 sodium standard. There was no evidence of impacts on meeting NSLP requirements for other food components, the calorie range requirement, or the percent of calories from saturated fat. There were no significant differences in meeting food component requirements or the Target 1 sodium standard for breakfasts offered.

The CEP appeared to have little if any impact on the number of choices offered in meal components. There were no significant differences in the number of choices offered for fruits, vegetables, grain, milk and entrées for lunches between the treatment and comparison schools, nor was there a significant difference in choices for breakfast components.For lunch, the only significant impact of the CEP was a small increase in the number of desserts offered, although the number of desserts offered was minimal and well within allowed limits for both CEP and comparison schools. Changes in the types of food offered to serve more quickly, and shifts to breakfast in the classroom in CEP schools were reported but had no significant effect onthe number of breakfast choices offered in CEP schools.

Summing up across all of the evaluation results, the implementation of the CEP in its first two years was successful in perhaps the two most important dimensions. First, the take-up of the CEP was widespread among eligible LEAs, despite the uncertainties about impacts on finances and operations; further, participating LEAs were both well-satisfied and likely to continue using the CEP. Second, the CEP appeared to increase NSLP and SBP participation and the associated Federal reimbursements, while not adversely affecting the financial bottom-line of foodservice operations. The CEP eliminated substantial levels of error in the processing of FRP meals applications, as well as eliminating the costs of processing and verifying these applications. For most other outcomes, there were little or no impacts, either positive or negative.

The results point to several key challenges for the future of the CEP. First, there is substantial skepticism about the feasibility of the CEP among eligible non-participating LEAs; wider adoption of the CEP may require some efforts to address this skepticism. Second, the need for household income data for Federal and State educational programs will continue to pose perhaps the greatest implementation challenge. Third, impact findings suggest that the LEAs experience new challenges in meal claiming under the CEP, at least during initial implementation, based on the evidence of increased administrative costs and errors. Several currently-implementing CEP States have already implemented automated systems to prevent errors in the use of claiming percentages, and others indicate that they plan to do so. As this practice becomes more widespread, it would presumably eliminate the main source of claiming error observed in CEP schools. Finally, the findings on meal quality and choices provide evidence of little change in meal quality, suggesting that the participating LEAs have not reduced meal quality to contain costs but also that any resources freed up by the CEP have not led to broad imporvements in meals. The only significant effects on meal quality were the positive impact on vegetables offered and the negative impact on meeting the future intermediate sodium target. Given the timing of the study, it is too early to determine whether the observed effects on meal quality are merely transient (reflecting CEP implementation, introduction of new standards, or both) or likely to be sustained. Across the multiple outcomes assessed by the Impact Study, the clear and positive impacts on NSLP and SBP participation and reimbursements represent the most notable results of implementing the CEP.

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Glossary: Community Eligibility Provision Evaluation

Average Daily Attendance
A figure representing a school or school district's attendance per day averaged over a period of time.

Bi-Weekly
Every two weeks.

Central LEA Foodservice Staff
Foodservice staff working in the administrative office of the school foodservice department. These may include the foodservice director, supervisors, bookkeeper and possibly, the business manager.

CEP Schools
Schools participating in the Community Eligibility Provision, formerly known as the Community Eligibility Option (CEO).

Claiming Percentage
The percentage of meals reimbursed with Federal funds at the free meals rate for schools participating in the Community Eligibility Provision (CEP).

Claims for Reimbursement
A claim submitted to the State Agency on a monthly basis for reimbursement for meals served under the National School Lunch and School Breakfast Programs.

Common Core of Data (CCD)
The Common Core of Data compiled by the National Center for Educational Statistics, is a longitudinal database of key characteristics of LEAs and schools. Most of the data are obtained from administrative records maintained by State Departments of Education.

Community Eligibility Provision (CEP)
The Healthy, Hunger Free Kids Act of 2010 made the Community Eligibility Provision (CEP) available to Local Education Agencies (LEAs) and schools in high poverty areas. Under the CEP, families are not required to submit applications for free or reduced-price meals and schools must provide free meals to all students. The potential benefits are that in high-poverty schools more students will have access to nutritious meals and LEAs may experience reductions in administrative burden. The CEP was phased in starting in the 2011/12 school year in three States and four additional States participated in each of the two following years. The CE Provision will be available to all States in the 2014/15 school year. Formerly known as the Community Eligibility Option (CEO).

Consolidated Claims
Claims for reimbursement combined for all of the schools in the LEA.

Direct Certification
Direct certification determines children's eligibility for free meals by matching student enrollment records with administrative records from the Supplemental Nutrition Assistance Program (SNAP),

Temporary Assistance for Needy Families (TANF), or the Food Distribution Program on Indian Reservations (FDPIR). In addition, children can be certified as eligible for free meals based on lists maintained by LEAs or other agencies, including homeless, runaway and migrant youth, and foster

children. Children certified for free meals by any of these means—without applications—are "identified students."

Direct Certification with Medicaid (DCM)
A demonstration program administered in select States allowing schools to determine students as eligible to receive free meals through the National School Lunch and School Breakfast programs based on documentation of participation in the Medicaid program, and without application.

Eligible Non-Participating (EN) LEA
Local Education Agencies that have an Identified Student Percentage of over 40 percent and do not participate in the Community Eligibility Provision.

Eligible Participating (EP) LEA
Local Education Agencies that have an Identified Student Percentage of over 40 percent and are participating in the Community Eligibility Provision.

Eligible School
A school is eligible for the CEP if the LEA is eligible to participate LEA-wide, or if the school has an ISP of 40 percent or more, or if the school is grouped with other schools so that the ISP for the group is 40 percent or more.

Enrollment
The number of students registered at the school or district.

Food and Nutrition Service (FNS)
The division of the USDA that administers the School Lunch Program and other Child Nutrition Programs.

Food-Based Menu Planning
Menu Planning based on food groups, rather than nutrients. These food groups include Fruits, Vegetables, Grains, Meat/Meat Alternates and Milk.

Foodservice Director
The individual responsible for the school meal operations in an LEA.

Foodservice Management Company (FSMC)
A private organization that operates school foodservice under contract with a school district.

Free and Reduced Price Meal Applications
Forms completed by households to determine student eligibility for free or reduced-price meals in the National School Lunch and School Breakfast Programs. The forms collect information related to household income and the number of persons in the household.

Free Meals
School meals served to eligible students whose family incomes are below 130 percent of the poverty line.

Full Priced Meals
School meals served to students whose family income is above 185 percent of the poverty level (or whose families do not apply for assistance).

Grab-and-Go
Pre-packaged, or bagged meals, that offer all food components or food items in the quantities required for each grade group in an entirely or partially pre-packaged manner.

Healthy, Hunger Free Kids Act of 2010 (HHFKA)
The Act authorizing funding and policy reforms for the United States Department of Agriculture, including provisions related to the National School Lunch and School Breakfast Programs. Of interest to this evaluation, the Act provided the Community Eligibility Provision and also made modifications to school menu planning, introducing the New Meal Pattern.

Identified Student Percentage (ISP)
To be eligible to participate in the Community Eligibility Provision, an LEA, a group of schools in an LEA, or an individual school must have at least 40 percent of its student body identified through direct certification and/or inclusion on other agency lists *(e.g., migrant, homeless, or foster care youth)*. This group of identified students is referred to as the "identified student percentage."

In-classroom Breakfast/Lunch
Meal service where food is brought to the classrooms from the cafeteria in containers and distributed to students or served from carts in the hallways by foodservice staff.

Indirect Costs
LEA pro-rated costs distributed across multiple programs, e.g., utilities.

Individual School Claim
A claim for reimbursement for a specific school.

Local Education Agency (LEA)
An LEA is basically synonymous with a school district. LEAs are often made up of several public schools in a district, but they can also be an individual charter or private school.

Meal Count Day
The specific day for which meal counts are provided. Ideally, this will be the last school day before the visit.

Meal Counts
A compilation of the number of meals served by category, including free, reduced-price and paid meals.

Meal Count Types
The variety of methods employed for counting meals in schools, these may include manual cash registers, manual ticket systems, roster check off systems and electronic point of sale (POS) systems.

Menu Survey
The Menu Survey collected information about foods offered to students for breakfast and lunch each day of the target week. The Menu Survey Booklet included three sections: the Daily Meal Counts Form, the Reimbursable Food Form (Breakfast and Lunch Forms), and the Self-Serve/Made-to-Order Bar Form. The Recipe Forms, included in a separate booklet, were also part of the Menu Survey materials. The data gathered from these surveys was used to analyze the nutrient content and quality of meals offered to students.

National School Lunch Program (NSLP)
The National School Lunch Program (NSLP) is a Federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day.

Near-Eligible (NE) LEA
Local Education Agency with an Identified Student Percentage between 30 and 40 percent.

New Meal Pattern
The Healthy, Hunger Free Kids Act of 2010 established a new food-based meal pattern with grade-specific modifications to food quantities, requirements for whole-grains and for specific vegetable types to be offered each week. The New Meal Pattern also includes weekly dietary specifications including grade-specific calorie ranges, sodium targets, limits on saturated fat, and daily limits on *trans* fat. The New Meal Pattern for the National School Lunch Program was implemented in school year 2012/2013, with interim requirements for whole grain rich foods and sodium. Schools were not required to adopt the New Meal Pattern for the School Breakfast Program in the 2012/2013 school year, with most schools continuing the Traditional Food-Based Menu Planning approach (see below) for breakfast.

Non-CEP Schools
Schools which are not using the Community Eligibility Provision. These are the comparison schools for this evaluation.

Observation Day
The specific day of the Target Week when a school is visited.

Offer-versus-Serve (OVS)
The option of allowing students to decline some of the food offered in a reimbursable lunch or breakfast. The goals of OVS are to reduce food waste and to permit students to choose the foods they want to eat. OVS must be offered by high schools but it is optional for elementary or middle schools to offer this option.

On-Site Production Systems
Meal preparation system occurring in the school building where the meals are served.

Personally Identifiable Information (PII)
PII is information that can be used to uniquely identify, contact or locate an individual. Examples include last names, addresses, telephone numbers, signatures, and Social Security Numbers.

Point of Sale (POS)
The point in the foodservice operation where a determination is made that a meal is eligible for reimbursement and is counted as such. This point is generally at the end of the service line. Most but not all schools use an electronic device at the POS but some use simple cash registers or possibly even cash boxes.

Provision 2 and 3
Provisions 2 and 3 are alternatives to the normal requirements for annual determinations of eligibility for free and reduced price school meals and daily meal counts by type (free, reduced price and paid meals) at the point of service. Provision 2 and 3 reduce application burdens and simplifies meal

counting and claiming procedures. Provision 2 allows schools to establish claiming percentages and to serve all meals at no charge for a 4 year period. Provision 3 allows schools to simply receive the same level of Federal cash and commodity assistance each year, with some adjustments, for a 4 year period.

Record Abstractions
Collection of information from school Free and Reduced-Price Meal Applications.

Reduced Price Meal
School meals served to students whose household income is between 130 percent and 185 percent of the poverty level.

Reference Month/Week/Day
The month, week or day for which a given piece of information is provided. For example, the LEA will provide an enrollment figure for a specific month, week or day.

Reimbursable Foods
Food items eligible for inclusion in a reimbursable meal, these exclude foods of minimal nutritional value.

Reimbursable Meal
A meal that meets the meal pattern requirements. If a school has the OVS option, the meal selected by the student must include the minimum components required according to the selected menu planning system for schools to be reimbursed by the USDA. Schools receive some reimbursement from the USDA for each meal served, whether it is full-price, reduced-price, or free.

Reimbursement
The transfer of funds from one agency to another, to offset the costs of operating a program. In the NSLP, reimbursement is based on specified dollar amounts for paid, reduced price, and free lunches. CEP Schools are reimbursed for all meals based on their established claiming percentage.

Respondent
The specific individual from whom information is to be collected for each data collection instrument.

Rosters
Lists of individuals, these may include staff members for the Administrative Cost Interviews or students for meal count purposes.

School Breakfast Program (SBP)
The School Breakfast Program (SBP) provides cash assistance to States to operate nonprofit breakfast programs in schools and residential childcare institutions. The program is administered at the Federal level by FNS. State education agencies administer the SBP at the State level, and local school food authorities operate it in schools.

Self-Serve
Foods which students may serve or portion for themselves, such as salad bars or condiment bars. Some schools also offer other theme bars which may be partially self-serve (e.g., toppings for potato bars or taco bars).

Shared Cafeteria
Two schools that share a location for their students to eat meals, as well as a kitchen for preparing meals. Students from the schools may be served either during separate meal periods, or at the same time.

School Food Authority (SFA)
The governing body with the legal responsibility for administering the National School Lunch and/or School Breakfast Program in one or more schools. In this evaluation, the term Local Education Agency is used in place of SFA.

Target Week
The target week is the pre-designated five-day period in which onsite data collection took place in Component 2 and 3 LEAs. The target week is also the week for which the menu survey data were collected in Component 3 schools.

Traditional Line Service
Meal service model where students wait at point of service for school food to be served.

U.S. Department of Agriculture (USDA)
Supervises the National School Lunch and School Breakfast Programs, setting meal standards and providing schools with reimbursements for meals served.

Vended Meals
Meals purchased by schools from a third party. The vendor is generally a private company, but in some circumstances it may be another school district.

Verification Summary Report (VSR)
The Verification Summary Report provides data on State, number of schools, total enrollment, percentage of students approved for FRP meals, ISP, and number of students in non-base-year Provision 2/3 schools. Also known as the FNS School Food Authority Verification Summary Report (FNS-742).

Appendix 2A: Constructing the Sampling Frame

This appendix presents supporting information on the sampling frame for the CEP evaluation. First, data sources and merging procedures are discussed. Next, sample exclusions and eligibility for the components of data collection are explained.

2A.1 Data Sources and Merging Procedures

The evaluation team constructed the sampling frame by merging data from three sources:

- Common Core of Data (CCD)
- Verification Summary Report (VSR) data
- State-provided data files

These sources are described next.

2A.1.1 Common Core of Data

The Common Core of Data (CCD), compiled by the National Center for Education Statistics, is a longitudinal database of key characteristics of LEAs and schools. Most of the data are obtained from administrative records maintained by State Departments of Education. In addition to regular public school and charter school LEAs, the CCD includes regional education service agencies, State and Federally operated agencies, and other types of public education agencies. However, data for these latter types of LEAs can be incomplete. Data for the preceding school year are typically released in the early-to-mid spring of each year. The most recent CCD data available were used to construct the sampling frame for primary data collection and the Matched Administrative Data Sample. Because sampling for primary data collection was completed in the summer of 2012, the most recent data were drawn from the 2009–10 school year. Sampling for the Matched Administrative Data Sample was conducted in the spring of 2013 and utilized data from the 2010–11 school year. CCD data for LEAs and schools, respectively, are downloadable from http://nces.ed.gov/ccd/pubagency.asp and http://nces.ed.gov/ccd/pubschuniv.asp.

2A.1.2 Verification Summary Reports (VSR)

The VSR database is constructed from FNS-742 reports submitted by LEAs to State agencies, which are in turn compiled by FNS. The VSR data contain a wealth of information, including data on student enrollment, number of schools, and numbers of students eligible for free or reduced-price meals under different eligibility categories. These data are based on the annual official counts of students eligible for free or reduced-price meals as of October 30. FNS provided the 2011–12 VSR data for the CEP States to the evaluation team, who then relied on these data for LEA enrollment, the percentage of students eligible for free or reduced-price meals (FRP), and the Identified Student Percentage (ISP).

2A.1.3 State Data

The evaluation team requested data on a number of LEA and school characteristics from State CN agencies. Most importantly, the evaluation team asked States to provide ISP and CEP participation data for both LEAs and schools, in order to identify CEP eligibility and participation status for LEAs and schools. FNS policy specified that ISP data as of April 1, 2012, should be used for determining eligibility for the CEP for the 2012–13 school year.

In addition to the State data described above, the Matched Administrative Data Sample included administrative data on participation, enrollment, attendance and revenue (as described in section 2.4.1) in the propensity score model. These data were included to insure that the sample was balanced on baseline measures of NSLP meal counts, but did not affect the construction of the sampling frame.

2A.1.4 Data Merging

As States delivered data, the evaluation team cleaned and integrated these files with its existing datasets. The composition and comprehensiveness of these files varied by State, but all States provided the most essential elements for the Impact Study—school and LEA participation in the CEP for the 2012–13 school year. Rosters of participating schools were used to determine the percentage of schools participating in each LEA as well as the components of data collection for which each LEA would be eligible.

These data were merged with the 2011–12 VSR and the 2009–10 CCD, which provided characteristics that were used to determine sample inclusion, as discussed in more detail below.

Data from States that implemented the CEP in 2011–12 were merged to a fourth data source as well: the 2010–11 VSR. For these States, the October 2010 VSR data are used to construct measures that enter the propensity score model, as they are the relevant data from the year immediately preceding implementation of the CEP. If an LEA in a Year One State was missing ISP or FRP data in the 2010–11 VSR, the data were pulled instead from the 2011–12 VSR.

States also provided contact information for LEA foodservice directors (FSDs). These data were used to identify potential duplication among FSDs within a State. The sampling issues arising from any such duplication of FSDs are further discussed below (see the heading "Foodservice Director Duplication").

2A.2 Sample Exclusions

2A.2.1 LEAs Serving Special Populations

The Impact Study excludes LEAs that exclusively serve special populations, such as students with severe disabilities, because (1) such LEAs are more likely to include residential schools than other public school LEAs, and residential programs are not eligible to participate in the CEP, and (2), the foodservice operations in such LEAs' non-residential programs may operate quite differently than those in other public school LEAs, introducing variables that would likely confound comparisons with more typical LEAs. State- and Federally operated LEAs, including juvenile detention centers, and regional education agencies serving special populations, were similarly excluded from the Impact Study.

2A.2.2 Private Schools

The Impact Study sample also excluded private schools, because there was no known data source that could provide the elements needed to find appropriate comparison schools. (The CCD includes only public schools.) Non-public LEAs constitute approximately 15 percent of participating LEAs. Non-public LEAs are smaller, on average, than public LEAs, and therefore, because the proportion of non-

public LEA *students* experiencing the CEP is likely to be considerably less than 15 percent, exclusion of private schools is a minor limitation of the study.[1]

2A.2.3 LEAs Missing from the 2009–10 CCD or 2011–12 VSR

The Impact Study sample excludes LEAs that do not appear or appear as non-operational in the 2009–10 CCD and LEAs that do not appear in the 2011–12 VSR data. These exclusions have three purposes. First, requiring the LEA to be operating in 2009–10 eliminates LEAs that have opened recently and therefore do not have sufficient pre-intervention data for inclusion in the CITS design. Second, using the 2011–12 VSR data ensures that the LEA was in operation in the most recent school year. Third, this ensures that sufficient data are available for identifying comparison group LEAs, through the propensity score matching process.

2A.2.4 Direct Certification with Medicaid Study Treatment LEAs

The selection of the impact sample in Illinois was accelerated due to the need to coordinate with the Direct Certification with Medicaid (DCM) evaluation. FNS and its contractor for the DCM evaluation were planning to randomly assign a sample of Illinois LEAs to participate in DCM. This would confound the impact of the CEP on administrative costs and errors, because LEAs using Medicaid for direct certification (in addition to SNAP and TANF) would process fewer FRP meals applications. FNS agreed to allow the CEP to select its sample in Illinois first and to exclude the sampled LEAs from the DCM evaluation. It was, however, only feasible to select the Year 1 sample for Illinois (SY 2011–12 CEP LEAs and their comparison LEAs) prior to the random assignment of LEAs to the DCM treatment group. The evaluation team provided the Year 1 Illinois sample to FNS on May 18, 2012. FNS provided the sample of all Illinois LEAs assigned to the DCM treatment group on August 8, 2012. LEAs were excluded from the CEP evaluation if they were selected for the DCM treatment group. A total of 350 such LEAs were excluded. Due to the random assignment used by the DCM evaluation, this exclusion was not expected to reduce the representativeness of the Illinois sample.

Two other States were included in both the DCM evaluation and the CEP evaluation, but sampling was unaffected in both States. Kentucky implemented DCM statewide, so there was no effect on the sampling. New York implemented DCM in randomly selected schools within the New York City Board of Education (NYCBOE) system, which was already excluded from the CEP evaluation because it was not feasible to match the NYCBOE with another non-participating LEA in New York.

2A.2.5 APEC-II Study Sample

Sampling for Components 2 and 3 of the CEP Evaluation was coordinated with the Access, Participation, Eligibility and Certification (APEC)-II study because the field periods for the studies overlap, and both studies require reviews of certification records. The overlap of data collection was likely to overburden LEAs and potentially lead to biased results if LEAs "cleaned up" their records after one study visited. The APEC-II study needed to select two samples: the main (nationally representative) sample and a supplementary sample of LEAs operating under the CEP. The main APEC-II sample excluded LEAs fully participating in the CEP, but potential for overlap between the two samples existed both among LEAs partially participating in the CEP and among non-participating LEAs that were selected for the comparison group for the CEP Evaluation.

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[1] Due to limitations of enrollment data for private schools, the ratio of private to public school students among all participating LEAs cannot be computed with confidence.

To facilitate coordination of sampling for the two studies, FNS provided the primary and back-up selections for the main APEC-II sample in the CEP States. (Coordination of sampling in the District of Columbia was not needed, because the District was already excluded from the CEP Impact Study.) The evaluation team compared this list with the sampling frame for the CEP Evaluation, including the participating LEAs and their two best matches as comparison LEAs. The two studies coordinated sampling so that, where there was overlap, the APEC-II study could use the primary selections for its main sample (as long as they were not participating in the CEP in SY 2012–13) while the CEP Evaluation could include LEAs that were needed for the Component 2 and 3 samples (including partially-participating treatment LEAs and comparison LEAs). During the recruiting phase, 7 LEAs were released from the CEP sample and made available to the APEC-II study, including 3 LEAs that had been selected as backups, 2 that were unresponsive to recruiting efforts for the CEP Evaluation, and 1 that shared a foodservice director with multiple LEAs in the impact sample. The 2 LEAs that were dropped from the primary sample were replaced with suitable backups.

2A.2.6 LEAs Offering Alternative Universal Free Meals Programs, Including Provisions 2 and 3

LEAs using Provisions 2 and 3 offer free meals to all students and count only the total meals, then claim reimbursement using percentages or dollar amounts established in base years when students are certified for FRP meals. Therefore, the effects of Provisions 2 and 3 on student participation in NSLP and SBP are likely to be similar to those of the CEP. As a result, the study would likely be unable to differentiate between participation under Provision 2 or 3 and under the CEP. Further, those LEAs subject to Provision 2 or 3 do not represent the desired counterfactual condition of conventional reimbursement procedures. To overcome this challenge, the evaluation excluded all LEAs with any Provision 2 or 3 schools from the Impact Study sample. The Impact Study also excluded LEAs with any Provision 2 or 3 schools in the year *prior* to implementation of the CEP, as well as LEAs that offered universal free meals under alternative programs sponsored by States. Provision 2 and 3 LEAs were excluded from both the Matched Administrative Data Sample and the Primary Data Collection Sample.

However, LEAs that operate an alternative universal free meals program were excluded from the Primary Data Collection Sample, but remained in the Matched Administrative Data Sample. While Provision 2 or 3 status is observed in available FNS data, State-sponsored universal free meals programs do not appear in Federal data sources. West Virginia provided State data that identified LEAs offering alternative universal free meals programs. In other States, LEAs that offered universal free meals programs could only be screened out after the initial sampling process. Among LEAs selected to participate in on-site data collection, the recruiting process screened out those offering universal free meals through an alternative program. Among LEAs selected to participate only in the PEAR survey, LEAs that participate in an alternative universal free meals program were screened out as part of the survey.

2A.2.7 One-Year Only Participants

The final sample exclusion is of LEAs that took up the CEP in 2011–12 but did not to continue participation in the 2012–13. There were three such LEAs, all from Michigan.

2A.2.8 Foodservice Director Duplication

Occasionally, different LEAs share the same foodservice director (FSD), and although most such instances represent pairs of LEAs, some represent other situations. Specifically, when more than two LEAs share an FSD, State-level respondents have indicated that:

1. The LEAs use the same foodservice management company, and the regional manager is the FSD for the group of LEAs.

2. The LEAs are charter schools run by the same parent organization (e.g., Heritage Academies), and the management of foodservice is centralized at the parent organization. While the LEAs have separate agreements for NSLP/SBP with the State and separate meal claims, they function largely as if they were part of the same SFA.

There are two problems that arise in these situations with shared FSDs. First, responding to multiple surveys and interviews would represent an excessive burden for one FSD. Second, it appears that some or all of the relevant processes (certification, menu planning, meal claiming) are not independent across LEAs with a shared FSD. Therefore, the study gains power to detect impacts by including as many LEAs with unique FSDs as possible.

For these reasons, as noted in prior communication with and approval from FNS, the evaluation team modified the sampling frame for primary data collection in both the Implementation Study and the Impact Study. (The Matched Administrative Data Sample included LEAs irrespective of shared FSD.) The team identified groups of participating LEAs with the same FSD in each State and selected two LEAs to be included in the sampling frame, randomizing within a set of preferences that prioritized participation in the CEP, as well as size and grade coverage.[2] Thus, any one FSD can be selected to participate in the evaluation at most for two LEAs within a State.[3]

2A.2.9 LEAs in the District of Columbia

With FNS approval, the evaluation team excluded the District of Columbia (DC) from the Impact Study. The evaluation team made this recommendation after a review of LEA data for DC, but before obtaining lists of participating LEAs. This decision was made for two main reasons. First, DC has a unique structure, with only one regular school district, thus limiting the potential sample for the Impact Study to charter schools. This structure made Component 3 data collection impossible and raised concerns regarding the number of potential LEAs available for inclusion in Components 1 and 2. Second, DC did not require schools to choose to take up the CEP until the end of September, 2012. This would have delayed the sampling efforts significantly; and since DC could only contribute a marginal number of matched pairs, the evaluation proceeded without DC.[4]

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[2] Those LEAs with shared FSDs were identified by using an algorithm that matched on name spellings within a defined tolerance limit. The algorithm matches strings based on their Levenshtein edit distance (Reif, 2012).

[3] During data collection, one FSD was identified as the respondent for LEAs in multiple States. Among these LEAs, the evaluation team selected the ones sampled for the most data collection.

[4] LEAs in the District of Columbia remained eligible for the Implementation Study.

2A.2.10 Component Eligibility

LEA Eligibility for Matched Administrative Data Sample

The Matched Administrative Data Sample was used to measure the impact of the CEP on key participation and revenue outcomes using State administrative data. All LEAs eligible for the Impact Study were eligible for the Matched Administrative Data Sample. LEAs with at least one participating school were considered treatment LEAs, and LEAs with no participating schools were considered potential comparison LEAs.

LEA Eligibility for Component 1

Component 1 consisted of PEAR survey respondents. All LEAs eligible for the Impact Study were eligible for Component 1. LEAs with at least one participating school were considered treatment LEAs, and LEAs with no participating schools were considered potential comparison LEAs.

LEA Eligibility for Component 2

Component 2 included on-site data collection: cost interviews and certification record reviews. A non-participating LEA was eligible for Component 2 if it had at least one eligible school, as defined in the section on school eligibility below, and the total enrollment in all eligible schools was at least 300. The enrollment requirement was to ensure that there are sufficient records for certification record reviews.

A participating LEA was eligible for Component 2 if it had sufficient enrollment, a school eligible for on-site data collection, and 70 percent or more of eligible schools participating in the CEP. The significant participation requirement was selected to best use the limited resources of the study. This component compared the costs and accuracy of the certification process when applications are not required to those under conventional program operations. Therefore, the power to detect impacts was stronger because the evaluation included only LEAs that were largely characterized by the CEP experience. LEAs that were almost-fully participating (70 percent or more) were included to ensure a sufficient sample.

LEA Eligibility for Component 3

Component 3 consisted of an on-site menu survey and cashier observations. LEA eligibility criteria for this component were identical for both participating and non-participating LEAs: having three schools eligible for on-site data collection that each represents a distinct grade range and together span kindergarten to 12th grade.

Menus are likely to differ substantially by grade level in keeping with current NSLP standards. Therefore, for Component 3 sampling, the objective was to include only LEAs with schools covering three grade ranges: elementary (grades K-5), middle (grades 6–8), and high (9–12). (Schools with grades covering multiple levels (e.g., grades K-8) were treated as a member of either level.) This requirement considerably restricted the sampling frame for the Component 3 sample, because relatively few LEAs had more than one high or middle-high school, and many LEAs had none. For example, more than half of participating LEAs in Illinois and Ohio had no high or middle-high schools, as did somewhat more than a third of LEAs in Michigan and New York.

School Eligibility for Components 2 and 3

For Components 2 and 3, schools were eligible for on-site data collection based on 2009–10 CCD data if the school (1) was defined as either a "regular school" or a "vocational school", (2) was open and operational, and (3) had enrolled students.

Appendix 2B: Constructing the Matched Administrative Data Sample

The evaluation team used propensity score matching to identify matched pairs of participating, "treatment," LEAs and non-participating, "comparison," LEAs. The evaluation team estimated a statistical model of participation and generated a "propensity score." This score is the LEA's predicted probability of taking up the CEP, which can be used to identify similarly-likely non-takers whose outcomes will serve as a reasonable counterfactual. For the Administrative Data Sample, that counterfactual includes, with very few exclusion, those LEAs that did not take up the CEP but that seem like ones that did. This is considered a "business as usual" comparison: those in the comparison group are used to represent the world as it is without the CEP but with any other services or programs that might exist in schools and LEAs to provide school meal-related assistance. This appendix describes the statistical model of participation used to generate the propensity score and the procedure used to match the LEAs.

2B.1 Propensity Score Modeling

2B.1.1 Variables Included in Model

The dependent variable in the model was a binary variable that took on a value of one if the LEA had at least one participating school in 2012–13 and zero otherwise. All States were estimated together using logistic regression. Because the direct certification process and LEA structures differed considerably across CEP States, the evaluation team anticipated that the relationship between observed characteristics and participation might also vary across these States, and so the models included State-specific characteristics and indicators where possible.[5] Note that in contrast, the matching procedure for primary data collection used separate regression models for each State.

The propensity score modeling for the Matched Administrative Data Sample was performed in the spring of 2013 and built on the model developed for sampling for the Primary Data Collection Sample. See Appendix A.2.c for a discussion of the development of that model. The list of variables for inclusion was adjusted for two reasons.

First, the propensity score model for the Matched Administrative Data Sample was developed to investigate factors related to take-up of CEP. Hence, the team transformed variables to minimize multi-collinearity, which allows the reader to interpret the coefficients more readily. Hence, the Matched Administrative Data Sample is based on a propensity score model that includes the difference between FRP and ISP, rather than FRP. Since FRP is highly correlated with ISP, including both would make the standard errors larger. The coefficient of the difference between FRP and ISP

[5] For a description of how direct certification differs across States, see the 2012 Direct Certification Report available at http://www.fns.usda.gov/Ora/menu/Published/CNP/FILES/DirectCert2012.pdf. As direct certification determines an LEA's Identified Student Percentage (ISP) and ISP determines the reimbursement rate an LEA would obtain if it took up the CEP, differences in direct certification processes are likely to affect participation. In particular, in States that devolve responsibility for direct certification to the local level, LEAs may have a greater ability to manipulate their reimbursement ISP which changes the relationship between participation and the pre-intervention ISP included in the propensity score model.

can be interpreted to measure the effect on take-up of CEP of increasing FRP while holding ISP constant.

Second, the propensity score model for the Matched Administrative Data Sample included pre-intervention measures of meal counts. Because an LEA's meal counts are likely to be highly correlated with both take-up of the CEP and with post-intervention meal counts, including these variables in the model strengthens the design. However, these measures were not available in the summer of 2012 and therefore could not be included in the propensity score model for primary data collection.

The following variables were included in the propensity score model for the Matched Administrative Data Sample.

- ISP categories (between 20-30, 30-40, 40-50, 50-60, 60-70, >70)
  - Reference category <20 percent
- Distribution of percentage of meals taken as free and reduced (FRP)
  - Percentage of meals taken as free (less than 50 percent) and reduced (less than 10 percent)
  - Percentage of meals taken as free (more than 50 percent) and reduced (less than 10 percent)
  - Percentage of meals taken as free (less than 50 percent) and reduced (more than 10 percent)
  - Reference category – Percentage of meals taken as free (more than 50 percent) and reduced (more than 10 percent)
- Difference between FRP and ISP
- LEA characteristics
  - Percentage of students who are English language learners (ELL)
  - Percentage of students who are in grades K-5
  - Percentage of students who are in grades 6–8
  - Whether the LEA is in an urban area
  - Log number of schools
  - Mean school enrollment in an LEA <350
  - Percentage of students who are Black
  - Percentage of students who are Hispanic
  - Percentage of schools which are Title I schools
- Charter indicator for MI, NY and OH
- State Dummies (Reference category is KY)

The rationales for these variables and details of their definitions are discussed below. The ISP, FRP and the difference between the two came from pre-implementation VSR data: the 2010–11 VSR data for Illinois, Kentucky and Michigan and the 2011–12 VSR data for New York, Ohio and West Virginia. All other data elements were from the 2010–11 CCD. Additional discussion of other important independent variables is below.

2B.1.2 Definition of ISP Used in Modeling

The LEA's ISP was included as an independent variable because it is the key variable determining CEP eligibility. The evaluation team defined ISP as follows for the propensity score model:[6]

$$ISP = \frac{Number\ Free\ Eligible\ Not\ Subject\ to\ Verfication + Number\ Categorically\ Eligible}{Enrollment}.$$

This variable was used only as a proxy for true ISP for propensity score modeling purposes. While technically only the students who are not subject to verification should be included in the ISP, the definition above reproduced more closely the reimbursement ISPs reported by participating LEAs. When an LEA elects to participate in the CEP, it can revisit certification data to identify additional categorically eligible students approved by application who can be directly certified and thereby increase its reported ISP.[7]

2B.1.3 Additional Variables

The distribution of FRP percentage is included in the model as a broader measure of LEA poverty, to capture the foodservice context in the LEA and to disentangle the relationship with ISP since they are highly correlated. The omitted reference category is those LEAs with greater than 50 percent qualifying for free lunch and greater than 10 percent qualifying for reduced lunch. The difference between FRP percentage and ISP allows for interaction between the two measures in the model.

To avoid allowing a few very large LEAs to determine the regression coefficients for measures of LEA size (number of schools and enrollment), the logarithmic transformation of the number of schools is used. Enrollment is highly correlated with number of schools, so the model includes a dummy variable for school size less than 350. The omitted reference category is the school size greater than 350.

In the initial exploratory interviews, State Child Nutrition (CN) directors indicated that some LEAs were reluctant to implement the CEP at the secondary school level, and that therefore the CEP was more likely to be implemented in elementary schools. The evaluation team therefore includes the percent of students in kindergarten through grade 5 and the percent of students in grades 6 through 8 in the model. The omitted reference category is the percentage of students in grades 9 through 12. Also, LEA characteristics that were seen to be highly correlated to participation were added to the model; these included percent of students who are Black, percent of students who are Latino, percent of students who are ELL, and percent of schools that are Title I. Section 4.1 also shows that participating LEAs tend to be urban LEAs, and so a dummy for an LEA in an urban area was also included in the model.

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[6] Note that the evaluation team excludes all LEAs that operate Provision 2 or 3 schools and therefore does not need to exclude these students from the denominator. ISP calculations for the Implementation Study exclude students who are categorically eligible by application from the numerator and the Provision 2 or 3 students from the denominator.

[7] The extent to which these numbers were manipulable varied across States, according to State officials who manage the collection and maintenance of nutrition data.

2B.1..4 Charter Schools

The evaluation team allowed the model of charter school participation to vary substantially across States, reflecting the variation in the way charter schools are structured. Kentucky and West Virginia have no charter schools. In Illinois, charter schools are members in a regular public school LEA and thus part of its foodservice operations. In Michigan, New York, and Ohio, most charter schools operate as distinct, often single-school LEAs, and appear separately in the VSR.

For the three States where charter schools function as separate LEAs for foodservice purposes, preliminary analyses demonstrated that the participation rate and the factors associated with the CEP participation of charter school LEAs differed substantially from regular LEAs within the same State. In Michigan, the CEP participation rate among charter schools was 36 percent, compared to 12 percent among traditional LEAs. In Ohio, the participation rate among charter schools was 19 percent, compared to 2 percent for traditional LEAs. In New York, the participation rate among charter schools was 13 percent compared to 1 percent among traditional LEAs.[8]

Because the prevalence of charters differs greatly across these States, the propensity score model included separate dummy variables for charter schools in Michigan, Ohio and New York.

2B.2 Propensity Score Matching Procedure

As discussed earlier in the Impact Study Design, the evaluation team matched the pool of eligible LEAs using one-to-five matching with replacement. This matching procedure allows up to five non-participating LEAs to provide information on the counterfactual scenario for each participating LEA. Further, each non-participating LEA is allowed to be matched an unlimited number of one participating LEA. The matching procedure constructs weights for each comparison LEA that reflect the number of treatment LEAs for which it was selected to serve as comparison and how many comparisons were identified for each of those treatments. To prevent the use of non-comparable LEAs as matches, the evaluation team required the treatment and comparison LEAs to have propensity scores within 1 percentage point of one another.

Results of the propensity score modeling and matching are discussed below.

2B.3 Propensity Score Modeling and Matching Results

2B.3.1 Regression Results

The results from the logistic regressions for CEP participation in these States are summarized in Exhibit 4.10 in the main text. See Section 4.3.2 for a detailed discussion on the interpretation of the results of the logistic regression. It is important to note that this model differs from the models developed for on-site data collection as this model seeks to interpret or explain how the dependent variable is related to the independent variables. (Conversely, the models for primary data collection were constructed with the purely mechanical objective of capturing as much of the variation in participation as possible by maximizing the Pseudo-R squared and were done separately for each State to facilitate data collection).

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[8] These participation rates are calculated for LEAs that are eligible for inclusion in the Impact Study.

Because the goal was interpretability, it was not possible to include some variables (at least in their continuous form) due to high multi-collinearity with other independent variables. For example, ISP and percent FRP are two measures of poverty that are highly correlated with urbanicity and LEA size. Multi-collinearity poses no threat to maximizing the Pseudo-R squared, but it does render interpretation of coefficients problematic. As a result, the analysis produced indicator variables representing the distributions of several continuous variables, in order to improve the interpretability of the results. See Section 4.3 for a complete discussion of implication of the logistic regression.

2B.3.2 Matching Results

In total, 306 LEAs participating in the CEP were eligible for the propensity score matching.[9] Out of these, 286 participating LEAs were matched to at least one non-participating LEA.[10] Six of the unmatched participating LEA had a propensity score lower than the maximum propensity score of the non-participating LEAs, but the matching procedure could not find a suitable match. For the remaining 14 participating LEAs, their propensity score were higher than the maximum propensity score of the non-participating LEAs. These 20 LEAs were dropped from the analysis. Ninety-one percent of participating LEAs had at least three or more matches to non-participating LEAs. In total, 286 participating LEAs were matched to 525 non-participating LEAs across six States. Exhibit 2.6 presents the comparison of the treatment and comparison group characteristics and shows that the two groups have no differences except in baseline SBP participation.

[9] One LEA in Michigan was excluded in the logistic regression as it was missing information on the number of schools.

[10] Ten participating LEAs in West Virginia, three participating LEAs in Kentucky and Michigan and four participating LEAs in Illinois did not find a match.

Appendix 2C: Constructing the Primary Data Collection Sample

As in the process used to construct Matched Administrative Data Sample, the evaluation team used propensity score matching to identify matched pairs of participating, "treatment" LEAs and non-participating, "comparison" LEAs for the primary data collection sample. The evaluation team estimated a statistical model of participation and generated a "propensity score;" this score is the LEA's predicted probability of taking up the CEP. In the case of the primary data collection sample, the matched comparison group was constructed to reflect what one might think of as a "no services" comparison group. That is, the group excluded any LEAs that offered other free meal programs, such that the resulting comparison was between those LEAs that implemented the CEP and those as-similar-as-possible LEAs where no such program was in effect. This appendix describes the statistical models of participation used to generate the propensity scores.

2C.1 Propensity Score Matching

2C.1.1 Variables Included in Models

The dependent variable in all models was a binary variable that took on a value of one if the LEA had at least one participating school in 2012–13 and zero otherwise. All models were estimated using logistic regression. Because the direct certification process and LEA structures differed considerably across CEP States, the evaluation team expected that the relationship between observed characteristics and participation would also vary across these States. As the structure of primary data collection required pairs of treatment and comparison LEAs to be matched within States, propensity score models were estimated separately across States.

Due to the timing of data collection, the primary data collection sample was constructed in the summer of 2012. This section describes the development of the original propensity score model developed to describe take-up of CEP. The propensity score model used to construct the Matched Administrative Data Sample is also based on this model.

The evaluation team selected independent variables that:

- Were consistently measured across States;
- Included conceptually important predictors of participation;
- Captured features found to be significantly related to participation across varied contexts; and,
- In combination, explained as much of the variation in participation as possible.

The evaluation team tested several specifications with the goal of identifying the greatest number of near matches between the CEP treatment cases and their comparisons. That is, the evaluation team aimed for a resulting sample that would be balanced in its pre-intervention characteristics and offer a large enough number of comparison matches to provide needed flexibility in the recruitment process.

It is generally accepted practice in propensity score matching to use a relatively inclusive model, where the aim is to have the greatest predictive power, regardless whether any given variable is statistically significant.[11] Selected demographic characteristics and contextual variables available in

[11] Stuart, Elizabeth A. (2010). Matching Methods for Causal Inference: A review and a look forward. *Statistical Science* 25(1): 1–21.

the CCD were considered for inclusion in the model; specifically, variables were included because they had the most explanatory power, when taken together. The following independent variables were included in the State-specific propensity score models:

- Identified Student Percentage (ISP)
- ISP spline (defined below)
- Percentage of students eligible for free or reduced price lunch (FRP)
- Ratio of FRP to ISP (FRP/ISP)
- Percentage of students who are English language learners (ELL)
- Percentage of students who are in grades K-5
- Percentage of students who are in grades 6–8
- Whether the LEA is in an urban area (city)
- Log number of schools
- Log enrollment
- Charter indicator
- Charter interaction terms (model of charter participation varies by State)

The rationales for these variables and details of their definitions are discussed below.

The ISP, FRP and the ratio between the two come from pre-implementation VSR data: the 2010–11 VSR data for Illinois, Kentucky and Michigan and the 2011–12 VSR data for New York, Ohio and West Virginia. All other data elements are from the 2009–10 CCD. Additional discussion of other important independent variables is below.

2C.1.2 ISP Spline

The definition of ISP is based on VSR data and includes categorically eligible students in the numerator for the reasons discussed in Appendix B.

The relationship between ISP and likelihood of participation could be non-linear. For example, in exploratory analyses, the evaluation team found that in some States virtually all LEAs with ISPs above a certain threshold value were CE participants. Above that level, further increases in ISP had no effect on the propensity to participate.

Spline specifications are appropriate for modeling such relationships. Where a standard regression specification of a variable assumes a linear relationship between independent and dependent variables, a spline specification may be used to model piecewise linear relationships. The evaluation team included spline functions for the ISP in modeling participation for Michigan and Ohio, where inclusion of such terms was feasible and improved model fit; the spline function was specified with "knots" (points where the slope changes) at 20, 40, and 60 percent.[12]

Thoemmes, Felix J. (2009). The use of propensity scores with clustered data: A simulation study (Doctoral dissertation). Available from ProQuest Dissertations and Theses database (UMI No. 3380671).

[12] A linear spline term for a variable X with a knot at K is defined as $X_k = \max\{X-K,0\}$. Inclusion of spline terms was feasible in these States because they had a large number of participating LEAs that were distributed across the range of ISP categories. Other States had too few participating LEAs across the distribution to include these terms.

2C.1.3 Additional Variables

The FRP percentage is included in the model as a broader measure of LEA poverty and to capture the food service context in the LEA. The ratio between FRP percentage and ISP allows for interaction between the two measures in the model.

To avoid allowing a few very large LEAs to determine the regression coefficients for measures of LEA size (number of schools and enrollment), the logarithmic transformation of the number of schools and enrollment is used.

In the initial exploratory interviews, State Child Nutrition (CN) directors indicated that some LEAs were reluctant to implement the CEP at the secondary school level, and that therefore the CEP was more likely to be implemented in elementary schools. The evaluation team therefore included the percent of students in kindergarten through grade 5 and the percent of students in grades 6 through 8 in the model. The omitted reference category is the percentage of students in grades 9 through 12.

2C.1.4 Charter Schools

As noted previously in Section 2B.1.4, charter schools were structured differently among States. To accommodate this variation, the evaluation team developed a State-specific model of charter participation for Michigan, Ohio and New York. Variables were selected to describe charter participation through the same process as variables were selected for the model as a whole: variables were included if they improved the overall model fit. These variables were included as charter interaction terms in the propensity score model.

In Michigan, the high participation rate among charters and the high prevalence of charters within the population of LEAs allowed for a rich model of charter participation. All variables that were included in the main model were interacted with a charter indicator. In addition, the variables were added to specifically capture characteristics on which charters differed from the larger LEA population: variables describing the ethnic composition of the LEA, Title I and Magnet status.

In Ohio, participation patterns and prevalence of charter LEAs allowed for a rich model of charter participation. Preliminary analyses identified a different set of terms for inclusion in the Ohio model of charter participation than were included in the Michigan model. In Ohio, the following variables were interacted with a charter indicator and included in the propensity score model: ISP, FRP percent, the ratio of FRP percent to ISP, percent of total enrollment in grades K to 5, percent of total enrollment in grades 6 to 8, an indicator for whether the LEA was in a city, log enrollment and percent Hispanic.

In New York, the evaluation team included a charter indicator variable in the propensity score model. There were too few participating charter school LEAs to support a richer specification. In New York, only 13 participating LEAs were eligible for the Impact Study, four of which were charter LEAs.

2C.1.5 Special Handling of West Virginia

The evaluation team matched on a single variable (ISP) in West Virginia because sample limitations precluded fitting a propensity score model, and the demographic characteristics of participating and non-participating LEAs were balanced even without matching on propensity score. These groups were initially imbalanced on only two variables: ISP and free and reduced price lunch percentage (FRP).

In West Virginia, regular, public LEAs correspond to counties, of which there are only 55. Of these, 18 were excluded from the sampling frame because they offered an alternative universal free meals program, leaving only 19 participating and 18 non-participating LEAs. The characteristics of participating and non-participating LEAs were balanced on all characteristics included in the propensity score model, other than measures of poverty (ISP and FRP percentage). To achieve balance on these metrics, the three participating LEAs with the highest ISP values were dropped. The procedure described below was then performed by matching on ISP rather than propensity score.

2C.1.6 Propensity Score Matching Procedure

The propensity score matching approach finds a similar comparison LEA for each treatment LEA. However, the application of propensity score matching to this particular study is complicated by the varying eligibility requirements for the various Components of the Impact Study: the evaluation team had to find the best match for each treatment LEA *among the comparison LEAs eligible for the component*. Ideally, the sampling frame would be split into three sections, one corresponding to each component, and the entire modeling and matching procedure would be applied to each section separately. However, the sample sizes were too small to estimate a propensity score model if stratifying by both State and component eligibility. Therefore, the evaluation team estimated the model for each State without taking component eligibility into account, but stratified by component when matching.

The matching process was designed to identify two potential comparisons for each treatment LEA to have a backup, should one comparison LEA refuse to participate. Having a backup LEA reduces the risk of losing an entire matched pair if one comparison LEA does not cooperate with on-site data collection.

To obtain the appropriate number of comparisons, a one-to-two match without replacement was performed—meaning that once a comparison was selected for one treatment LEA, it could not be used for another. To identify pairs for components of data collection, a matching routine was run six times, twice for each of the three components. Because there were relatively few LEAs that met the stringent Component 3 eligibility requirements, the evaluation team started by matching Component 3 LEAs to ensure sufficient sample within each component. LEAs were matched in the following order:

1. Treatment LEAs eligible for Component 3 were matched to the nearest comparison LEA eligible for Component 3.

2. Treatment LEAs eligible for Component 2 and not eligible for Component 3 were matched to the nearest comparison LEA eligible for Component 2 that had not been previously selected.

3. Treatment LEAs eligible for Component 1 and not eligible for Component 2 were matched to the nearest comparison LEA eligible for Component 1 that had not been previously selected.

4. Steps 1, 2, and 3 were repeated, avoided selecting comparison LEAs already selected.

At each step, to select matches, the evaluation team sorted the treatment LEAs for the component in random order and, proceeding from the top of the list, found the comparison LEA eligible for the component and nearest in propensity score. If no comparison LEA could be found with a propensity

score within 20 percentage points of the treatment LEAs propensity score, the treatment LEA remained unmatched.[13]

Since each treatment LEA was included in exactly one matching process during steps 1–3 and exactly one during steps 4–6, each treatment LEA was matched with up to two comparison LEAs, which were called the first match (from step 1, 2 or 3) and the second match (from step 4, 5 or 6). The first match was by construction closer to the treatment in propensity score space. Therefore, the second match was used as a backup.

Some participating LEAs were not matched with any comparisons and were not included in the Impact Study sample. Other participating LEAs obtained a first match, but no second match, through the matching process.

2C.1.7 Selecting Schools for On-Site Data Collection

For outcomes requiring the collection of school-level data, the evaluation team selected samples of treatment and comparison schools. The team stratified the schools eligible for on-site data collection in the sampled LEAs by grade range (elementary, middle, and high) and selected random samples within these strata, giving preference to schools that served a wider grade range.[14]

2C.1.8 Designating a Primary and a Backup Sample

For the recruiting of the Component 2 and 3 samples, it was necessary to designate a primary sample and a back-up sample. To meet this need, the evaluation team generated a uniform random variable and sorted the list of treatment LEAs by State, component and this random variable. In order to proportionally allocate the targeted 26 Component 2 treatment LEAs and the 26 Component 3 LEAs across the States, the appropriate number of treatment LEAs for the primary sample were selected from each State according to the randomly generated priority order. Each of these treatment LEAs had a comparison LEA designed as the first match, which together comprised the primary comparison sample.

The recruiting team began its work using the primary sample of LEAs. The remaining Component 2 and 3 LEAs were designated as backups. The backup sample includes two distinct types of comparison LEAs: those identified as second matches for treatment LEAs in the primary sample and those matched to treatment LEAs in the backup sample.

2C.2 Propensity Score Modeling Results

The results from the logistic regressions for CEP participation in these States are summarized in Exhibit 2C.1 below. It is important to note that these models were constructed with the purely mechanical objective of capturing (in the independent variables) as much of the variation in participation as possible, that is, by maximizing the Pseudo-R squared terms presented in the last row

[13] This algorithm was created for the purpose of this study. Standard algorithms for matching allow for one-to-one match without replacement or a one-to-many match with replacement. These would not be suitable for this study because one-to-many (in this case, -two) matching without replacement was required.

[14] Within grade range, the evaluation team sorted first by the number of grades served and then by a random draw. This insures that a school that serves K-2 is not randomly selected when there's a more typical elementary school serving grades K-5 available.

of Exhibit 2C.1. This approach differs from one which seeks to interpret or explain how the dependent variable is related to the independent variables.

The goal of simply capturing as much variation as possible led to the inclusion of some variables and the exclusion of others that would be inappropriate if interpretation or explanation were the goal. For example, in some cases, variables that are highly multi-collinear: e.g. ISP and percent FRP are two measures of poverty, which is highly correlated with urbanicity and LEA size. Multi-collinearity poses no threat to maximizing the Pseudo-R squared, but it does render interpretation of coefficients problematic. Other examples include certain charter interaction terms, where some variables were included in their interacted but not uninteracted form. Because these models were not built with interpretive objectives in mind, the evaluation team strongly cautions against using these model results to interpret or explain the relationship between particular independent variables and the probability of participation.

Exhibit 2C.1: Primary Data Collection Propensity Score Model Results, by State

	Illinois	Kentucky	Michigan	New York	Ohio
ISP	0.82 (2.54)	8.44 (15.49)	192.29 (183.33)	-10.01 (19.23)	4.35 (31.44)
Spline 1 (ISP=20-40%)			-155.92 (159.54)		
Spline 2 (ISP=40-60%)			-2.34 (10.70)		-2.48 (9.04)
Spline 3 (ISP>60%)			-18.72 (4.62)***		-20.73 (10.60)*
% FRP	6.45 (1.49)***	5.16 (9.69)	-13.87 (13.06)	16.33 (11.97)	6.87 (19.13)
(% FRP)/ISP	-1.04 (0.48)**	-0.83 (3.13)	4.92 (4.24)	-5.09 (4.89)	-9.18 (7.66)
%ELL	-6.85 (2.81)**	-6.41 (15.16)	-7.79 (3.85)**	1.10 (12.29)	-2.14 (1.02)**
%K-5	4.68 (2.28)**	-7.88 (8.22)	4.14 (2.69)	2.69 (3.15)	-3.10 (0.99)***
%6–8	0.54 (3.18)	-0.31 (16.10)	-2.09 (5.84)	3.78 (4.79)	-3.57 (1.44)**
City	-0.62 (0.91)	1.03 (1.35)	1.66 (1.03)	1.51 (1.33)	1.00 (1.09)
Log (Schools)	0.91 (0.37)**	0.79 (0.78)	-0.33 (0.71)	2.87 (1.46)**	
Log (Enrollment)	-0.28 (0.28)	0.23 (0.68)	0.55 (0.43)	-0.87 (0.94)	-0.94 (0.74)
Charter[a]			7.14 (5.14)	-0.03 (0.93)	-37.21 (18.47)**
Charter*ISP			-2.32 (9.02)		19.08 (35.86)
Charter*%FRP			3.65 (9.59)		-4.34 (24.59)
Charter*(%FRP ISP ratio)			-1.15 (1.79)		9.51 (11.62)

	Illinois	Kentucky	Michigan	New York	Ohio
Charter*ELL%			7.54 (4.14)*		
Charter*%K-5 Students			-4.25 (2.72)		3.30 (1.43)**
Charter*%6–8 Students			2.10 (6.34)		0.75 (1.64)
Charter*City			-1.31 (1.21)		0.96 (2.03)
Charter*Log (Schools)			1.24 (0.93)		
Charter*Log (Enrollment)			-0.93 (0.60)		1.85 (0.88)**
Charter*%Black			-2.36 (1.24)*		
Charter*%Hispanic			0.19 (2.06)		0.00 (0.01)
Charter*%Asian			12.96 (11.78)		
Charter*%Title I			0.14 (1.03)		
Charter*%Magnet			0.39 (0.38)		
Constant	-5.81 (2.58)**	-5.26 (8.82)	-51.57 (41.69)	-1.57 (9.46)	13.31 (11.57)
N	424	169	623	638	721
Pseudo-R squared	0.39	0.28	0.44	0.68	0.40

[a]Kentucky and West Virginia have no charter schools. In Illinois, charter schools are members in a regular public school LEA and thus part of its food service operations.

***=p<0.01; **=p<0.05; *=p<0.10

2C.3 Recruiting for Onsite Data Collection (Components 2 and 3)

Once the Impact Study sample was selected, the recruitment of LEAs began. This chapter describes the results of those recruitment activities, including the verification of eligibility for the study, and the issues with LEAs that arose during recruitment.

2C.3.1 Recruitment Activities and Results

Exhibit 2C.2 provides the timeline and activities that were part of the recruiting process.

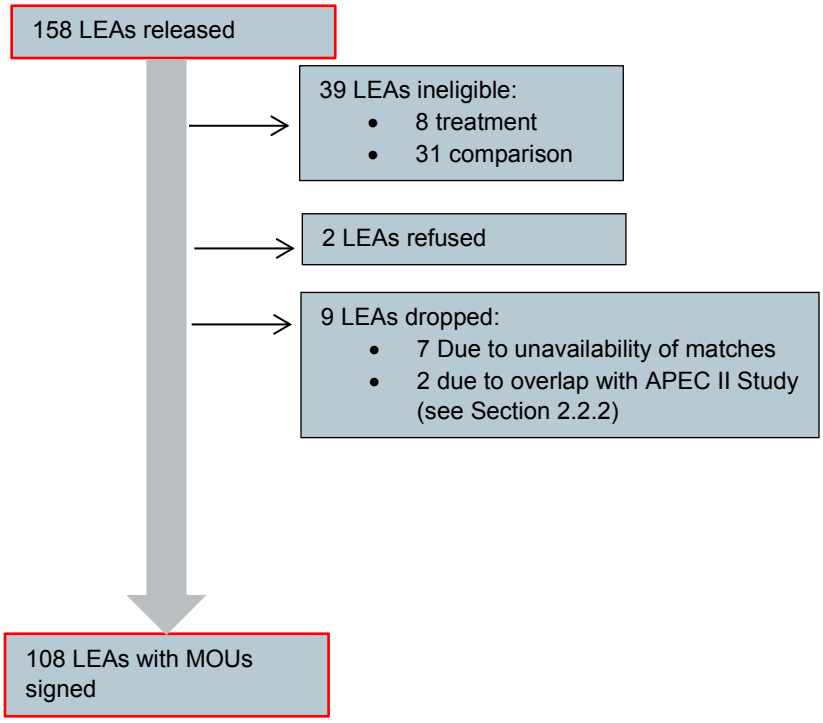
Exhibit 2C.2:Timeline of Recruitment Activities

Activity	Timing
Email sent to the FNS Regional Study Liaisons with Study Overview and a list of sampled LEAs.	Oct. 28, 2012
Email sent to the State Child Nutrition Director with Study Overview and a list of sampled LEAs.	Oct. 30, 2012
Recruiting packages sent to the primary sample.	Oct. 31, 2012
Training for recruiters.	Nov. 6, 2012
Active recruiting began with calls to LEAs.	Nov. 7, 2012
Backup LEAs replaced those LEAs that declined or were found to be ineligible. Recruiting packages were sent to replacement LEAs as they were selected.	Nov. 7, 2012
LEAs agreed to participate. Memorandum of Agreement (MOU) sent to LEAs.	Nov. 7, 2012–Feb. 25, 2013
Signed MOUs received from LEAs.	Nov. 8, 2012–April 27, 2013

In total, 158 LEAs were released for recruitment: the primary sample of 106 LEAs and 52 replacement LEAs. The final recruitment status of the 158 LEAs was as shown in Exhibit 2C.3. During recruitment, one additional pair of LEAs was added to the sample without finding another pair ineligible, bringing the number of LEAs actively recruited to 108. [15]

[15] An LEA that did not meet the initial eligibility requirement of having three separate cafeterias in the three sampled schools was kept in the study because this requirement was causing us to find a number of districts ineligible and we became concerned about having enough sample. While deciding whether or not to update the eligibility requirements, we kept this match in the sample, and began recruiting a replacement just in case. Eligibility requirements were later updated (see Section A.2.c.iii.3) so the LEA that was in question was kept in the sample.

Exhibit 2C.3: Recruitment Results



2C.3.2 Verifying Eligibility

Although the sampling process excluded LEAs that were identified as ineligible based on data in the sampling frame, the recruiters took several steps to confirm that the sampled LEAs were still eligible for the component(s) for which they were selected. Through this research, the recruiters confirmed the following:

- 70 percent or more of schools in the LEA participated in the CEP (for participating LEAs only)
- Sampled schools were in operation during the 2012–13 school year
- Sampled schools were neither alternative nor special needs schools
- Sampled schools participated in the CEP (for participating LEAs only)
- LEA schools did not operate a universal free meal program, such as Provision 2 or 3 (for non-participating LEAs only)
- The combined enrollment for the sampled schools was 300 students or more (if not, LEA enrollment of 300 students or more was also considered eligible)
- Sampled schools do not share a cafeteria (for Component 3 schools only)

If any individual school in the LEA did not meet the eligibility criteria, and a backup school was available and eligible, the backup school was used instead.

When recruiters found an LEA to be ineligible, the sampling team confirmed the LEA's ineligibility and provided a replacement LEA and school(s). Exhibit 2C.4 summarizes the final eligibility conditions. Because of the nested structure of the data collection, an LEA that was selected for

Component 3 is also included in the Implementation Study and Components 1 and 2 of the Impact Study. Therefore, it must meet all eligibility requirements for the less intensive Components in addition to the Component 3 eligibility requirements. Similarly, a Component 2 LEA must also satisfy the eligibility requirements for the Implementation Study and Component 1. A total of 39 LEAs were found to be ineligible for their selected component.

Exhibit 2C.4: Final Eligibility Conditions Verified During Recruiting

	Treatment LEAs	Comparison LEAs
Implementation study eligibility		
LEA in operation during 2012–13 school year	✓	✓
Component 1 eligibility		
LEA schools did not operate a universal free meal program, such as Provision 2 or 3	N/A[a]	✓
Component 2 eligibility		
70 percent or more of schools in the LEA participated in the CEP	✓	N/A
Sampled schools were participating in the CEP	✓	N/A
Sampled schools in operation during 2012–13 school year	✓	✓
Sampled schools were neither alternative nor special needs schools	✓	✓
The combined enrollment for the sampled schools was >300 students (if not, LEA enrollment of 300 students or more was also considered eligible)	✓	✓
Component 3 eligibility		
LEA must have 3 eligible schools	✓	✓
LEA must have at least 2 distinct cafeterias among the sampled schools[b]	✓	✓
The 3 sampled schools must represent at least two distinct grade ranges that that span the K-12 grade range [c]	✓	✓

N/A refers to "not applicable."

[a] This eligibility requirement was not verified during the recruiting stage due to the expectation that very few LEAs would fall into this category. The PEAR survey screened for participation in alternative universal free meal programs. Five LEAs were deemed ineligible for on-site data collection based on their response to this PEAR survey screening question and follow up by phone or email: 3 comparison LEAs and 2 treatment LEAs.

[b] This is a revision to the original eligibility requirements. The evaluation team's initial plan required each school to have its own cafeteria.

[c] This is another revision to the original eligibility requirements. The original plan required three distinct grade ranges.

When recruiters found that an LEA was ineligible for the Component for which it was selected, the sampling team investigated its eligibility for less intensive Components of the data collection. LEAs found ineligible for Component 3 yet eligible for Component 2 were added to the pool of Component 2 backup LEAs. LEAs found to be ineligible for Component 1 were removed from the PEAR survey sample.[16] LEAs that had closed were removed from the Implementation Study sample.[17]

[16] Recruiting information obtained before February 7, 2013 informed the PEAR survey invitations.

[17] Recruiting information obtained before November 30, 2012 informed the Implementation Survey invitations.

Where possible, the sampling team provided the recruiting team with a replacement LEA. Because the recruitment process attempted to preserve the matches from the sampling phase, the recruiting team was working with pairs of LEAs. Replacing a treatment LEA required finding a new match for the comparison LEA in the pair, and replacing a comparison LEA required finding a new match for the treatment LEA in the pair. The LEA with the closest propensity score was selected from among the backup LEAs in the State that were eligible for the appropriate Component.

If no backup LEA was available within the State or if it was not possible to find a new match with a propensity score within 20 percentage points of the LEA remaining in the pair, the full match was replaced. A new treatment LEA was randomly selected from another State. That LEA and its best within-State match were provided to the recruiting team.

Because the HHFKA requires that States, LEAs, and their contractors participating in the NSLP, SBP, and other child nutrition programs cooperate with USDA research and evaluations, the study benefitted from high cooperation with data collection.

Along with this policy, all of the project's efforts resulted in a very high acceptance rate: only 2 of 110 LEAs refused to participate, given their eligibility, availability of matches, and cross-study participation. This corresponds to a 98 percent recruitment rate.

Appendix 4A: Analysis of Factors Related to Take-Up of the CEP

This appendix presents supporting information for the discussion in Chapter 4 about the factors related to take-up of the CEP by LEAs. The chapter includes results of descriptive analysis of the characteristics of participating, eligible non-participating, and near-eligible LEAs and schools, as well as determination of factors significantly related to take-up based on regression analysis. The appendix begins with information on the data sources and construction of the analysis database. The second part of the appendix provides tables of participating, eligible non-participating, and near-eligible LEA and school characteristics by State.

4A.1 Data Sources and Database Construction

The evaluation team constructed the database for the descriptive analysis of LEA and school characteristics (findings are presented in Chapter 4) from several sources. The universe of LEAs for the analysis was constructed from the FNS administrative data (Verification Summary Report (VSR) data). The States provided data to identify participating LEAs and eligible non-participating LEAs from among those listed in the VSR data. States also provided data to identify participating and eligible non-participating schools. The evaluation team combined the VSR and State data with LEA and school characteristics from the CCD to complete the analysis database.

While these data sources are the same as those described in Appendix 2A.a for constructing the sampling frames of the Matched Administrative Data Sample, the data issues highlighted below are specific to the use of these data for the analysis of factors related to take-up of the CEP. The analysis of factors related to take-up includes LEAs that are ineligible for inclusion in the Impact Study (e.g. private schools) for which missing data are particularly problematic. Discussion of the data sources and data issues below is specific to this analysis.

4A.1.1 Verification Summary Reports

FNS provided the SY 2011–12 VSR data for the CEP States to the evaluation team, which relied on these data for LEA enrollment, the percentage of students eligible for FRP meals, and the ISP used in CEP eligibility determination. [1] VSR data were problematic for 15 LEAs (out of 1,388) because, in most of these cases, there were extremely large variances between enrollment in the VSR and two other reliable sources (the CCD and published State data). Because ISP and FRP calculations relied on enrollment, a problem with enrollment meant that the ISP and the FRP percentage were also incorrect for these cases. In a few other problematic cases, the computed FRP percentages were clearly in error (either zero or 100 percent, and in disagreement with the CCD). Rather than attempt to correct the VSR data, all of the cases with problematic enrollment or FRP percentages were excluded. Most of the LEAs excluded because of problematic VSR data were small: fifteen had fewer than 1,000 students, five had 1,000–5,000 students, two had 5,000–10,000 students, and one had 10,000–15,000 students.

[1] See Appendix 2A for a general description of the VSR. Note that all ISP data in the Chapter 4 analysis are from the 2011–12 school year—after implementation in the year 1 States and prior to implementation in the year 2 States. This represents a key departure from the use of the VSR data in sampling: only pre-intervention data were used to construct the Sampling Frame or included in the propensity score model.

4A.1.2 State Data

The evaluation team requested data on a number of LEA and school characteristics from State CN Agencies. Most importantly, the evaluation team asked States to provide ISP and CEP participation data for both LEAs and schools so as to identify CEP eligibility and participation status for LEAs and schools. (As explained in Appendix 2A, FNS policy specified that ISP data as of April 1, 2012, should be used for determining eligibility for the CEP.) In addition, the evaluation team asked States to provide data on LEA and school characteristics for near-eligible, eligible non-participating, and participating LEAs and schools to analyze the factors associated with eligibility and participation. These additional requested data items included enrollment, percentage of students eligible for free or reduced-price lunch, and schools' grade range and type (e.g., regular, technical/vocational, special education). The States were unable to provide all the elements requested for a variety of reasons. In some cases, such as in Kentucky's Child Nutrition information system, the State did not store school enrollment data. In other cases, the data did not exist, as was the case for school ISPs in New York and Ohio.

Exhibit 4A.1 shows which States provided school-level data. The District of Columbia was the only State able to provide all three types of data. New York and Ohio provided no school-level data. The other States provided some but not all of the requested data.

Exhibit 4A.1: School-Level Data Provided by States

	Enrollment	Identified Student Percentage (ISP)	Free / Reduced Price Meals Percentage
District of Columbia	Yes	Yes	Yes
Illinois	Yes	Partial[a]	Yes
Kentucky	No	Yes	No
Michigan	Yes	Partial[b]	Yes
New York	No	Partial[c]	No
Ohio	No	Partial[d]	No
West Virginia	Yes	Yes	No

[a] In Illinois, ISP data were missing for 31 percent of schools included in the primary sample for this report.

[b] In Michigan, ISP data were missing for 12.5 percent of schools included on the primary sample for this report.

[c] In New York, ISP data were missing for 79 percent of schools included on the primary sample for this report.

[d] In Ohio, ISP data were missing for 89 percent of schools included on the primary sample for this report.

4A.1.3 Common Core of Data

The most recent CCD data available for this report were drawn from SY 2010–11.[2] LEA-level variables from the CCD used in this analysis included: the LEA type, the number of traditional schools, the number of charter schools, student enrollment by grade, the number of students in Title I schools, the urbanicity of the area in which the LEA is located, and students' racial and ethnic composition. School-level CCD variables used in this analysis were: type of school (e.g., traditional, charter, special education), whether the school was Title I, grade range, and students' racial and ethnic composition.

The NCES collects biennial data on private schools as part of its Private School Universe Survey (PSUS). These data could not be linked to the private schools in the study sample, however, because

[2] See Appendix 2A for an overview of CCD data.

the PSUS data do not have an identification numbering system. Moreover, the data are available only at the individual private school level, and at the group level (e.g., archdioceses) that can also serve as SFAs.

4A.1.4 Database Construction

Most LEA-level data summarized in Chapter 4 come from the VSR and CCD. In particular, data on enrollment, number of schools, ISP, and the percentage of students eligible for free or reduced-price meals come from the VSR. Since VSR data were not available for schools, State data provided enrollment, ISP, and the percentage of students eligible for free or reduced-price lunch; when the State did not provide one of these data elements, CCD data were used. This section describes how the data were combined and key variables were constructed.

For the descriptive analysis in this report, the evaluation team used the ISP computed from October 2011 VSR data. The ideal measure would have used the April 2012 State data, since this measure determined eligibility for the CEP for SY 2012–13. However, April 2012 data were not available for all States and LEAs; there were gaps in the ISP data provided by Illinois, New York, and Ohio. As specified by the HHFKA, the ISP was computed by dividing the number of identified students (free meals eligible, not subject to verification) by the total LEA enrollment (excluding students enrolled in Provision 2 and 3 schools). [3]

It is possible that the definition used for near-eligible LEAs is less inclusive than it would be with the actual April 2012 ISP if that were available for all LEAs in all States. LEAs might have increased their ISPs from October 2011 to April 2012. However, the evaluation team used the best data that were consistently available.

The CEP participation and eligibility classification of schools generally follows the classification of LEAs. All schools in near-eligible LEAs were classified as near-eligible, and all schools in eligible non-participating LEAs were classified as eligible non-participating. However, non-participating schools in participating LEAs were classified as follows: (1) eligible non-participating if they either belonged to an LEA with an ISP of 40 percent or more (and therefore all schools in the LEA were eligible regardless of ISP), had a school ISP of 40 percent or more, or had a missing school ISP; (2) near-eligible otherwise (regardless of ISP, because of the possibility of combinations with schools with higher ISPs to make a near-eligible group). These definitions were used to ensure consistent classifications for all States. The school ISP data needed to construct a more school-specific CEP participation and eligibility classification were almost completely missing for two States (New York and Ohio) and partially missing for two others (Illinois and Michigan).

New York City schools were excluded from the schools database for this analysis because most of the schools in the list could not be linked to the CCD data. New York City implemented the CEP in 301 sites. Over two-thirds of the sites in New York City serving school meals under the CEP were special education programs that are not identified in the CCD. A smaller number of CEP sites were regular schools that previously operated Provision 2 or 3. (The exact number of this latter group of sites was not available.) New York City had 1,828 schools; it appears that this total included over 200 schools housing special education programs that were treated as separate sites for the CEP. If the New York

[3] Note that this definition differs from the one used in propensity score modeling. See Appendix B for a discussion of the ISP used in propensity score modeling.

City schools were included, New York would have more total schools than Illinois and more participating schools than any other State.

4A.2 State Tables of LEA and School Characteristics

Exhibit 4A.2: District of Columbia Regular Public and Charter LEA and School Characteristics

	Near-Eligible		Eligible Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
LEA Variables								
Number of LEAs with VSR data	5		12		19		36	
Number of LEAs with CCD data	5		12		19		36	
Enrollment	457.6	(247.3)	857.6	(720.3)	2934.9	(10052.6)	1898.4	(7307.0)
Enrollment 1–499 (%)	60		41.7		57.9		52.8	
Enrollment 500-2499 (%)	40		50		31.6		38.9	
Enrollment 2500-4999 (%)	0		8.3		5.3		5.6	
Enrollment 5000+ (%)	0		0		5.3		2.8	
Percentage distribution of students in grades K-12								
Percent in grades K-5	24.1	(37.5)	45.4	(35.3)	58.2	(42.6)	48.8	(40.2)
Percent in grades 6-8	53.4	(37.0)	19.9	(16.3)	13.7	(13.7)	21.8	(23.2)
Percent in grades 9-12	22.5	(25.0)	34.7	(38.3)	28.1	(38.7)	29.5	(36.1)
Number of schools	1.2	(0.4)	2.9	(2.7)	8.1	(27.6)	5.4	(20.1)
1 school (%)	80		50		68.4		63.9	
2-5 schools (%)	20		33.3		15.8		22.2	
6-14 schools (%)	0		16.7		10.5		11.1	
15+ schools (%)	0		0		5.3		2.8	
Identified Student Percentage (ISP)	37.4	(5.4)	39.1	(9.5)	46.6	(14.3)	42.9	(12.4)
Students free/reduced lunch (%)	68.4	(8.5)	80.4	(6.3)	82.4	(12.4)	79.8	(11.1)
Any charter schools (%)	100		91.7		94.1		94.1	
Percent Title I schools	100	(0.0)	86.5	(30.8)	94.2	(13.9)	92.3	(20.8)
Urban LEA (%)	100		100		100		100	
Percent students Black	90	(8.5)	92.7	(9.6)	94.7	(10.1)	93.3	(9.6)
Percent students Hispanic/Latino	7.7	(6.8)	5	(7.2)	3.9	(8.5)	4.9	(7.7)
School Variables								
Number of schools with enrollment data	39		35		116		190	
Number of schools with ISP	39		35		116		190	
Number of schools with FRP percentage	35		30		112		177	
Number of schools with CCD data	35		30		114		179	
Enrollment	448.2	(296.9)	289.9	(176.2)	349.6	(170.8)	358.8	(208.9)
ISP	20.3	(13.6)	43	(10.7)	60.1	(13.5)	48.8	(20.5)
Students free/reduced lunch (%)	52.6	(34.8)	81.6	(10.3)	83.2	(22.4)	76.9	(26.7)
Grade span								
K-5 (%)	51.4		53.3		46.5		48.6	
6-8 (%)	14.3		20		11.4		13.4	
9-12 (%)	17.1		13.3		13.2		14	
Other (%)	17.1		13.3		27.2		22.9	
Title I schools (%)	62.9		83.3		96.5		87.7	
Charter schools (%)	17.1		96.7		28.1		37.4	
Percent students Black	54.9	(31.2)	89.1	(16.8)	88.9	(19.1)	82.2	(25.5)
Percent students Hispanic/Latino	13.8	(17.8)	8.3	(14.4)	9.4	(17.5)	10.1	(17.1)

LEAs in the District of Columbia have either all charter or no charter schools.

Exhibit 4A.3: Illinois Regular Public and Charter LEA and School Characteristics

	Near-Eligible		Eligible Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
LEA Variables								
Number of LEAs with VSR data	89		103		48		240	
Number of LEAs with CCD data	93		104		48		245	
Enrollment	1126.4	(1283.9)	3541.9	(5902.5)	9901.4	(54514.4)	3918.1	(24699.1)
Enrollment 1–499 (%)	43.8		24.3		31.3		32.9	
Enrollment 500-2499 (%)	46.1		42.7		43.8		44.2	
Enrollment 2500-4999 (%)	6.7		13.6		12.5		10.8	
Enrollment 5000+ (%)	3.4		19.4		12.5		12.1	
Percentage distribution of students in grades K-12								
Percent in grades K-5	53.5	(18.6)	54.2	(11.8)	59.3	(10.8)	55	(14.7)
Percent in grades 6-8	27.3	(9.9)	26.6	(6.1)	28.7	(6.0)	27.3	(7.7)
Percent in grades 9-12	19.2	(28.0)	19.3	(17.3)	12	(15.0)	17.7	(21.7)
Number of schools	2.9	(2.3)	7	(8.4)	17.4	(83.3)	7.6	(37.8)
1 school (%)	33.7		13.6		22.9		22.9	
2-5 schools (%)	56.2		50.5		45.8		51.7	
6-14 schools (%)	10.1		24.3		22.9		18.8	
15+ schools (%)	0		11.7		8.3		6.7	
Identified Student Percentage (ISP)	34.7	(8.8)	40	(18.1)	51.4	(20.2)	40.3	(16.9)
Students free/reduced lunch (%)	63.1	(15.4)	66	(17.9)	62.9	(21.2)	64.3	(17.7)
Any charter schools (%)	1.1		4.1		8.3		3.8	
Percent Title I schools	92.7	(20.7)	88.3	(18.4)	94.8	(13.0)	91.3	(18.5)
Urban LEA (%)	2.3		11.2		6.3		6.8	
Percent students Black	12.2	(21.8)	16.8	(25.5)	38.6	(36.6)	19.6	(28.6)
Percent students Hispanic/Latino	11.5	(17.2)	15.6	(21.6)	11.1	(17.3)	13.1	(19.2)
School Variables								
Number of schools with enrollment data	272		1109		444		1825	
Number of schools with ISP	73		734		449		1256	
Number of schools with FRP percentage	229		1026		414		1669	
Number of schools with CCD data	229		1043		416		1688	
Enrollment	388.6	(401.1)	580.1	(480.8)	423.7	(231.5)	513.5	(429.3)
ISP	35.2	(2.9)	46.2	(11.7)	61.8	(20.1)	51.1	(17.2)
Students free/reduced lunch (%)	58.8	(17.7)	65.8	(24.1)	88.3	(14.9)	70.4	(23.8)
Grade span								
K-5 (%)	49.8		47.8		30		43.7	
6-8 (%)	23.6		13.9		10.3		14.3	
9-12 (%)	14.8		12.2		5.8		11	
Other (%)	11.8		26.1		53.8		31	
Title I schools (%)	94.3		81.4		98.6		87.4	
Charter schools (%)	0		1.8		0.5		1.2	
Percent students Black	15.6	(25.1)	21.9	(27.9)	69.2	(36.3)	32.7	(36.5)
Percent students Hispanic/Latino	15.4	(21.1)	32.4	(32.5)	13.8	(26.2)	25.5	(31.0)

Note: LEAs in Illinois mix charter and non-charter schools.

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Exhibit 4A.4: Kentucky Regular Public and Charter LEA and School Characteristics

	Near-Eligible		Eligible Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
LEA Variables								
Number of LEAs with VSR data	12		92		51		155	
Number of LEAs with CCD data	12		92		51		155	
Enrollment	1771.1	(1434.1)	4909.1	(11047.2)	3440.3	(2921.6)	4182.8	(8716.9)
Enrollment 1–499 (%)	16.7		5.4		2		5.2	
Enrollment 500-2499 (%)	50		44.6		47.1		45.8	
Enrollment 2500-4999 (%)	25		31.5		35.3		32.3	
Enrollment 5000+ (%)	8.3		18.5		15.7		16.8	
Percentage distribution of students in grades K-12								
Percent in grades K-5	47.2	(7.2)	47.4	(4.6)	47.2	(2.6)	47.3	(4.3)
Percent in grades 6-8	24.7	(2.7)	22.8	(1.3)	22.8	(1.2)	22.9	(1.5)
Percent in grades 9-12	28.2	(9.1)	29.8	(5.0)	30.1	(2.3)	29.8	(4.8)
Number of schools	3.3	(2.6)	8.9	(16.2)	9.5	(13.9)	8.6	(14.9)
1 school (%)	25		4.3		0		4.5	
2-5 schools (%)	66.7		40.2		41.2		42.6	
6-14 schools (%)	8.3		45.7		47.1		43.2	
15+ schools (%)	0		9.8		11.8		9.7	
Identified Student Percentage (ISP)	29	(4.5)	32.2	(8.7)	45.9	(16.4)	36.5	(13.4)
Students free/reduced lunch (%)	61.9	(7.9)	59	(11.7)	63.5	(13.0)	60.7	(12.0)
Any charter schools (%)	0		0		0		0	
Percent Title I schools	82.7	(20.2)	77.1	(19.6)	76.9	(15.1)	77.4	(18.2)
Urban LEA (%)	0		5.4		3.9		4.5	
Percent students Black	3.5	(7.2)	5.7	(7.4)	6.8	(10.6)	5.9	(8.5)
Percent students Hispanic/Latino	2.1	(1.3)	3.3	(3.0)	2.3	(3.7)	2.9	(3.2)
School Variables								
Number of schools with enrollment data	107		812		246		1165	
Number of schools with ISP	110		855		268		1233	
Number of schools with FRP percentage	107		809		246		1162	
Number of schools with CCD data	108		815		249		1172	
Enrollment	608.3	(273.0)	548.7	(336.4)	402.4	(210.0)	523.3	(314.9)
ISP	27.7	(9.6)	39.3	(16.0)	56.9	(12.0)	42.1	(17.0)
Students free/reduced lunch (%)	52.7	(14.2)	60.5	(19.5)	73.7	(14.0)	62.5	(19.0)
Grade span								
K-5 (%)	41.7		56.8		51.4		54.3	
6-8 (%)	24.1		18.7		8.8		17.1	
9-12 (%)	25.9		16.1		13.3		16.4	
Other (%)	8.3		8.3		26.5		12.2	
Title I schools (%)	89.8		83.1		91.6		85.5	
Charter schools (%)	0		0		0		0	
Percent students Black	5.8	(7.2)	12.8	(17.0)	5.5	(11.3)	10.6	(15.6)
Percent students Hispanic/Latino	2.7	(2.1)	4.8	(6.4)	1.8	(3.6)	4	(5.7)

Exhibit 4A.5: Michigan Regular Public and Charter LEA and School Characteristics

	Near-Eligible		Eligible Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
LEA Variables								
Number of LEAs with VSR data	20		353		107		480	
Number of LEAs with CCD data	20		358		111		489	
Enrollment	900.7	(997.3)	2276.8	(3149.7)	2677.9	(7692.8)	2308.1	(4523.1)
Enrollment 1–499 (%)	55		20.4		35.8		25.3	
Enrollment 500-2499 (%)	40		52.4		41.5		49.5	
Enrollment 2500-4999 (%)	5		17.3		12.3		15.7	
Enrollment 5000+ (%)	0		9.9		10.4		9.6	
Percentage distribution of students in grades K-12								
Percent in grades K-5	52.6	(16.2)	46.6	(14.7)	52.3	(18.5)	48.1	(15.8)
Percent in grades 6-8	22.9	(3.8)	23.4	(6.5)	22.1	(7.1)	23.1	(6.6)
Percent in grades 9-12	24.5	(15.3)	30	(16.3)	25.6	(18.6)	28.8	(16.9)
Number of schools	2.1	(1.6)	4.7	(5.0)	6.1	(14.2)	4.9	(8.0)
1 school (%)	60		26.3		41.1		31	
2-5 schools (%)	35		44.2		31.8		41	
6-14 schools (%)	5		24.9		19.6		22.9	
15+ schools (%)	0		4.5		7.5		5	
Identified Student Percentage (ISP)	31.4	(7.0)	33.3	(13.2)	56.1	(20.0)	38.3	(17.6)
Students free/reduced lunch (%)	55.7	(12.1)	60.5	(18.3)	69.1	(19.7)	62.2	(18.8)
Any charter schools (%)	30		24.2		40.8		28	
Percent Title I schools	91.1	(15.3)	85.2	(19.6)	87.3	(17.6)	85.9	(19.1)
Urban LEA (%)	10		16.6		37.9		20.9	
Percent students Black	6.9	(21.8)	21	(32.7)	43.3	(39.6)	25.2	(35.3)
Percent students Hispanic/Latino	7.4	(10.8)	5.7	(9.6)	7.5	(11.0)	6.2	(10.0)
School Variables								
Number of schools with enrollment data	104		1897		512		2513	
Number of schools with ISP	104		1897		512		2513	
Number of schools with FRP percentage	100		1801		461		2362	
Number of schools with CCD data	108		2210		475		2793	
Enrollment	505	(362.4)	440.1	(332.4)	433.2	(256.8)	441.4	(319.9)
ISP	27.3	(8.8)	37.2	(16.7)	66.2	(12.5)	42.7	(19.7)
Students free/reduced lunch (%)	43.5	(13.9)	51.6	(21.4)	81	(13.2)	57	(23.1)
Grade span								
K-5 (%)	45.4		46.8		48.8		47.1	
6-8 (%)	16.7		16.3		12.2		15.6	
9-12 (%)	24.1		23.8		15.8		22.4	
Other (%)	13.9		11.8		22.5		13.7	
Title I schools (%)	69.4		70.6		93.9		74.5	
Charter schools (%)	5.6		5.2		11.8		6.4	
Percent students Black	4	(11.5)	17.1	(27.2)	53.8	(37.4)	23.5	(32.6)
Percent students Hispanic/Latino	5.2	(6.8)	6.1	(10.5)	11	(17.5)	7	(12.2)

LEAs in Michigan have either all charter or no charter schools.

Exhibit 4A.6: New York Regular Public and Charter LEA and School Characteristics

	Near-Eligible		Eligible Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
LEA Variables								
Number of LEAs with VSR data	48		12		17		77	
Number of LEAs with CCD data	48		12		17		77	
Enrollment	1754.3	(2470.2)	2403.3	(2824.4)	68529		16598	
Enrollment 1–499 (%)	39.6		33.3		29.4		36.4	
Enrollment 500-2499 (%)	41.7		50		11.8		36.4	
Enrollment 2500-4999 (%)	10.4		0		5.9		7.8	
Enrollment 5000+ (%)	8.3		16.7		52.9		19.5	
Percentage distribution of students in grades K-12								
Percent in grades K-5	50.3	(25.5)	61.1	(23.0)	49.5	(17.3)	51.9	(23.7)
Percent in grades 6-8	24.3	(18.5)	17.5	(9.7)	30.5	(21.4)	24.5	(18.2)
Percent in grades 9-12	25.4	(23.8)	21.4	(13.9)	20	(14.7)	23.6	(20.7)
Number of schools	3.4	(4.2)	4.3	(3.7)	122.9	(440.0)	29.9	(208.0)
1 school (%)	50		25		35.3		42.9	
2-5 schools (%)	31.3		58.3		5.9		29.9	
6-14 schools (%)	14.6		16.7		29.4		18.2	
15+ schools (%)	4.2		0		29.4		9.1	
Identified Student Percentage (ISP)	39.4	(15.0)	32.5	(18.5)	41.6	(22.2)	38.8	(17.3)
Students free/reduced lunch (%)	70.2	(17.6)	62.6	(21.4)	79.8	(12.9)	71.1	(17.9)
Any charter schools (%)	40		41.7		35.7		39.4	
Percent Title I schools	87.3	(29.4)	90.9	(15.8)	77.1	(33.9)	85.9	(28.6)
Urban LEA (%)	48.9		41.7		86.7		55.6	
Percent students Black	38.9	(35.6)	33.7	(30.4)	57.5	(25.0)	41.7	(33.6)
Percent students Hispanic/Latino	12.6	(15.8)	19.7	(19.5)	15.5	(14.0)	14.4	(16.1)
School Variables								
Number of schools with enrollment data	158		106		163		427	
Number of schools with ISP	0		0		102		102	
Number of schools with FRP percentage	158		105		163		426	
Number of schools with CCD data	159		110		164		433	
Enrollment	511.6	(343.9)	549.7	(503.0)	586.1	(284.5)	549.5	(371.2)
ISP					59.7	(23.2)	59.7	(23.2)
Students free/reduced lunch (%)	64.3	(17.3)	63	(19.6)	80.5	(13.5)	70.2	(18.5)
Grade span								
K-5 (%)	56.6		46.4		51.2		52	
6-8 (%)	15.7		21.8		8.5		14.5	
9-12 (%)	14.5		16.4		11		13.6	
Other (%)	13.2		13.6		28.7		19.2	
Title I schools (%)	92.5		80		91.5		88.9	
Charter schools (%)	11.3		4.5		3		6.5	
Percent students Black	30.3	(29.4)	40.1	(27.3)	53.8	(23.4)	41.7	(28.5)
Percent students Hispanic/Latino	12.3	(13.5)	16.7	(14.1)	18.2	(17.2)	15.6	(15.4)

LEAs in New York have either all charter or no charter schools.

Exhibit 4A.7: Ohio Regular Public and Charter LEA and School Characteristics

	Near-Eligible		Eligible Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
LEA Variables								
Number of LEAs with VSR data	101		146		68		315	
Number of LEAs with CCD data	102		146		68		316	
Enrollment	1680.8	(1563.0)	1687.6	(5470.8)	1988.1	(6141.0)	1750.3	(4760.4)
Enrollment 1–499 (%)	26.7		61		66.2		51.1	
Enrollment 500-2499 (%)	50.5		27.4		22.1		33.7	
Enrollment 2500-4999 (%)	16.8		7.5		2.9		9.5	
Enrollment 5000+ (%)	5.9		4.1		8.8		5.7	
Percentage distribution of students in grades K-12								
Percent in grades K-5	49.2	(20.8)	53.6	(28.0)	53.3	(31.7)	52	(26.5)
Percent in grades 6-8	22.8	(11.2)	23	(18.1)	22.5	(21.3)	22.8	(16.7)
Percent in grades 9-12	28	(21.1)	23.4	(31.0)	24.2	(31.8)	25.2	(28.1)
Number of schools	3.4	(2.9)	3.7	(11.2)	4.6	(13.0)	3.8	(9.9)
1 school (%)	37.6		68.5		72.1		59.4	
2-5 schools (%)	45.5		19.2		16.2		27	
6-14 schools (%)	16.8		8.9		4.4		10.5	
15+ schools (%)	0		3.4		7.4		3.2	
Identified Student Percentage (ISP)	34.3	(9.5)	50.9	(13.7)	53.1	(17.2)	46	(15.6)
Students free/reduced lunch (%)	65	(15.0)	82.8	(13.6)	83.8	(14.4)	77.3	(16.5)
Any charter schools (%)	27.7		63.2		68.3		51.7	
Percent Title I schools	95.7	(11.6)	97.3	(8.0)	98.2	(7.3)	96.9	(9.3)
Urban LEA (%)	26.7		57.6		63.3		47.9	
Percent students Black	21.7	(30.7)	49.5	(36.5)	43.1	(36.3)	38.4	(36.6)
Percent students Hispanic/Latino	4.1	(11.4)	4.7	(7.9)	6.8	(10.5)	4.9	(9.8)
School Variables								
Number of schools with enrollment data	378		586		295		1259	
Number of schools with ISP	0		2		151		153	
Number of schools with FRP percentage	378		585		293		1256	
Number of schools with CCD data	386		627		314		1327	
Enrollment	451.8	(270.0)	441	(264.6)	405.9	(254.0)	436	(264.2)
ISP			70.8	(8.4)	61.6	(15.3)	61.7	(15.2)
Students free/reduced lunch (%)	56.3	(25.7)	72	(27.1)	76.5	(24.6)	68.3	(27.3)
Grade span								
K-5 (%)	52.3		44		30.9		43.3	
6-8 (%)	21.2		15.3		8.6		15.4	
9-12 (%)	17.4		17.2		15.6		16.9	
Other (%)	8.5		22.8		43.6		23.6	
Title I schools (%)	94		88.5		92		91	
Charter schools (%)	7.3		14.7		14		12.4	
Percent students Black	14.8	(24.0)	42.4	(33.6)	52.4	(34.8)	36.4	(34.6)
Percent students Hispanic/Latino	3.1	(7.0)	5.3	(8.0)	7.1	(13.0)	5.1	(9.2)

LEAs in Ohio have either all charter or no charter schools.

Exhibit 4A.8: West Virginia Regular Public and Charter LEA and School Characteristics

	Near-Eligible		Eligible Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
LEA Variables								
Number of LEAs with VSR data	1		19		35		55	
Number of LEAs with CCD data	1		19		35		55	
Enrollment	1080		4897.4	(4271.8)	5417.9	(5400.8)	5159.2	(4982.3)
Enrollment 1–499 (%)	0		0		0		0	
Enrollment 500-2499 (%)	100		42.1		28.6		34.5	
Enrollment 2500-4999 (%)	0		31.6		37.1		34.5	
Enrollment 5000+ (%)	0		26.3		34.3		30.9	
Percentage distribution of students in grades K-12								
Percent in grades K-5	45.2		45.8	(1.5)	46.2	(1.9)	46	(1.7)
Percent in grades 6-8	22.5		23.1	(0.7)	23.1	(0.9)	23.1	(0.8)
Percent in grades 9-12	32.3		31.1	(1.6)	30.7	(1.8)	30.9	(1.8)
Number of schools	3		11.1	(8.3)	13.8	(12.0)	12.7	(10.8)
1 school (%)	0		0		0		0	
2-5 schools (%)	100		31.6		17.1		23.6	
6-14 schools (%)	0		42.1		48.6		45.5	
15+ schools (%)	0		26.3		34.3		30.9	
Identified Student Percentage (ISP)	26.9		34	(5.4)	38.1	(7.2)	36.5	(7.0)
Students free/reduced lunch (%)	57		52.2	(7.4)	55.8	(8.4)	54.5	(8.1)
Any charter schools (%)	0		0		0		0	
Percent Title I schools	66.7		50.7	(17.2)	56	(15.8)	54.4	(16.3)
Urban LEA (%)	0		15.8		5.7		9.1	
Percent students Black	1		2.3	(2.3)	3.3	(3.8)	2.9	(3.3)
Percent students Hispanic/Latino	0.3		0.8	(0.9)	0.8	(1.2)	0.8	(1.1)
School Variables								
Number of schools with enrollment data	163		248		284		695	
Number of schools with ISP	163		248		284		695	
Number of schools with FRP percentage	160		248		279		687	
Number of schools with CCD data	162		248		280		690	
Enrollment	521.7	(342.2)	421.9	(261.0)	317.6	(180.9)	402.7	(267.1)
ISP	29.7	(6.8)	38.6	(12.4)	49.3	(12.0)	40.9	(13.6)
Students free/reduced lunch (%)	44.7	(10.4)	51.9	(13.3)	63.7	(12.9)	55	(14.6)
Grade span								
K-5 (%)	38.9		60.5		70.4		59.4	
6-8 (%)	27.2		17.3		11.4		17.2	
9-12 (%)	24.1		14.9		6.4		13.6	
Other (%)	9.9		7.3		11.8		9.7	
Title I schools (%)	20.4		50.8		70.4		51.6	
Charter schools (%)	0		0		0		0	
Percent students Black	4.2	(5.7)	3.1	(5.7)	6.4	(10.9)	4.7	(8.4)
Percent students Hispanic/Latino	1.3	(2.0)	0.8	(1.2)	0.9	(1.9)	1	(1.7)

Exhibit 4A.9: Non-Public, Non Regular, and Non Charter LEAs—LEA and School Characteristics

	Near-Eligible		Eligible Non-Participating		Participating		Combined	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
LEA Variables								
Number of LEAs with VSR data	157		82		71		310	
Number of LEAs with CCD data	157		90		71		318	
Enrollment	180.4	(268.6)	1288.6	(6768.4)	765.3	(1470.8)	607.5	(3571.7)
Enrollment 1–499 (%)	92.4		91.5		70.4		87.1	
Enrollment 500-2499 (%)	7.6		3.7		21.1		9.7	
Enrollment 2500-4999 (%)	0		0		5.6		1.3	
Enrollment 5000+ (%)	0		4.9		2.8		1.9	
Percentage distribution of students in grades K-12								
Percent in grades K-5			15.6	(18.2)	25.6		16.3	(17.7)
Percent in grades 6-8			23.7	(29.4)	25.2		23.8	(28.2)
Percent in grades 9-12			60.7	(34.7)	49.1		59.8	(33.4)
Number of schools	2.7	(3.9)	5.2	(23.0)	2	(1.9)	3.2	(12.2)
1 school (%)	58		68.3		59.2		61	
2-5 schools (%)	31.2		25.6		35.2		30.6	
6-14 schools (%)	8.9		2.4		5.6		6.5	
15+ schools (%)	1.9		3.7		0		1.9	
Identified Student Percentage (ISP)	65.6	(27.6)	53.6	(22.6)	28.1	(29.5)	53.8	(30.6)
Students free/reduced lunch (%)	84.2	(16.8)	82.7	(18.4)	82.7	(17.4)	83.4	(17.3)
Any charter schools (%)	0		0		0		0	
Percent Title I schools	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Urban LEA (%)	9.1		7.5		30		10.8	
Percent students Black	13		12.2	(11.5)	14.9	(12.6)	12.7	(11.0)
Percent students Hispanic/Latino	7.4		3.1	(4.0)	7.6	(10.3)	4.1	(5.3)
School Variables								
Number of schools with enrollment data	78		306		20		404	
Number of schools with ISP	20		191		81		292	
Number of schools with FRP percentage	16		42		6		64	
Number of schools with CCD data	36		118		12		166	
Enrollment	49.7	(58.5)	219.9	(225.4)	89.8	(83.0)	180.2	(210.0)
ISP	35.8	(2.8)	48.5	(30.8)	62.7	(15.4)	51.9	(27.2)
Students free/reduced lunch (%)	68.6	(29.8)	59.4	(25.8)	61	(33.9)	61.8	(27.8)
Grade span								
K-5 (%)	2.9		7.5		8		6.6	
6-8 (%)	0		5.7		0		3.6	
9-12 (%)	17.1		18.9		20		18.7	
Other (%)	68.6		42.5		44		48.2	
Title I schools (%)	0		0		0		0	
Charter schools (%)	0		0		0		0	
Percent students Black	13.1	(19.0)	17.7	(19.4)	19.3	(25.6)	16.9	(20.2)
Percent students Hispanic/Latino	4.4	(6.9)	3	(5.2)	7.7	(17.0)	4	(8.4)

Exhibit 4A.10: Median Ratio of FRP Student Percentage to ISP for Eligible Non-Participating, Participating, and All Eligible Regular LEAs, by State

	Eligible Non-Participating	Participating	All Eligible LEAs
District of Columbia	2.07	1.76	1.90
Illinois	2.00	1.67	1.87
Kentucky	1.95	1.75	1.87
Michigan	1.99	1.80	1.97
New York	1.79	1.52	1.66
Ohio	1.60	1.49	1.56
West Virginia	1.52	1.48	1.49
Total	1.90	1.65	1.84

Sources: Sources: FNS Verification Summary (FNS-742) data, State lists of eligible and participating LEAs. Projected ISP based on October 2011 VSR data. The definition of an eligible LEA varies by State, as explained in Exhibit 2.1.

Appendix 5A: Analysis of Participation and Revenue

For estimating the impacts of the CEP on participation and revenues, a comparative interrupted time series (CITS) analysis was conducted with a baseline linear trend projection model. The following discussion explains and justifies the projection model selected and describes the CITS method used.

5A.1 Analysis of Participation

5A.1.1 Baseline Balance Testing for Participation

The NSLP participation sample is identical to the matched administrative sample, for which Chapter 2 reported the results of balance testing. However, the matched sample for SBP differs due to some missing information. Exhibit 5A.1 shows the results of baseline balance testing for the SBP participation sample.

Exhibit 5A.1: SBP Participation Sample Characteristics, Weighted to Reflect Many to One Matching, LEA Level Measures

	Matched Administrative Data Sample			
	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of observations	520		286	
Weighted Number of Observations	284		286	
Enrollment	3,218	(8,825)	4,062	(24,235)
Percentage distribution of students in grades K-12				
Percent in grades K–5	49.9	(19.7)	51	(20.2)
Percent in grades 6–8	23.1	(11.1)	23.2	(13.3)
Percent in grades 9-12	24.2	(21.2)	22.9	(20.2)
Number of schools	6.6	(14.5)	8.1	(37.5)
ISP	52.2	(18.2)	53.9	(17.6)
Percent students free/reduced lunch	72.2	(17.8)	74	(16.8)
Percent Title I schools	83.2	(23.9)	85	(21.4)
Urban LEA (%)	31.4	(46.4)	33.6	(47.3)
All charter schools (%)	31.9	(46.7)	33.2	(47.2)
Percent English Language Learners	3.7	(10.9)	3.7	(10.6)
Percent students Black	30.1	(35.3)	33.2	(36.3)
Percent students Hispanic/Latino	7.8	(14.2)	7.1	(12.2)
Average Daily Participation (%) Lunch	70.5	(12.9)	71.5	(12.3)
Average Daily Participation (%) Breakfast	41.9	(21.6)**	45.9	(25.3)**

Hypothesis testing performed using t-tests for all outcomes except for grade distribution.

Grade distribution outcomes jointly tested using MANOVA.

***=p<.01, **=p<.05, *= p<.10

Source: Common Core of School Data, State-Provided Data on SBP and NSLP Participation

5A.1.2 Selection of Baseline Projection Model for Participation Impact

The first step in the specification of the analysis was the selection of a baseline projection model. The evaluation team began by plotting the year-to-year pattern of the mean of average daily participation (ADP) for each State separately and for all States combined. These plots were constructed using the unadjusted ADP for each LEA aggregated over States. Exhibits 5A.2 and 5A.3 present these graphs for all States combined. Exhibit 5A.2 depicts the trend in participation in the National School Lunch Program (NSLP), and Exhibit 5A.3 depicts the trend in participation in the School Breakfast Program (SBP). Points in the graphs represent the mean ADP for each year measured. As the figures suggest, the ADP values varied from SY 2009–10 and 2010–11. The rate also exhibits a clear and systematic upward trend.

Baseline graphs for individual States were inspected for systematic trends that might be masked by the combined findings in Exhibits 5A.2 and 5A.3. Individual States had considerably more year-to-year fluctuations in their mean ADP than was suggested by the combined findings. (Exhibits are not shown but are available on request.) However, they also exhibited a clear and systematic upward trend in the pre-intervention years. On balance, then, visual inspection of the baseline ADP for the States, both combined and individually, indicated that a baseline trend model was appropriate for estimating the impacts of the CEP. Corresponding evidence from a statistical analysis of baseline data supports the same conclusion. This evidence was obtained by fitting a regression adjusted linear trend model to the pre-intervention ADP for LEAs. Results of that analysis are available on request.

Exhibit 5A.2: Average Daily Participation in NSLP for Treatment and Comparison LEAs over Time

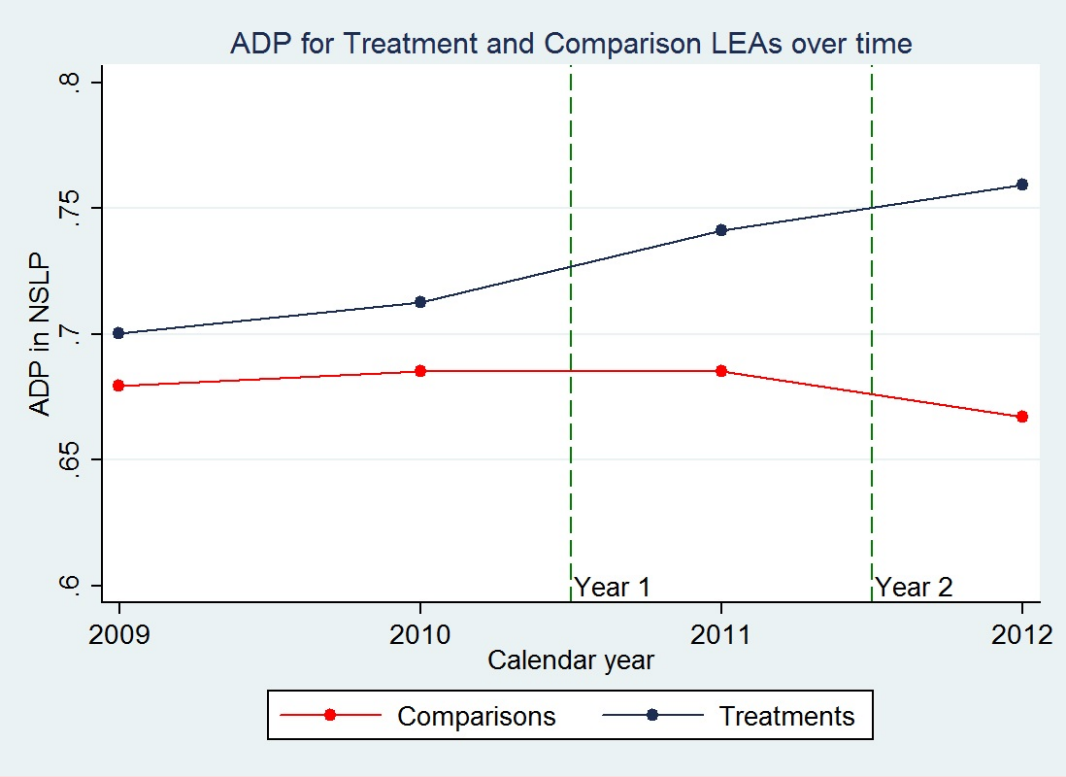
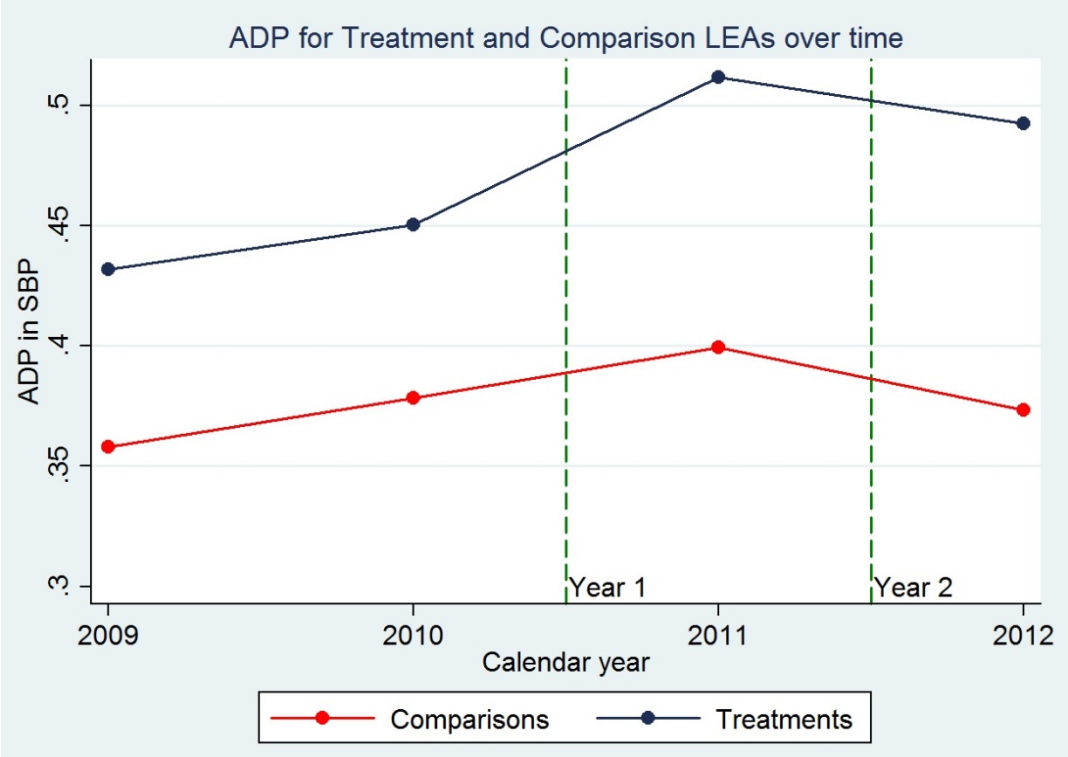


Exhibit 5A.3: Average Daily Participation in SBP for Treatment and Comparison LEAs over Time



5A.1.3 Visual Depiction of Participation Results

As a visual guide for interpreting the CITS impact estimates of CEP on participation in NSLP and the SBP, Exhibits 5A.4 and 5A.5 display the regression-adjusted ADP over time for both the treatment and comparison LEAs. In this example, there are two pre-treatment years (2009 and 2010) and two post-treatment years (2011 and 2012). The solid lines represent the observed fitted regression-adjusted ADP (blue for treatment LEAs and red for comparison LEAs).[1] The dashed line indicates the estimate of the ADP in the absence of the intervention (baseline linear projection—blue for the treatment LEAs and red for the comparison LEAs).[2] The observed ADP (represented by the solid blue and red lines) differs from the projected ADP in the post-implementation years (the counterfactual represented by the dashed blue and red lines), and it is these differences that allow us to net out the effects of other contextual or maturation processes. The difference for the treatment group minus the difference for the comparison group equals the estimated impact.

For the NSLP, the average difference for the treatment group was four percent, while the average difference for the comparison group was 0.4 percent, resulting in a difference-in-difference estimate of 3.5 percent.[3] For the SBP, the average difference for the treatment group is 6 percent, and the average difference for the comparison group is 2.4 percent, and the estimated impact was 3.6 percent.

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1 For the purposes of the exhibits, the annual means are for Year 1 States (LEAs that adopted the intervention in SY 2011–12 and the comparison group in those States). The pre- and post-intervention time periods for LEAs that implemented the CEP in 2012 are different, and so the regression-adjusted means may be different, but the estimated impact is the same because it derives from the same parameter in the model.

2 In the model notation shown in Chapter 5, the intercept for the comparison LEAs is the parameter estimate for (β_0), and the slope is(β_2) . The intercept for treatment LEAs is the estimate $(\beta_0 + \beta_1)$ and the slope is the same by design (β_2).

3 The estimated impact of 3.5 percent differs from the computed difference between the treatment and control group differences (4.0 percent -0.4 percent) due to rounding.

Exhibit 5A.4: Impact on NSLP Participation Rate

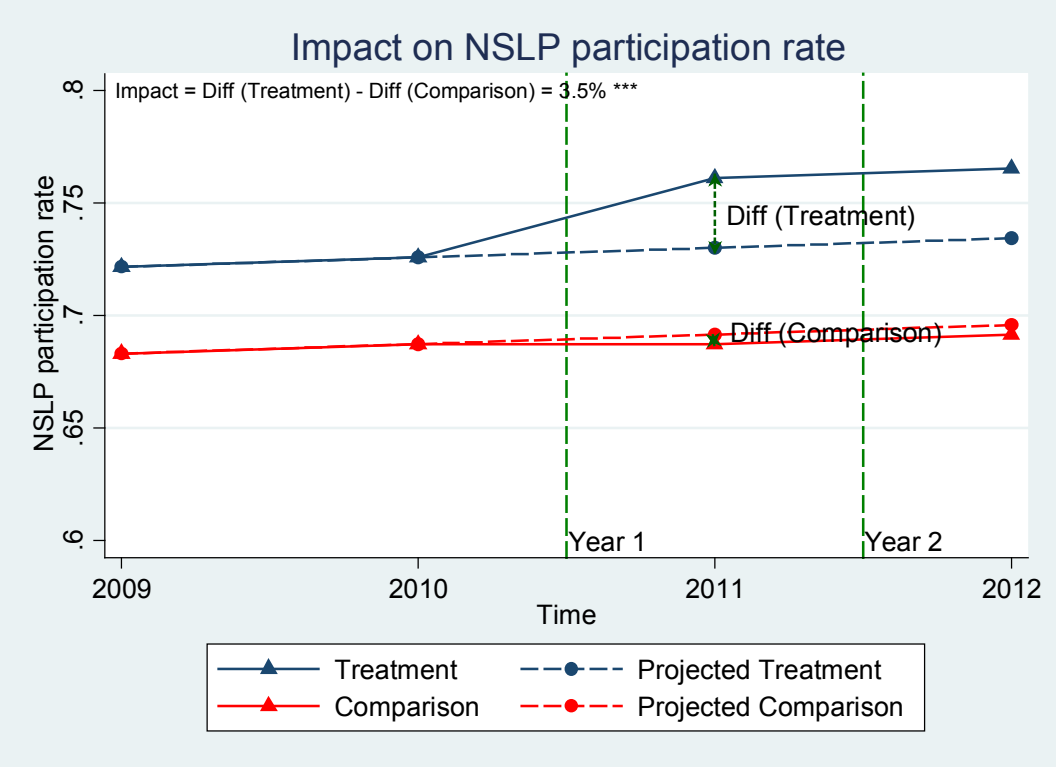
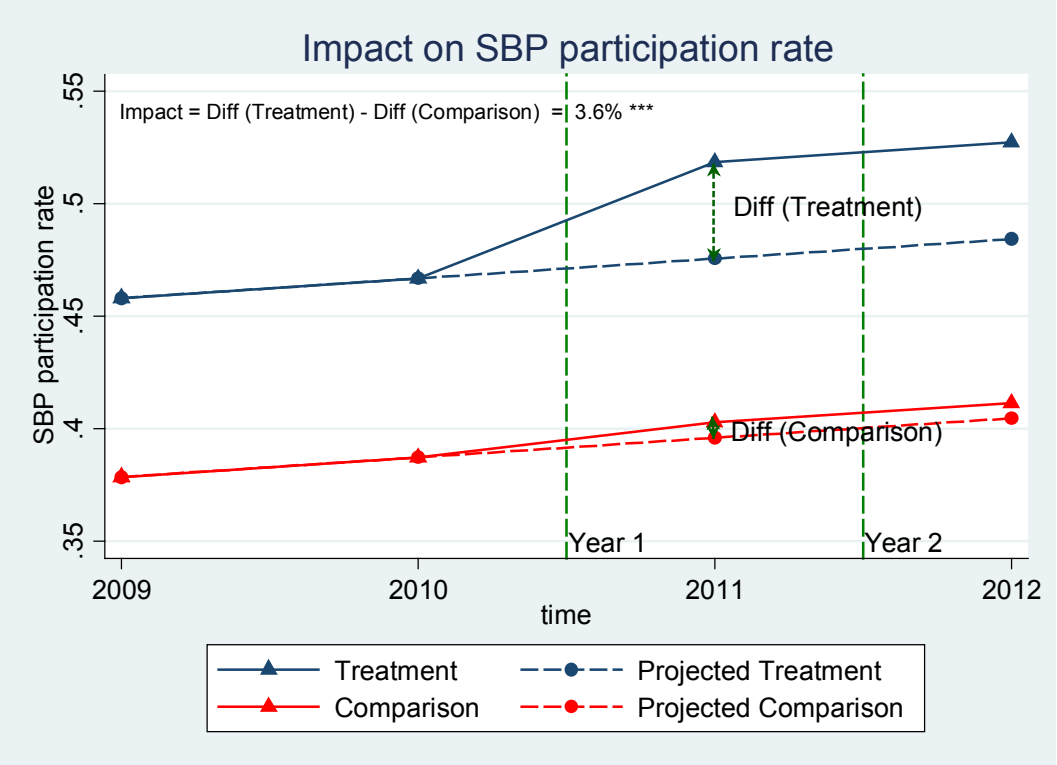


Exhibit 5A.5: Impact on SBP Participation Rate



5A.1.4 Regression Results for Participation

While Chapter 5 specifically reports the estimated impacts, this Appendix exhibits presents all of the parameter estimates from the models used to estimate impacts on NSLP and SBP participation. The estimated pre- and post-treatment means presented in Chapter 5 come from the results included in Exhibits 5A.6 and 5A.7.

- Exhibits 5A.6 and 5A.7: Model with no covariates, only time and treatment variables.
- Exhibits 5A.8 and 5A.9: Model with covariates used in propensity score model.

Exhibit 5A.6: Comparative Interrupted Time-Series Estimate of Impact on NSLP Participation Rate

	Estimate	Std Error	Sig.
Intercept (β_0)	0.68	(0.006)	***
Time (β_1)	0.00	(0.002)	
Treatment LEAs (β_2)	0.04	(0.009)	***
Post-intervention time period (β_3)	0.00	(0.004)	
Treatment effect (β_4)	0.04	(0.004)	***

Dependent variable is average participation rate in the national school lunch program

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

Exhibit 5A.7: Comparative Interrupted Time-Series Estimate of Impact on SBP Participation Rate

	Estimate	Std Error	Sig.
Intercept (β_0)	0.37	(0.011)	***
Time (β_1)	0.00	(0.004)	
Treatment LEAs (β_2)	0.08	(0.016)	***
Post-intervention time period (β_3)	0.02	(0.007)	**
Treatment effect (β_4)	0.04	(0.008)	***

Dependent variable is average participation rate in the School Breakfast Program

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

Exhibit 5A.8: Comparative Interrupted Time-Series Estimate of Impact on NSLP Participation Rate (Model with Covariates)

	Estimate	Std Error	Sig.
Intercept (β_0)	0.41	(0.027)	***
Time (β_1)	0.00	(0.002)	
Treatment LEAs (β_2)	0.03	(0.007)	***
Post-intervention time period (β_3)	0.00	(0.004)	
Treatment effect (β_4)	0.04	(0.004)	***
Distribution of ISP[a]			
ISP indicator: 30%-40%	0.05	(0.015)	***
ISP indicator: 40%-50%	0.03	(0.016)	**
ISP indicator: 50%-60%	0.08	(0.017)	***
ISP indicator: 60%-70%	0.11	(0.019)	***
ISP indicator > 70%	0.18	(0.02)	***
Distributions of Free/Reduced Meals[b]			
<50% F/L, <10% R/L	-0.04	(0.017)	**
>50% F/L, <10% R/L	0.01	(0.01)	
<50% F/L, >10% R/L	0.05	(0.02)	***
FRP-ISP Difference	0.30	(0.042)	***
Percentage of ELL Students	0.14	(0.035)	***
Percentage of Students in K-5 grade[c]	0.23	(0.018)	***
Percentage of Students in 6-8 grade[c]	0.26	(0.027)	***
LEA in an Urban Area	-0.02	(0.01)	*
Log of Number of Schools	-0.02	(0.005)	***
Avg enrollment per school < 350	0.01	(0.007)	*
Percentage of African American Students	-0.02	(0.014)	*
Percentage of Hispanic Students	-0.09	(0.029)	***
Percentage of Title I Schools	0.00	(0.016)	
Michigan Charter Indicator	-0.06	(0.015)	***
New York Charter Indicator	-0.02	(0.027)	
Ohio Charter Indicator	-0.05	(0.016)	***

Dependent variable is average daily participation rate in the National School Lunch Program

[a] The reference category is ISP below 20 percent.

[b] The reference category is: Greater than 50 percent of reimbursed meals are free; greater than 10 percent of reimbursed meals are reduced price.

[c] The reference category is the percentage of students in grades 9-12.

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

Exhibit 5A.9: Comparative Interrupted Time-Series Estimate of Impact on SBP Participation Rate (Model with Covariates)

	Estimate	Std Error	Sig.
Intercept (β_0)	0.10	(0.05)	**
Time (β_1)	0.00	(0.004)	
Treatment LEAs (β_2)	0.06	(0.013)	***
Post-intervention time period (β_3)	0.02	(0.007)	**
Treatment effect (β_4)	0.04	(0.008)	***
Distribution of ISP[a]			
ISP indicator: 30%-40%	0.06	(0.028)	**
ISP indicator: 40%-50%	0.12	(0.03)	***
ISP indicator: 50%-60%	0.18	(0.032)	***
ISP indicator: 60%-70%	0.24	(0.035)	***
ISP indicator > 70%	0.28	(0.037)	***
Distributions of Free/Reduced Meals[b]			
<50% F/L, <10% R/L	-0.07	(0.03)	**
>50% F/L, <10% R/L	0.03	(0.018)	
<50% F/L, >10% R/L	0.03	(0.037)	
FRP-ISP Difference	0.12	(0.077)	
Percentage of ELL Students	0.31	(0.063)	***
Percentage of Students in K-5 grade[c]	0.32	(0.032)	***
Percentage of Students in 6-8 grade[c]	0.29	(0.049)	***
LEA in an Urban Area	-0.05	(0.018)	***
Log of Number of Schools	-0.03	(0.01)	***
Avg enrollment per school < 350	0.07	(0.013)	***
Percentage of African American Students	0.06	(0.026)	**
Percentage of Hispanic Students	-0.26	(0.053)	***
Percentage of Title I Schools	-0.09	(0.028)	***
Michigan Charter Indicator	-0.20	(0.027)	***
New York Charter Indicator	-0.01	(0.049)	
Ohio Charter Indicator	-0.12	(0.029)	***

Dependent variable is average daily participation rate in the School Breakfast Program

a The reference category is ISP below 20 percent.

b The reference category is: Greater than 50 percent of reimbursed meals are free; greater than 10 percent of reimbursed meals are reduced price.

c The reference category is the percentage of students in grades 9-12.

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

5A.2 Analysis of Federal Revenue

5A.2.1 Baseline Balance Testing for Revenue

NSLP revenue, as well as the total Federal revenue sample, is identical to the matched administrative sample, for which Chapter 2 reported the results of balance testing. However, the matched sample for SBP differs due to some missing information. Exhibit 5A.10 shows the results of baseline balance testing for the SBP revenue sample.

Exhibit 5A.10: SBP Revenue Sample Characteristics, Weighted to Reflect Many to One Matching, LEA Level Measures

	Matched Administrative Data Sample			
	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of observations	507		286	
Weighted Number of Observations	280		286	
Enrollment	3,244	(8875)	4,062	(24235)
Percentage distribution of students in grades K-12				
Percent in grades K–5	50	(19.6)	51	(20.2)
Percent in grades 6–8	23.1	(11.1)	23.2	(13.3)
Percent in grades 9-12	24.1	(20.8)	22.9	(20.2)
Number of schools	6.7	(14.6)	8.1	(37.5)
ISP	52.4	(18.0)	53.9	(17.6)
Percent students free/reduced lunch	72.4	(17.4)	74	(16.8)
Percent Title I schools	83	(24.0)	85	(21.4)
Urban LEA (%)	31.6	(46.5)	33.6	(47.3)
All charter schools (%)	32.1	(46.7)	33.2	(47.2)
Percent English Language Learners	3.7	(11.0)	3.7	(10.6)
Percent students Black	30.2	(35.4)	33.2	(36.3)
Percent students Hispanic/Latino	7.8	(14.2)	7.1	(12.2)
Average Daily Participation (%) Lunch	70.7	(12.6)	71.5	(12.3)
Average Daily Participation (%) Breakfast	42.4	(21.2)*	45.9	(25.3)*

Hypothesis testing performed using t-tests for all outcomes except for grade distribution.

Grade distribution outcomes jointly tested using MANOVA.

***=p<.01, **=p<.05, *= p<.10

5A.2.2 Selection of Baseline Projection Model for Revenue Impact

Federal Reimbursement Rates for NSLP and SBP

The first step in the specification of the analysis was the selection of a baseline projection model. The evaluation team began by plotting the year-to-year pattern of the mean of Federal reimbursement rate for each State separately and for all States combined. These plots were constructed using the unadjusted ADP for each LEA aggregated over States. Exhibits 5A.11 and 5A.12 present these graphs for all States combined. Exhibit 5A.11 depicts the trend in Federal reimbursement rate for the National School Lunch Program (NSLP), and Exhibit 5A.12 depicts the trend in Federal reimbursement rate for the School Breakfast Program (SBP). Points in the graphs represent the mean Federal reimbursement rate for each year measured. As the figures suggest, the Federal reimbursement values varied from SY 2009–10 and 2010–11. The rate also exhibits a clear and systematic upward trend.

Baseline graphs for individual States were inspected for systematic trends that might be masked by the combined findings in Exhibits 5A.11 and 5A.12. Individual States had considerably more year-to-year fluctuations in their mean Federal reimbursement rate than was suggested by the combined findings. (Exhibits are not shown but are available on request.) However, they also exhibited a clear and systematic upward trend in the pre-intervention years. On balance, then, visual inspection of the baseline Federal reimbursement rates for the States, both combined and individually, indicated that a baseline trend model was appropriate for estimating the impacts of the CEP. Corresponding evidence from a statistical analysis of baseline data supports the same conclusion. This evidence was obtained by fitting a regression adjusted linear trend model to the pre-intervention Federal reimbursement rates for LEAs. Results of that analysis are available on request.

Exhibit 5A.11: Average Federal Reimbursement Rate for NSLP for Treatment and Comparison LEAs over Time

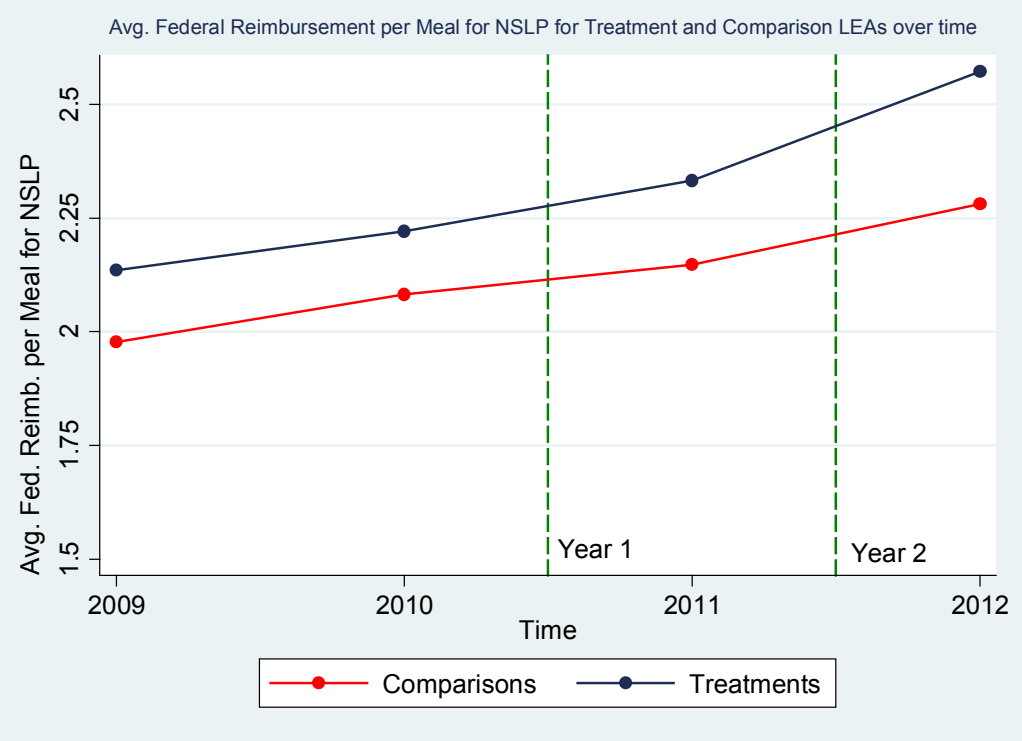
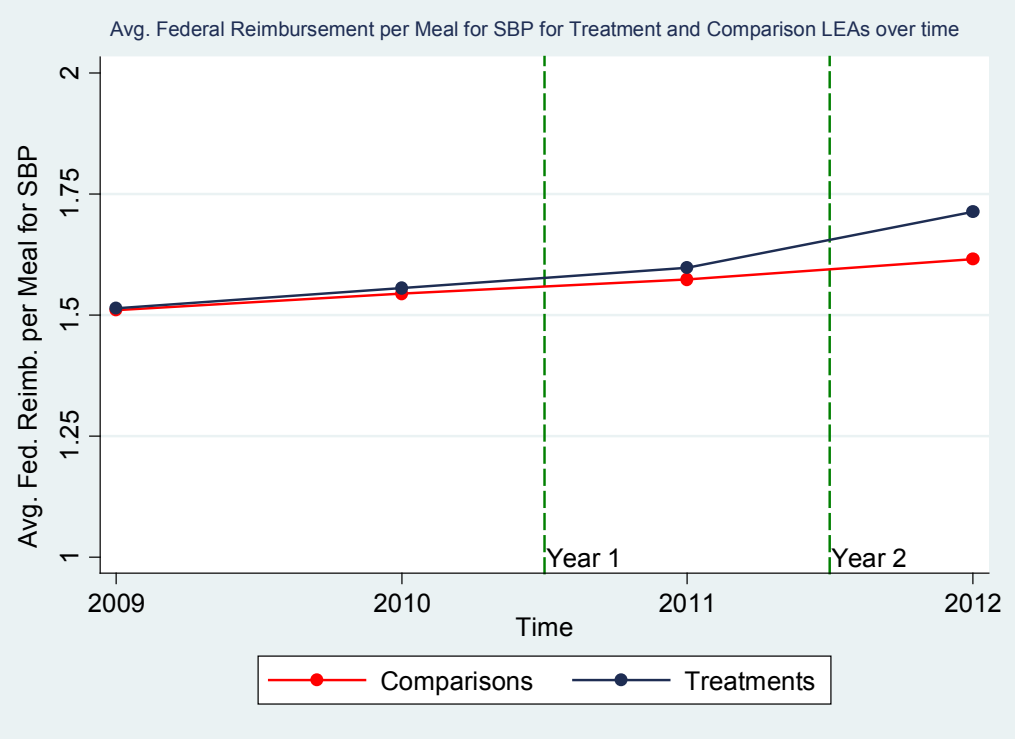


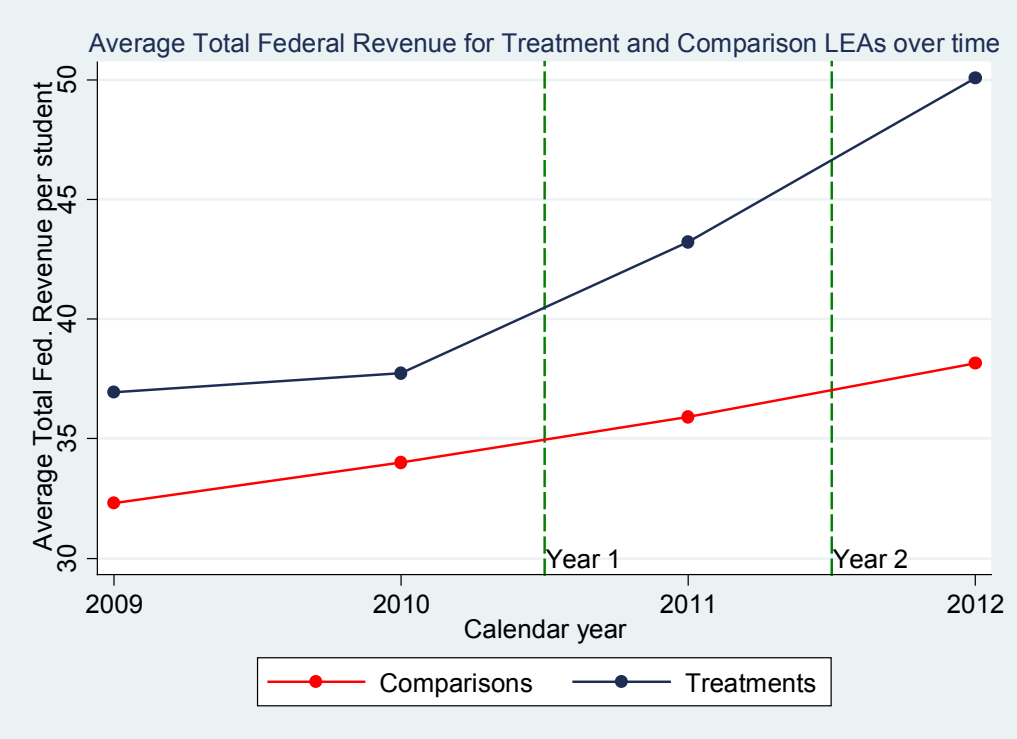
Exhibit 5A.12: Average Federal Reimbursement Rate for SBP for Treatment and Comparison LEAs over Time



Total Federal Revenue per Student

Similarly, for total Federal revenue per student enrolled, the evaluation team began by plotting the year-to-year pattern for each State separately and for all States combined. Exhibit 5A.13 presents this graph for all States combined depicting the trend in total Federal revenue per student enrolled. The graph shows a clear and systematic upward trend from SY 2009-10 and 2010-11. Baseline graphs for individual States were also inspected and showed considerable more fluctuations than the combined findings but still exhibited a clear and systematic upward trend in the pre-intervention years. Additionally, evidence from a statistical analysis of baseline data supports the same conclusion (Results of that analysis are available on request).

Exhibit 5A.13: Average Total Federal Revenue per Student for Treatment and Comparison LEAs over Time



5A.2.3 Visual Depiction of Federal Revenue Results

Federal Reimbursement Rates for NSLP and SBP

As a visual guide for interpreting the CITS impact estimates of CEP on Federal reimbursement rate for the NSLP and the SBP, Exhibits 5A.14 and 5A.15 display the regression-adjusted Federal reimbursement rate over time for both the treatment and comparison LEAs. In this example, there are two pre-treatment years (2009 and 2010) and two post-treatment years (2011 and 2012). The solid lines represent the observed fitted regression-adjusted Federal reimbursement rate (blue for treatment LEAs and red for comparison LEAs). [4] The dashed line indicates the estimate of the Federal reimbursement rate in the absence of the intervention (baseline linear projection—blue for the treatment LEAs and red for the comparison LEAs).[5] The observed Federal reimbursement rate for the treatment LEAs (represented by the solid differs from the projected reimbursement rate (the counterfactual represented by the dashed blue and red lines) in the post-implementation years, and it is these differences that allow us to net out the effects of other contextual or maturation processes. The difference for the treatment group minus the difference for the comparison group equals the estimated impact.

For the NSLP, the average difference for the treatment group for the Federal reimbursement rate was an increase in 10 cents, while the average difference for the comparison group was a decrease of 3 cents, resulting in a difference-in-difference estimate of 13 cents. For the SBP, the average difference for the treatment group for the Federal reimbursement rate was an increase in 1 cent, and the average difference for the comparison group was a decrease in 2 cents, and the estimated impact was 3 cents.

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[4] For the purposes of the exhibits, the annual means are for Year 1 States (LEAs that adopted the intervention in SY 2011–12 and the comparison group in those States). The pre- and post-intervention time periods for LEAs that implemented the CEP in 2012 are different, and so the regression-adjusted means may be different, but the estimated impact is the same because it derives from the same parameter in the model.

[5] In the model notation shown in Chapter 5, the intercept for the comparison LEAs is the parameter estimate for (β_0), and the slope is(β_2) . The intercept for treatment LEAs is the estimate $(\beta_0 + \beta_1)$ and the slope is the same by design (β_2).

Exhibit 5A.14: Impact of CEP on Federal Reimbursement Rate for NSLP

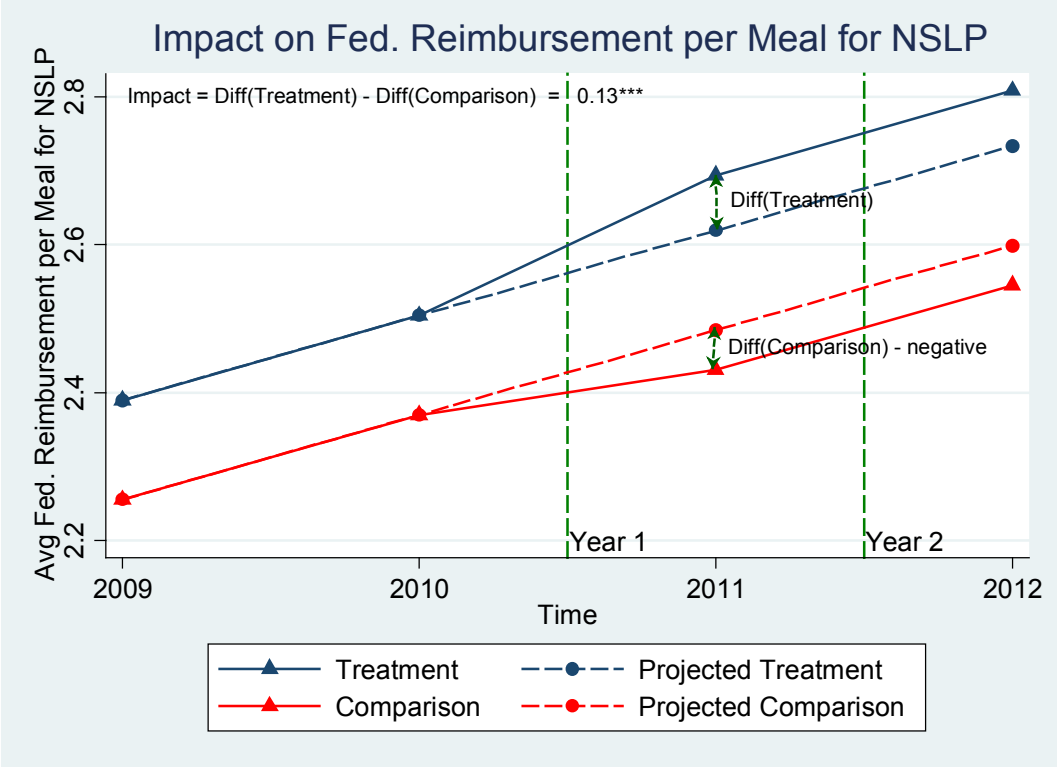
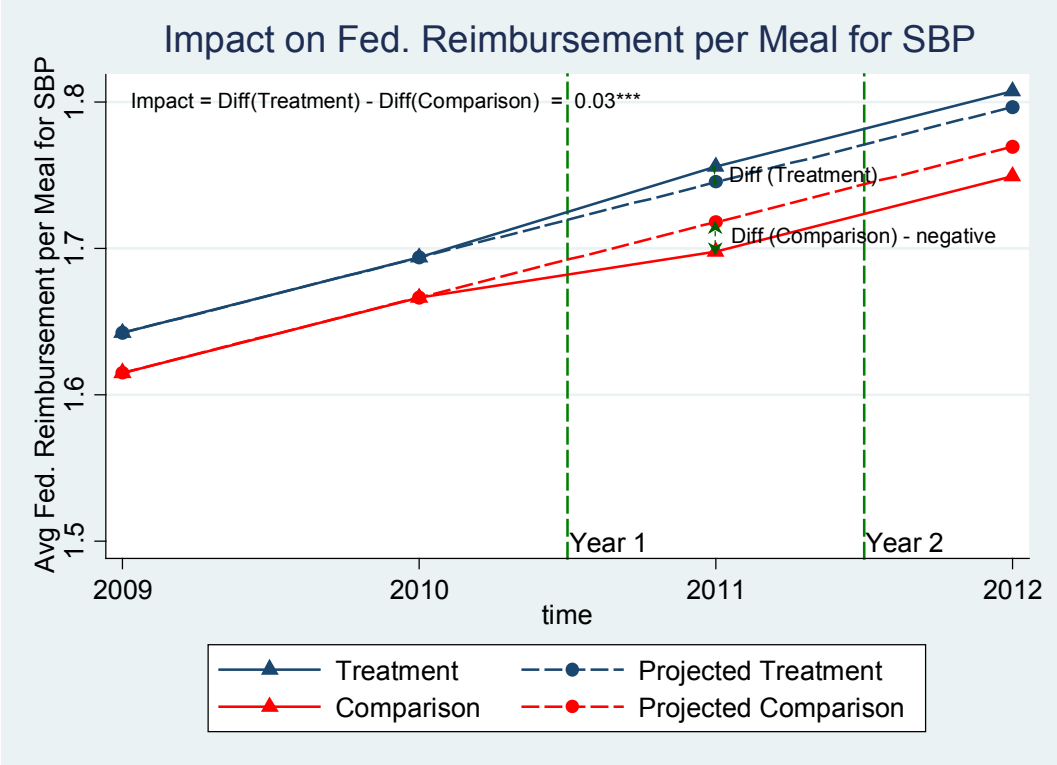


Exhibit 5A.15: Impact of CEP on Federal Reimbursement Rate for SBP



Total Federal Revenue per Student

As a visual guide for interpreting the CITS impact estimates of CEP on total Federal revenue per student, Exhibit 5A.16 displays the regression-adjusted total Federal revenue per student over time for both the treatment and comparison LEAs. In this example, there are two pre-treatment years (2009 and 2010) and two post-treatment years (2011 and 2012). The solid lines represent the observed fitted regression-adjusted total Federal revenue per student (blue for treatment LEAs and red for comparison LEAs). [6] The dashed line indicates the estimate of the total Federal revenue per student in the absence of the intervention (baseline linear projection—blue for the treatment LEAs and red for the comparison LEAs).[7] The observed total Federal revenue per student for the treatment LEAs (represented by the solid blue) differs from the projected total Federal revenue per student (the counterfactual represented by the dashed blue and red lines) in the post-implementation years, and it is these differences that allow us to net out the effects of other contextual or maturation processes. The difference for the treatment group minus the difference for the comparison group equals the estimated impact. The average difference for the treatment group for the total Federal revenue per student was an increase in $4.10, and the average difference for the comparison group was a decrease in $1.20, and the estimated impact was $5.30.

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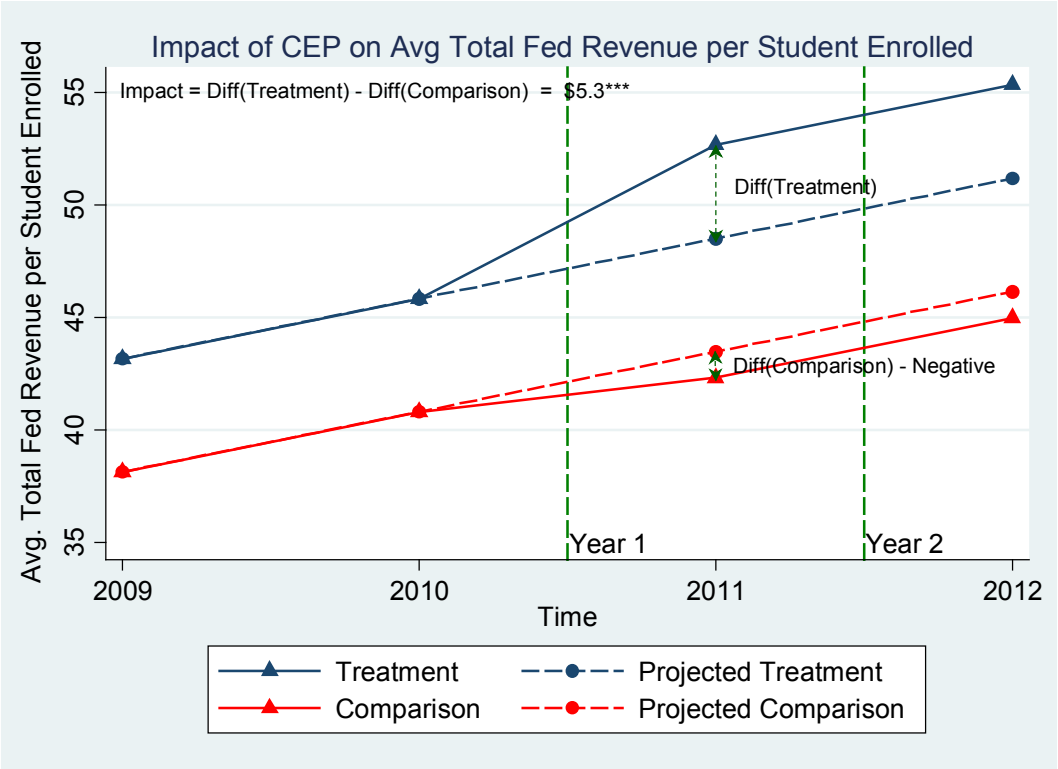
[6] For the purposes of the exhibits, the annual means are for Year 1 States (LEAs that adopted the intervention in SY 2011–12 and the comparison group in those States). The pre- and post-intervention time periods for LEAs that implemented the CEP in 2012 are different, and so the regression-adjusted means may be different, but the estimated impact is the same because it derives from the same parameter in the model.

[7] In the model notation shown in Chapter 5, the intercept for the comparison LEAs is the parameter estimate for (β_0), and the slope is(β_2) . The intercept for treatment LEAs is the estimate $(\beta_0 + \beta_1)$ and the slope is the same by design (β_2).

Exhibit 5A.16: Impact of CEP on Total Federal Revenue per Student



5A.2.4 Regression Results for Federal Revenue

Federal Reimbursement Rates for NSLP and SBP

While Chapter 5 specifically reports the estimated impacts, this Appendix exhibits presents all of the parameter estimates from the models used to estimate impacts on Federal reimbursement rate for NSLP and SBP. The estimated pre- and post-treatment means presented in Chapter 5 come from the results included in Exhibits 5A.17 and 5A.18.

- Exhibits 5A.17 and 5A.18: Model with no covariates, only time and treatment variables.
- Exhibits 5A.19 and 5A.20: Model with covariates used in propensity score model.

Exhibit 5A.17: Comparative Interrupted Time-Series Estimate of Impact on Federal Reimbursement Rate for NSLP

	Estimate	Std Error	
Intercept (β_0)	2.26	(0.02)	***
Time (β_1)	0.11	(0.004)	***
Treatment LEAs (β_2)	0.13	(0.032)	***
Post-intervention time period (β_3)	-0.05	(0.009)	***
Treatment effect (β_4)	0.13	(0.01)	***

Dependent variable is average Federal reimbursement rate for the national school lunch program

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

Exhibit 5A.18: Comparative Interrupted Time-Series Estimate of Impact on Federal Reimbursement Rate for SBP

	Estimate	Std Error	
Intercept (β_0)	1.62	(0.009)	***
Time (β_1)	0.05	(0.004)	***
Treatment LEAs (β_2)	0.03	(0.013)	**
Post-intervention time period (β_3)	-0.02	(0.008)	***
Treatment effect (β_4)	0.03	(0.009)	***

Dependent variable is average Federal reimbursement rate for the School Breakfast Program

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

Exhibit 5A.19: Comparative Interrupted Time-Series Estimate of Impact on Federal Reimbursement Rate for NSLP (Model with Covariates)

	Estimate	Std Error	Sig.
Intercept (β_0)	1.65	(0.052)	***
Time (β_1)	0.11	(0.004)	***
Treatment LEAs (β_2)	0.05	(0.013)	***
Post-intervention time period (β_3)	-0.05	(0.009)	***
Treatment effect (β_4)	0.13	(0.01)	***
Distribution of ISP[a]			
ISP indicator: 30%-40%	0.13	(0.028)	***
ISP indicator: 40%-50%	0.34	(0.03)	***
ISP indicator: 50%-60%	0.46	(0.032)	***
ISP indicator: 60%-70%	0.55	(0.035)	***
ISP indicator > 70%	0.63	(0.038)	***
Distributions of Free/Reduced Meals[b]			
<50% F/L, <10% R/L	-0.41	(0.032)	***
>50% F/L, <10% R/L	0.02	(0.019)	
<50% F/L, >10% R/L	-0.24	(0.039)	***
FRP-ISP Difference	0.58	(0.081)	***
Percentage of ELL Students	0.11	(0.065)	*
Percentage of Students in K-5 grade[c]	0.04	(0.033)	
Percentage of Students in 6-8 grade[c]	-0.03	(0.051)	
LEA in an Urban Area	0.00	(0.019)	
Log of Number of Schools	0.04	(0.01)	***
Avg enrollment per school < 350	0.03	(0.014)	**
Percentage of African American Students	0.21	(0.027)	***
Percentage of Hispanic Students	0.16	(0.055)	***
Percentage of Title I Schools	-0.02	(0.03)	
Michigan Charter Indicator	0.10	(0.028)	***
New York Charter Indicator	0.12	(0.051)	**
Ohio Charter Indicator	0.29	(0.03)	***

Dependent variable is average Federal reimbursement rate for the National School Lunch Program

[a] The reference category is ISP below 20 percent.

[b] The reference category is: Greater than 50 percent of reimbursed meals are free; greater than 10 percent of reimbursed meals are reduced price.

[c] The reference category is the percentage of students in grades 9-12.

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

Exhibit 5A.20: Comparative Interrupted Time-Series Estimate of Impact on Federal Reimbursement Rate for SBP (Model with Covariates)

	Estimate	Std Error	Sig.
Intercept (β_0)	1.35	(0.039)	***
Time (β_1)	0.05	(0.004)	***
Treatment LEAs (β_2)	0.02	(0.01)	
Post-intervention time period (β_3)	-0.02	(0.008)	***
Treatment effect (β_4)	0.03	(0.009)	***
Distribution of ISP[a]			
ISP indicator: 30%-40%	0.04	(0.021)	*
ISP indicator: 40%-50%	0.03	(0.023)	
ISP indicator: 50%-60%	0.08	(0.025)	***
ISP indicator: 60%-70%	0.11	(0.026)	***
ISP indicator > 70%	0.20	(0.029)	***
Distributions of Free/Reduced Meals[b]			
<50% F/L, <10% R/L	-0.13	(0.024)	***
>50% F/L, <10% R/L	0.04	(0.014)	***
<50% F/L, >10% R/L	-0.18	(0.029)	***
FRP-ISP Difference	0.48	(0.06)	***
Percentage of ELL Students	0.03	(0.048)	
Percentage of Students in K-5 grade[c]	0.02	(0.025)	
Percentage of Students in 6-8 grade[c]	-0.06	(0.039)	
LEA in an Urban Area	0.00	(0.014)	
Log of Number of Schools	0.01	(0.007)	
Avg enrollment per school < 350	-0.03	(0.01)	***
Percentage of African American Students	0.01	(0.019)	
Percentage of Hispanic Students	-0.02	(0.04)	
Percentage of Title I Schools	0.08	(0.022)	***
Michigan Charter Indicator	-0.02	(0.02)	
New York Charter Indicator	0.01	(0.038)	
Ohio Charter Indicator	0.09	(0.022)	***

Dependent variable is average Federal reimbursement rate for the School Breakfast Program

[a] The reference category is ISP below 20 percent.

[b] The reference category is: Greater than 50 percent of reimbursed meals are free; greater than 10 percent of reimbursed meals are reduced price.

[c] The reference category is the percentage of students in grades 9-12.

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

Total Federal Revenue per Student

While Chapter 5 specifically reports the estimated impacts, this Appendix exhibits presents all of the parameter estimates from the models used to estimate impacts on total Federal revenue per student. The estimated pre- and post-treatment means presented in Chapter 5 come from the results included in Exhibits 5A.21.

- Exhibits 5A.21: Model with no covariates, only time and treatment variables.
- Exhibits 5A.22: Model with covariates used in propensity score model.

Exhibit 5A.21: Comparative Interrupted Time-Series Estimate of Impact on Total Federal Revenue per Student

	Estimate	Std Error	Sig.
Intercept (β_0)	38.14	(0.685)	***
Time (β_1)	2.67	(0.192)	***
Treatment LEAs (β_2)	5.03	(1.036)	***
Post-intervention time period (β_3)	-1.16	(0.425)	***
Treatment effect (β_4)	5.33	(0.46)	***

Dependent variable is average total revenue per student enrolled

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

Exhibit 5A.22: Comparative Interrupted Time-Series Estimate of Impact on Total Federal Revenue per Student (Model with Covariates)

	Estimate	Std Error	Sig.
Intercept (β_0)	7.83	(2.441)	***
Time (β_1)	2.74	(0.19)	***
Treatment LEAs (β_2)	2.78	(0.61)	***
Post-intervention time period (β_3)	-1.20	(0.423)	***
Treatment effect (β_4)	5.18	(0.453)	***
Distribution of ISP[a]			
ISP indicator: 30%-40%	4.17	(1.3)	***
ISP indicator: 40%-50%	8.86	(1.407)	***
ISP indicator: 50%-60%	13.87	(1.501)	***
ISP indicator: 60%-70%	16.68	(1.633)	***
ISP indicator > 70%	24.18	(1.747)	***
Distributions of Free/Reduced Meals[b]			
<50% F/L, <10% R/L	-6.65	(1.49)	***
>50% F/L, <10% R/L	0.59	(0.88)	
<50% F/L, >10% R/L	-2.12	(1.793)	
FRP-ISP Difference	21.12	(3.765)	***
Percentage of ELL Students	16.82	(3.047)	***
Percentage of Students in K-5 grade[c]	19.16	(1.546)	***
Percentage of Students in 6-8 grade[c]	18.55	(2.379)	***
LEA in an Urban Area	-1.39	(0.871)	
Log of Number of Schools	-0.09	(0.458)	
Avg enrollment per school < 350	2.79	(0.644)	***
Percentage of African American Students	4.91	(1.248)	***
Percentage of Hispanic Students	-7.23	(2.548)	***
Percentage of Title I Schools	0.42	(1.41)	
Michigan Charter Indicator	-8.62	(1.29)	***
New York Charter Indicator	6.04	(2.358)	**
Ohio Charter Indicator	1.49	(1.395)	

Dependent variable is average total revenue per student enrolled

[a] The reference category is ISP below 20 percent.

[b] The reference category is: Greater than 50 percent of reimbursed meals are free; greater than 10 percent of reimbursed meals are reduced price.

c The reference category is the percentage of students in grades 9-12.

Treatment Effect is the interaction of the post-intervention time period and treatment

***=p<.01, **=p<.05, *= p<.10

5A.3 Analysis of Non-Federal Revenues

5A.3.1 Non-Federal Revenue Outcomes, Data Sources and the Analytic Sample

State Revenues

State revenues were obtained from the PEAR survey for States other than Illinois. PEAR survey respondent LEAs that indicated they received revenue from State funds and were able to report the amount received were asked to provide the amount of revenue received from State sources. In States other than Illinois, only individuals that provide a dollar figure for State revenue received were included in the analysis.

State revenues from Illinois are obtained from State data. To avoid distorting the Component 1 PEAR Survey Sample, only State Revenues received by PEAR survey respondent LEAs are included in the analysis.

Local Revenues

Local revenues were obtained from the PEAR survey for all States. As described for the State revenues, PEAR survey respondents were first asked if such revenue was received by the LEA. If revenues were received, the FSD was asked whether he or she could report the revenue separately from other revenues. The survey collected data on the specific amount of local funds received only if the revenue could be reported separately. Because such a large proportion of LEAs report that the foodservice program did not receive funds from local sources (77 percent of LEAs in 2010–11), the evaluation team decided to focus on the question, "Did the CEP increase the probability that the foodservice program receive any funding from local sources?" This focus allowed the sample to include all LEAs that responded to the initial question regarding the generation of revenue, the largest possible sample, and it captures the key variation observed in the data.

Non-Reimbursable Foods Revenues

Revenues from payments for non-reimbursable foods, including competitive foods, a la carte, vending machines and adult foods were obtained from the PEAR survey for all States other than Kentucky. The structure of these data are similar to local revenue data. PEAR survey respondents were first asked if Non-reimbursable Foods Revenue was received by the LEA. If revenues were received, the FSD was asked whether he or she could report the revenue separately from other revenues. The survey collected data on the specific amount of revenue generated from Non-Reimbursable Foods only if the revenue could be reported separately. Because such a large proportion of LEAs report that no such revenue was generated (66 percent of LEAs in 2010–11), the evaluation team decided to focus on the question, "Did the CEP increase the probability that the foodservice program generated revenue from Non-Reimbursable Foods?", as was decided for local revenues.

The analysis of Non-Reimbursable Foods Revenues excludes all LEAs from Kentucky. Kentucky provided State Administrative Data on these revenues for the 2009–10, 2010–11 and 2011–2012 school years. However, these data were not provided for the final year 2012–13. Because most of the Treatment LEAs in the PEAR survey sample did not take up the CEP until the 2012–13 school year, the Administrative Data was missing data that reflected the revenues generated under the CEP for 20 out of 24 Treatment LEAs.

Student Revenues

Revenues from student payments for reimbursable meals were obtained from the PEAR survey for all States other than Kentucky. As described in Chapter 5, revenues from Student Payments for Reimbursable Meals are measured by the fall total revenue received from student payments per student for LEAs that report such revenue and was defined to be zero for LEAs that report that no revenue was generated from student payments. This outcome measure therefore includes all LEAs that reported that they did not generate revenue from student payments and all LEAs that reported the fall revenue from student payments. The outcome measure excludes all LEAs that indicated that revenue was generated from student payments and that did not report fall student revenue, either because the LEA was unable to report student revenue separately or because the fall student revenue data were not available.

Exhibit 5A.23 below describes the number of LEAs that reported generating no student revenue, the number that indicated generating student revenue but were unable to report fall student revenue, and the number that indicated that generating student revenue and reported fall student revenue. The figures include all LEAs that provided a yes or no response to the data item on generating student revenue. In the 2010–11 school year, 62 Comparison and 86 Treatment LEAs provided such a response. Out of these LEAs, 4 Comparison and 15 Treatment LEAs (6 percent and 17 percent, respectively) report generating no revenue from student payments for reimbursable meals. However, the outcome variable is undefined for LEAs that generated student revenue and are unable to report fall student revenue. Hence, among LEAs with defined Student Revenue outcomes, the proportion of LEAs that reported generating no student revenue approximately doubles, accounting for 13 percent of Comparison and 33 percent of Treatment LEAs. See Chapter 5 for a discussion of how this overrepresentation of LEAs that generated no student revenue biases results.

Exhibit 5A.23: Number of LEAs that Generated and Reported Student Revenue, by Treatment Status

	Comparison	Treatment
2009–10 School Year		
No Student Revenue Generated	7	11
Generated Student Revenue & Unable to Report Fall Student Revenue	32	36
Reported Fall Student Revenue	20	33
2010–11 School Year		
No Student Revenue Generated	4	15
Generated Student Revenue & Unable to Report Fall Student Revenue	31	40
Reported Fall Student Revenue	27	31
2011–12 School Year		
No Student Revenue Generated	5	21
Generated Student Revenue & Unable to Report Fall Student Revenue	32	35
Reported Fall Student Revenue	25	31
2012–13 School Year		
No Student Revenue Generated	7	43
Generated Student Revenue & Unable to Report Fall Student Revenue	19	16
Reported Fall Student Revenue	34	28

Source: PEAR Survey

As for analysis of Non-Reimbursable Foods Revenues, the State Revenue analysis excludes all LEAs from Kentucky. Kentucky provided State Administrative Data on these revenues for the 2009–10, 2010–11 and 2011–12 school years. However, these data were not provided for the final year 2012–

13. Because most of the Treatment LEAs in the PEAR survey sample did not take up the CEP until the 2012–13 school year, the Administrative Data was missing data that reflected the revenues generated under the CEP for 20 out of 24 Treatment LEAs.

Exhibit 5A.24: Baseline Balance Tests on Analytic Sample for State and Local Revenue Analysis

	State Revenue Analysis				Local Revenue Analysis			
	Comparison		Treatment		Comparison		Treatment	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
Number of observations	45		54		64		97	
Enrollment	3,418	(6,058)	3,066	(5,728)	3,400	(5,575)	3,374	(5,565)
Enrollment 1–499 (%)	22.2		29.6		25.0		27.8	
Enrollment 500–2,499 (%)	44.4		40.7		39.1		32.0	
Enrollment 2,500–4,999 (%)	17.8		14.8		18.8		21.6	
Enrollment 5,000+ (%)	15.6		14.8		17.2		18.6	
Percentage distribution of students in grades K-12								
Percent in grades K–5	48.3	(14.8)	50.9	(15.0)	49.1	(17.9)	47.9	(17.1)
Percent in grades 6–8	24.3	(6.2)	23.4	(7.2)	22.8	(7.1)	21.2	(7.8)
Percent in grades 9–12	22.5	(20.3)	21.4	(21.1)	24.6	(18.9)	27.4	(21.3)
Number of schools	6.9	(9.1)	7.1	(11.1)	6.7	(8.8)	7.5	(10.3)
1 school (%)	18.2		28.3		25.4		25.3	
2-5 schools (%)	45.5		35.8		39.7		29.5	
6–14 schools (%)	25.0		22.6		25.4		30.5	
15+ schools (%)	11.4		11.3		9.5		12.6	
Identified Student Percentage (ISP)	43.7	(16.1)***	52.9	(15.9)***	45.9	(14.8)	49.3	(16.1)
Percent students free/reduced lunch	68.7	(15.4)	72.4	(15.3)	68.3	(16.3)	69.4	(15.8)
Percent Title I schools	84.2	(19.8)**	92.0	(13.8)**	81.2	(22.9)	84.7	(20.1)
Urban LEA (%)	20.0		29.6		26.6		25.8	
All charter schools (%)	6.7	*	18.5	*	20.3		21.6	
Percent English Language Learners	3.6	(5.7)	2.5	(4.8)	2.6	(5.9)	2.1	(5.2)
Percent students Black	21.8	(26.8)	32.7	(38.)	26.4	(33.4)	26.1	(35.8)
Percent students Hispanic/Latino	11.2	(14.9)*	6.4	(9.4)*	6.5	(10.4)	6.0	(11.2)
Average Daily Participation (%) Lunch	71.3	(10.6)	71.3	(13.5)	70.0	(11.7)	69.0	(13.5)
Average Daily Participation (%) Breakfast[a]	46.4	(30.0)	56.1	(35.0)	40.3	(27.6)	43.9	(26.7)

Hypothesis testing performed using t-tests for all outcomes except for grade distribution. Grade distribution outcomes jointly tested using MANOVA.

*** Difference is significant at the 1% level; ** Difference is significant at the 5% level; * Difference is significant at the 10% level

[a] Observed for all LEAs in the State Revenue Analysis. Observed for 155 LEAs in the Local Revenue Analysis (59 Comparison and 96 Treatment).

Source: Common Core of School Data, State-Provided Data on SBP and NSLP Participation, PEAR Survey

Exhibit 5A.25: Baseline Balance Tests on Analytic Sample for Analysis of Revenue from Payments for Non-Reimbursable Foods and Student Payments for Reimbursable Foods

	Non-Reimbursable Foods Revenue Analysis				Student Payments for Reimbursable Foods Revenue Analysis			
	Comparison		Treatment		Comparison		Treatment	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
Number of observations	61		86		29		53	
Enrollment	2,724	(3,557)	2,869	(4,800)	2,764	(3,436)	3,120	(5,731)
Enrollment 1–499 (%)	32.8		32.6		31.0		39.6	
Enrollment 500–2,499 (%)	37.7		31.4		41.4		26.4	
Enrollment 2,500–4,999 (%)	14.8		20.9		13.8		17.0	
Enrollment 5,000+ (%)	14.8		15.1		13.8		17.0	
Percentage distribution of students in grades K-12								
Percent in grades K–5	51.2	(19.9)	48.6	(18.4)	48.9	(18.6)	48.3	(19.5)
Percent in grades 6–8	23.0	(7.7)	21.5	(8.6)	23.9	(7.1)	22.0	(9.6)
Percent in grades 9–12	22.6	(21.2)	26.1	(23.3)	23.6	(22.9)	26.1	(26.0)
Number of schools	5.7	(6.6)	6.7	(8.9)	5.9	(7.0)	7.2	(11.2)
1 school (%)	31.7		30.1		28.6		35.3	
2-5 schools (%)	36.7		27.7		35.7		27.5	
6–14 schools (%)	23.3		26.5		21.4		17.6	
15+ schools (%)	8.3		12.0		14.3		15.7	
Identified Student Percentage (ISP)	47.7	(16.6)	51.8	(16.4)	45.7	(18.1)**	54.4	(15.4)**
Percent students free/reduced lunch	70.5	(17.4)	70.6	(16.9)	67.0	(16.8)	73.0	(16.1)
Percent Title I schools	84.3	(23.7)	85.0	(21.3)	78.4	(25.3)*	87.4	(20.8)*
Urban LEA (%)	31.1		30.2		20.7		35.8	
All charter schools (%)	24.6		26.7		20.7		32.1	
Percent English Language Learners	3.2	(6.7)	2.4	(5.7)	2.1	(4.2)	2.1	(4.7)
Percent students Black	31.2	(34.3)	31.5	(37.9)	26.2	(32.7)	38.4	(39.2)
Percent students Hispanic/Latino	9.2	(14.2)	6.8	(12.3)	5.9	(9.1)	6.1	(8.9)
Average Daily Participation (%) Lunch	68.6	(11.8)	67.3	(13.7)	67.1	(11.4)	67.7	(14.2)
Average Daily Participation (%) Breakfasta	43.6	(29.6)	46.4	(28.6)	44.6	(28.8)	48.2	(30.0)

Hypothesis testing performed using t-tests for all outcomes except for grade distribution. Grade distribution outcomes jointly tested using MANOVA.

***=p<.01, **=p<.05, *= p<.10

[a] Observed for 141 LEAs in the Non-Reimbursable Foods Revenue Analysis (56 Comparison and 85 Treatment), and for 79 LEAs in the Student Payments for Reimbursable Foods Revenue Analysis (27 Comparison and 52 Treatment).

Source: Common Core of School Data, State-Provided Data on SBP and NSLP Participation, PEAR Survey

Exhibit 5A.26: Detailed Results for Analysis of Non-Federal Revenues

Outcome	(1) State Revenue	(2) Local Revenue	(3) Local Revenue
Estimates			
Intercept (β_0)	4.34	0.27***	-6.17***
	(18.60)	(0.04)	(0.85)
Treatment LEAs ($\beta 2$)	8.55	-0.02	0.55
	(7.28)	(0.06)	(0.99)
Post-intervention time period (β_3)	-1.11	-0.01	-0.23
	(2.00)	(0.02)	(0.59)
Treatment effect (β_4)	2.49	-0.02	-0.65
	(2.77)	(0.03)	(0.78)
Identified Student Percentage (ISP)	-14.69		
	(23.75)		
Percent Title I schools	9.87		
	(21.49)		
All charter schools (%)	14.63		
	(11.05)		
Percent students Hispanic/Latino	5.95		
	(28.18)		
Model	CITS	CITS—Linear Probability	CITS—Logistic Regression
LEA-level Random Effect	Yes	Yes	Yes
Observations	360	672	614
Number of LEAs	99	200	161

***=p<.01, **=p<.05, *= p<.10

Exhibit 5A.26 Continued: Detailed Results for Analysis of Non-Federal Revenues

Outcome	(4) Non-Reimbursable Foods	(5) Non-Reimbursable Foods	(6) Student Payments
Estimates			
Intercept (β_0)	0.66***	4.61***	69.13***
	(0.06)	(0.58)	(15.00)
Treatment LEAs (β_2)	0.03	5.70***	10.63
	(0.08)	(1.16)	(8.26)
Post-intervention time period (β_3)	-0.03	-0.69	-4.58
	(0.02)	(0.66)	(6.64)
Treatment effect (β_4)	-0.03	-2.08*	-8.24
	(0.03)	(1.08)	(8.39)
Identified Student Percentage (ISP)			-54.59**
			(23.11)
Percent Title I schools			-28.93*
			(16.99)
Model	CITS—Linear Probability	CITS—Logistic Regression	CITS
LEA-level Random Effect	Yes	Yes	Yes
Observations	557	557	291
Number of LEAs	147	147	82

***=p<.01, **=p<.05, *= p<.10

Appendix 6A: Analysis of Impacts on Administrative Costs and Staffing

This appendix presents supporting information for the discussion in Chapter 6 about the impacts of the CEP on administrative costs and staffing at the LEA and school levels. The appendix begins with information on the data and results of balance testing. Next, univariate statistics for outcome variables are presented. The appendix concludes with the complete regression results supporting the impact estimates.

6A.1 Data and Balance Testing

The analysis file for the cost analysis was constructed by merging data from LEA and school staff rosters and administrative cost interviews, completed as part of the data collection for Component 2 of the Impact Study, described in Chapter 2. Three comparison LEAs selected for this data collection refused to complete staff rosters or participate in the cost interviews. Therefore, the sample was drawn from 100 LEAs (52 treatment and 48 comparison) rather than the 103 LEAs in the full Component 2 sample. Exhibit 6A.1 repeats the analysis from Exhibit 2.7 from Chapter 2 for this somewhat smaller set of LEAs. The substantive conclusions from Chapter 2 are unaltered: treatment and comparison LEAs for the cost analysis are balanced on all LEA-level observed covariates with the exception of ISP. Because the ISP was unbalanced between treatment and comparison LEAs, it was including as a control variable in the impact estimation model.

Exhibit 6A.1: LEA Characteristics for Administrative Cost Analysis Sample

	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Enrollment	4,062	(5869)	4,060	(6955)
Enrollment 1–499 (%)	16.7		21.2	
Enrollment 500–2,499 (%)	43.8		36.5	
Enrollment 2,500–4,999 (%)	14.6		25	
Enrollment 5,000+ (%)	25		17.3	
Percentage distribution of students in grades K-12				
Percent in grades K–5	48.9	(16.7)	51	(13.9)
Percent in grades 6–8	20.7	(6.3)	23.5	(7.9)
Percent in grades 9–12	26.8	(17.3)	21.7	(13.5)
Number of schools	7.8	(8.9)	8.9	(12.8)
1 school (%)	14.6		17.6	
2-5 schools (%)	37.5		37.3	
6–14 schools (%)	37.5		27.5	
15+ schools (%)	10.4		13.7	
ISP	47.2	(15.4)**	55.2	(16.5)**
Percent students free/reduced lunch	69.9	(15.0)	74.3	(14.6)
Percent Title I schools	85.6	(21.6)	87.1	(15.1)
Urban LEA (%)	25		30.8	
All charter schools (%)	12.5		19.2	
Percent English Language Learners	3.2	(5.3)	3.4	(6.9)
Percent students Black	26.9	(31.8)	33.5	(35.9)
Percent students Hispanic/Latino	8.1	(11.8)	8.9	(15.0)
Average Daily Participation (%) Lunch	67.4	(11.1)	69.9	(12.8)
Number of LEAs	48		52	

T-tests were used to test for differences between treatment and comparison means for all variables except for grade distribution. Differences in grade distributions were jointly tested using MANOVA.

Source: Common Core of School Data, State Administrative Data, Verification Summary Report Data

***=p<.01, **=p<.05, *= p<.10

Data were collected from 247 schools in the 100 LEAs that agreed to participate in the administrative cost data collection. Characteristics of these schools are shown in Exhibit 6A.2. Treatment schools had somewhat lower average enrollment then comparison schools (473 versus 588) and more students eligible for free and reduced-price meals (70.4 versus 65.9 percent). Treatment and comparison schools were otherwise statistically indistinguishable. Because enrollment and the percentage of students eligible for free and reduced-price meals were unbalanced between treatment and comparison schools, they were included as control variables in the impact estimation model.

Exhibit 6A.2: School-level Characteristics for the Administrative Cost Analysis Sample

	Comparison schools		Treatment schools	
	Mean (SD)		Mean (SD)	
Enrollment	588	(421)**	473	(315)**
Type of school				
Title I (%)	84.7	(36.2)	91.1	(28.7)
Charter (%)	4.8	(21.6)	9.8	(29.8)
In city (%)	21.8	(41.4)	27.6	(44.9)
Student characteristics				
Free/reduced lunch (%)	65.9	(16.2)**	70.4	(18.6)**
Black (%)	21.7	(28.6)	27.2	(33.2)
Hispanic/Latino (%)	7.4	(10.7)	8.7	(15.4)
Grade span [a]				
K-5 (%)	34.7	(47.8)	35.8	(48.1)
6–8 (%)	29.0	(45.6)	25.2	(43.6)
9–12 (%)	29.0	(45.6)	22.8	(42.1)
Other (%)	7.3	(26.1)	16.3	(37.1)
Grades Sampled [a]				
K-5 (%)	38.7	(48.9)	45.5	(50.0)
6–8 (%)	32.3	(46.9)	30.9	(46.4)
9–12 (%)	29.0	(45.6)	23.6	(42.6)
Number of schools	124		123	

T-tests were used to test for differences between treatment and comparison means for all variables except for grade span and grades sampled. Differences in grade span and grades sampled were jointly tested using a chi-square test.

Source: Common Core of School Data

***=p<.01, **=p<.05, *= p<.10

[a] The grade span refers to the actual grade coverage of a school. Grade coverage can be irregular, especially among charter schools, which may cover K-12, K-8, or other grade spans, all of which are included in the "Other" category in the table. The analysis has categorized these irregular grade spans according to three separate sampled grades: elementary (K-5), middle (6-8), and high (9-12). The table presents both the original grade span and the sampled grade category.

6A.2 Univariate Statistics for Outcome Variables

Exhibit 6A.3 shows the means and standard deviation for the outcome variables used in the analysis of CEP impacts on administrative labor time and costs by task domain. Exhibit 6A.4 does the same by staff type.

Exhibit 6A.3: Univariate Statistics for Annual Time and Labor Costs for Administrative Tasks Potentially Affected by CEP Participation, by Task Domain

	Comparison schools		Treatment schools	
	Mean (SD)		Mean (SD)	
Hours per enrolled student				
A. Distributing and processing applications for free or reduced-price meals	0.46	(0.55)	0.12	(0.31)***
B. Direct Certifications	0.09	(0.22)	0.12	(0.24)
C. Verifying income of free/reduced price students	0.12	(0.31)	0.01	(0.06)***
D. Meal payment collections and accounting	1.92	(1.63)	1.38	(2.07)**
E. Counting and claiming reimbursable meals	0.43	(0.82)	1.06	(1.47)***
Total	3.01	(2.49)	2.69	(2.86)
Cost per enrolled student				
A. Distributing and processing applications for free or reduced-price meals	13.78	(14.54)	3.37	(8.04)***
B. Direct Certifications	3.45	(10.14)	4.32	(10.86)
C. Verifying income of free/reduced price students	3.99	(9.70)	0.47	(1.49)***
D. Meal payment collections and accounting	41.71	(31.79)	30.61	(46.63)**
E. Counting and claiming reimbursable meals	9.45	(16.09)	26.28	(36.89)***
Total	72.38	(56.04)	65.06	(69.41)

T-tests were used to test for differences between treatment and comparison means for all outcomes

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.4: Univariate Statistics for Annual Time and Labor Costs for Administrative Tasks Potentially Affected by CEP Participation, by Staff Type

	Comparison schools		Treatment schools	
	Mean (SD)		Mean (SD)	
Hours per enrolled student				
A. LEA staff	0.54	(0.80)	0.54	(1.02)
B. School foodservice staff	1.77	(1.79)	1.67	(2.54)
C. School non-foodservice staff	0.56	(1.90)	0.41	(1.04)
D. School staff, role unknown	0.14	(0.61)	0.07	(0.35)
Total	3.01	(2.49)	2.69	(2.86)
Cost per enrolled student				
A. LEA staff	19.03	(26.80)	15.22	(23.54)
B. School foodservice staff	35.91	(33.69)	31.97	(52.18)
C. School non-foodservice staff	13.83	(39.77)	15.34	(38.27)
D. School staff, role unknown	3.61	(15.71)	2.53	(13.89)
Total	72.38	(56.04)	65.06	(69.41)

T-tests were used to test for differences between treatment and comparison means for all outcomes

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

6A.3 Regression Results

Exhibits 6A.5–24 present the complete set of regression results. The vector of school characteristics used as control variables in all models included:

- the school's grade level (i.e., whether elementary, middle, or high), with high school as the reference category;

- the State, with West Virginia as the reference State; and
- LEA and school-level features where balance testing (detailed above) discerned a difference between treatment and comparison LEAs that was statistically significant at the 10 percent level, which included school enrollment and FRP participation, as well as the LEA's ISP.

Exhibit 6A.5: Administrative Time and Cost Regression Results for Hours per Student, Total

	Coef.	SE	Sig.
Treatment	-0.69	0.42	
Enrollment (in 1000s)	-1.55	0.55	***
% FRP	1.71	1.31	
LEA ISP	0.20	2.17	
Middle school grades sampled	-0.68	0.30	**
High school grades sampled	-0.08	0.37	
Illinois	0.59	0.87	
Kentucky	0.99	0.78	
Michigan	-0.88	0.63	
New York	-0.52	0.83	
Ohio	-0.13	1.16	
Constant	3.02	1.01	***
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.6: Administrative Time and Cost Regression Results for Cost per Student, Total

	Coef.	SE	Sig.
Treatment	-16.72	10.10	
Enrollment (in 1000s)	-33.17	13.88	**
% FRP	38.69	30.93	
LEA ISP	22.32	55.18	
Middle school grades sampled	-15.71	6.08	**
High school grades sampled	-3.97	8.85	
Illinois	-3.55	23.74	
Kentucky	-13.33	22.13	
Michigan	-49.55	18.76	***
New York	-40.51	20.35	**
Ohio	-32.65	26.61	
Constant	88.21	26.06	***
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.7: Administrative Time and Cost Regression Results for Hours per Student, LEA Staff

	Coef.	SE	Sig.
Treatment	-0.12	0.17	
Enrollment (in 1000s)	-0.08	0.14	
% FRP	0.17	0.30	
LEA ISP	1.55	0.77	**
Middle school grades sampled	-0.23	0.09	**
High school grades sampled	-0.23	0.13	*
Illinois	-0.41	0.32	
Kentucky	-0.24	0.32	
Michigan	-0.25	0.31	
New York	-0.64	0.34	*
Ohio	-0.55	0.39	
Constant	0.22	0.38	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.8: Administrative Time and Cost Regression Results for Hours per Student, School Foodservice Staff

	Coef.	SE	Sig.
Treatment	-0.31	0.32	
Enrollment (in 1000s)	-0.88	0.39	**
% FRP	-0.24	0.69	
LEA ISP	1.25	1.53	
Middle school grades sampled	-0.09	0.27	
High school grades sampled	0.23	0.31	
Illinois	1.73	0.53	***
Kentucky	2.87	0.48	***
Michigan	0.89	0.38	**
New York	1.33	0.57	**
Ohio	1.00	0.82	
Constant	0.53	0.70	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.9: Administrative Time and Cost Regression Results for Hours per Student, School non-Foodservice Staff

	Coef.	SE	Sig.
Treatment	-0.18	0.22	
Enrollment (in 1000s)	-0.56	0.32	
% FRP	1.63	1.21	
LEA ISP	-2.65	1.70	
Middle school grades sampled	-0.38	0.16	
High school grades sampled	-0.08	0.20	
Illinois	-0.11	0.63	
Kentucky	-1.04	0.41	
Michigan	-0.91	0.39	
New York	-0.60	0.43	
Ohio	-0.06	0.74	
Constant	1.72	0.71	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.10: Administrative Time and Cost Regression Results for Hours per Student, School Staff, Role Unknown

	Coef.	SE	Sig.
Treatment	-0.09	0.10	
Enrollment (in 1000s)	-0.03	0.08	
% FRP	0.14	0.20	
LEA ISP	0.04	0.18	
Middle school grades sampled	0.01	0.03	
High school grades sampled	0.00	0.03	
Illinois	-0.62	0.31	**
Kentucky	-0.61	0.30	**
Michigan	-0.61	0.31	*
New York	-0.61	0.31	**
Ohio	-0.51	0.31	
Constant	0.55	0.36	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.11: Administrative Time and Cost Regression Results for Cost per Student, LEA Staff

	Coef.	SE	Sig.
Treatment	-7.45	5.08	
Enrollment (in 1000s)	-3.15	4.30	
% FRP	6.00	11.71	
LEA ISP	47.36	25.92	*
Middle school grades sampled	-5.11	2.10	**
High school grades sampled	-5.58	3.10	*
Illinois	-11.30	10.55	
Kentucky	-9.51	9.82	
Michigan	-11.67	9.44	
New York	-20.65	10.68	*
Ohio	-20.95	11.93	*
Constant	9.94	11.15	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.12: Administrative Time and Cost Regression Results for Cost per Student, School Foodservice Staff

	Coef.	SE	Sig.
Treatment	-8.11	6.22	
Enrollment (in 1000s)	-15.26	8.13	*
% FRP	-5.94	15.08	
LEA ISP	27.60	32.63	
Middle school grades sampled	-2.00	5.07	
High school grades sampled	4.28	6.05	
Illinois	36.77	12.48	***
Kentucky	50.21	10.21	***
Michigan	13.13	7.98	
New York	24.67	10.20	**
Ohio	18.13	15.38	
Constant	12.20	14.54	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.13: Administrative Time and Cost Regression Results for Cost per Student, School non-Foodservice Staff

	Coef.	SE	Sig.
Treatment	0.51	5.86	
Enrollment (in 1000s)	-13.95	9.10	
% FRP	35.05	24.45	
LEA ISP	-54.37	36.63	
Middle school grades sampled	-9.21	3.74	**
High school grades sampled	-2.55	6.19	
Illinois	-11.81	16.45	
Kentucky	-37.20	14.20	**
Michigan	-33.97	13.31	**
New York	-27.40	12.71	**
Ohio	-17.01	18.11	
Constant	51.11	19.13	***
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.14: Administrative Time and Cost Regression Results for Cost per Student, School Staff, Role Unknown

	Coef.	SE	Sig.
Treatment	-1.68	2.64	
Enrollment (in 1000s)	-0.81	2.22	
% FRP	3.58	5.12	
LEA ISP	1.73	6.39	
Middle school grades sampled	0.61	1.24	
High school grades sampled	-0.12	0.90	
Illinois	-17.22	8.09	**
Kentucky	-16.84	7.92	**
Michigan	-17.05	8.20	**
New York	-17.13	7.98	**
Ohio	-12.82	8.30	
Constant	14.97	10.49	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.15: Administrative Time and Cost Regression Results for Hours per Student, Distributing and Processing Applications for Free or Reduced-Price Meals

	Coef.	SE	Sig.
Treatment	-0.34	0.08	***
Enrollment (in 1000s)	-0.02	0.08	
% FRP	0.39	0.31	
LEA ISP	-0.45	0.42	
Middle school grades sampled	-0.03	0.03	
High school grades sampled	-0.01	0.06	
Illinois	0.19	0.17	
Kentucky	-0.08	0.13	
Michigan	-0.03	0.10	
New York	-0.08	0.12	
Ohio	0.15	0.16	
Constant	0.42	0.13	***
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.16: Administrative Time and Cost Regression Results for Hours per Student, Direct Certifications

	Coef.	SE	Sig.
Treatment	0.00	0.04	
Enrollment (in 1000s)	-0.02	0.03	
% FRP	0.20	0.14	
LEA ISP	0.12	0.25	
Middle school grades sampled	-0.03	0.02	*
High school grades sampled	-0.04	0.03	
Illinois	0.11	0.08	
Kentucky	0.03	0.06	
Michigan	-0.03	0.04	
New York	-0.06	0.06	
Ohio	-0.05	0.09	
Constant	-0.07	0.10	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.17: Administrative Time and Cost Regression Results for Hours per Student, Verifying Income of Free/Reduced Price Students

	Coef.	SE	Sig.
Treatment	-0.11	0.04	***
Enrollment (in 1000s)	-0.06	0.05	
% FRP	0.19	0.15	
LEA ISP	-0.14	0.27	
Middle school grades sampled	-0.05	0.02	**
High school grades sampled	-0.01	0.04	
Illinois	0.14	0.08	
Kentucky	-0.01	0.03	
Michigan	0.02	0.04	
New York	0.08	0.09	
Ohio	0.03	0.07	
Constant	0.07	0.11	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.18: Administrative Time and Cost Regression Results for Hours per Student, Meal Payment Collections and Accounting

	Coef.	SE	Sig.
Treatment	-0.68	0.32	**
Enrollment (in 1000s)	-1.12	0.39	***
% FRP	-0.49	0.65	
LEA ISP	-0.50	1.19	
Middle school grades sampled	-0.28	0.22	
High school grades sampled	0.10	0.28	
Illinois	-0.14	0.56	
Kentucky	1.37	0.64	**
Michigan	-0.43	0.50	
New York	0.21	0.65	
Ohio	0.28	0.86	
Constant	3.06	0.80	***
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.19: Administrative Time and Cost Regression Results for Hours per Student, Counting and Claiming Reimbursable Meals

	Coef.	SE	Sig.
Treatment	0.44	0.16	***
Enrollment (in 1000s)	-0.33	0.20	*
% FRP	1.42	0.66	**
LEA ISP	1.17	1.27	
Middle school grades sampled	-0.29	0.14	**
High school grades sampled	-0.12	0.16	
Illinois	0.29	0.38	
Kentucky	-0.33	0.19	*
Michigan	-0.41	0.26	
New York	-0.67	0.32	**
Ohio	-0.54	0.38	
Constant	-0.46	0.49	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.20: Administrative Time and Cost Regression Results for Cost per Student, Distributing and Processing Applications for Free or Reduced-Price Meals

	Coef.	SE	Sig.
Treatment	-10.84	2.29	***
Enrollment (in 1000s)	-0.03	2.19	
% FRP	7.27	6.76	
LEA ISP	-2.64	10.38	
Middle school grades sampled	-0.42	0.86	
High school grades sampled	-0.77	1.76	
Illinois	2.66	4.29	
Kentucky	-3.12	4.09	
Michigan	-2.88	3.20	
New York	-4.53	3.69	
Ohio	0.68	4.73	
Constant	12.02	3.97	***
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.21: Administrative Time and Cost Regression Results for Cost per Student, Direct Certifications

	Coef.	SE	Sig.
Treatment	0.01	1.75	
Enrollment (in 1000s)	-0.58	1.56	
% FRP	11.07	7.68	
LEA ISP	2.62	12.12	
Middle school grades sampled	-0.45	0.59	
High school grades sampled	-1.39	1.14	
Illinois	6.17	4.50	
Kentucky	0.39	2.26	
Michigan	-1.65	1.34	
New York	-2.54	2.31	
Ohio	-3.02	2.97	
Constant	-4.20	3.97	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.22: Administrative Time and Cost Regression Results for Cost per Student, Verifying Income of Free/Reduced Price Students

	Coef.	SE	Sig.
Treatment	-3.88	1.31	***
Enrollment (in 1000s)	-1.14	1.23	
% FRP	3.47	4.00	
LEA ISP	0.63	9.16	
Middle school grades sampled	-1.33	0.66	**
High school grades sampled	-0.64	1.26	
Illinois	3.32	2.72	
Kentucky	-0.17	0.96	
Michigan	0.68	1.37	
New York	1.16	2.66	
Ohio	0.00	2.75	
Constant	1.82	3.81	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.23: Administrative Time and Cost Regression Results for Cost per Student, Meal Payment Collections and Accounting

	Coef.	SE	Sig.
Treatment	-14.10	7.13	*
Enrollment (in 1000s)	-23.73	8.92	***
% FRP	-16.99	16.20	
LEA ISP	-7.91	30.45	
Middle school grades sampled	-6.46	4.16	
High school grades sampled	1.78	6.22	
Illinois	-10.34	16.25	
Kentucky	7.01	17.30	
Michigan	-26.23	14.80	*
New York	-10.88	14.86	
Ohio	-10.14	18.75	
Constant	82.86	19.83	***
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Exhibit 6A.24: Administrative Time and Cost Regression Results for Cost per Student, Counting and Claiming Reimbursable Meals

	Coef.	SE	Sig.
Treatment	12.09	3.85	***
Enrollment (in 1000s)	-7.69	5.02	
% FRP	33.86	12.69	***
LEA ISP	29.62	24.76	
Middle school grades sampled	-7.06	2.62	***
High school grades sampled	-2.95	3.75	
Illinois	-5.35	9.75	
Kentucky	-17.44	6.56	***
Michigan	-19.48	7.05	***
New York	-23.72	8.60	***
Ohio	-20.17	9.68	**
Constant	-4.29	10.93	
Number of schools	247		
Number of LEAs	100		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<.01, **=p<.05, *= p<.10

Source: Administrative Cost Interview and Staff Roster data

Appendix 7A: Analysis of Impacts on Administrative Errors in the Certification Process

This appendix presents supporting information for the discussion in Chapter 7 about the impacts of the CEP on administrative errors in the certification process. As defined in the chapter, these errors include certification errors and procedural errors. The appendix begins with information on the data and results of balance testing. Next, univariate statistics for outcome variables are presented. The appendix concludes with the complete regression results supporting the impact estimates.

7A.1 Data and Balance Testing

The analysis file for the analysis of administrative errors in the certification process was constructed by merging data from certification records and FRP applications that were sampled and collected from schools within the Component 2 sample of treatment and comparison LEAs. The analysis file comprised data on 248 schools (119 treatment and 129 comparison) in 102 LEAs (51 treatment and 51 comparison). A total of 9,257 records of identified students were sampled (5,401 from treatment schools and 3,856 from comparison schools). In addition, 2,920 FRP applications were sampled from comparison schools. Of these applications, 1,764 were approved and 1,156 were denied.

Exhibit 7A.1 repeats the balance analysis from Exhibit 2.7 from Chapter 2 for the 102 LEAs that participated in the certification record data collection. The substantive conclusions from Chapter 2 are unaltered: treatment and comparison LEAs for the certification process error analysis are balanced on all LEA-level observed covariates with the exception of ISP. Because the ISP was unbalanced between treatment and comparison LEAs, it was including as a control variable in the impact estimation model.

Exhibit 7A.1. LEA Characteristics for the Certification Process Error Analysis Sample

	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Enrollment	3,854	(5752)	4,013	(7016)
Enrollment 1–499 (%)	17.65		21.57	
Enrollment 500–2,499 (%)	45.1		37.25	
Enrollment 2,500–4,999 (%)	13.73		25.49	
Enrollment 5,000+ (%)	23.53		15.69	
Percentage distribution of students in grades K-12				
Percent in grades K–5	0.5	(0.2)	0.51	(0.1)
Percent in grades 6–8	0.21	(0.1)	0.24	(0.1)
Percent in grades 9–12	0.26	(0.2)	0.22	(0.1)
Number of schools	7.47	(8.8)	8.73	(12.9)
1 school (%)	17.65		17.65	
2-5 schools (%)	37.25		37.25	
6–14 schools (%)	35.29		27.45	
15+ schools (%)	9.8		11.76	
ISP	47.92	(16.2)**	54.85	(16.5)**
Percent students approved for free/reduced	70.58	(15.2)	74.09	(14.6)
Percent Title I schools	86.41	(21.3)	87.15	(15.3)
Urban LEA (%)	27.45		29.41	
All charter schools (%)	15.69		19.61	
Percent English Language Learners	3.1	(5.1)	3.38	(7.0)
Percent students Black	26.95	(31.3)	32.85	(35.9)
Percent students Hispanic/Latino	7.99	(11.6)	8.84	(15.1)
Average Daily Participation (%) Lunch	68.2	(11.5)	69.84	(12.9)
Number of LEAs	51		51	

T-tests were used to test for differences between treatment and comparison means for all variables except for grade distribution. Differences in grade distributions were jointly tested using MANOVA.

Source: Common Core of School Data, State Administrative Data, Verification Summary Report Data

***=p<0.01; **=p<0.05; *=p<0.10

Data were collected from 248 schools in the 102 LEAs that participated in the certification records data collection. Characteristics of these schools are shown in Exhibit 7A.2. Treatment schools had somewhat lower average enrollment then comparison schools (478 versus 576) and more students eligible for free and reduced-price meals (70.2 versus 66.2 percent). Treatment and comparison schools were otherwise statistically indistinguishable. Because enrollment and the percentage of students eligible for free and reduced-price meals were unbalanced between treatment and comparison schools, they were include as a control variables in the impact estimation model.

Exhibit 7A.2. School Characteristics for the Certification Process Error Analysis Sample

	Comparison Schools Mean (SD)		Treatment Schools Mean (SD)	
Enrollment	576	(419)**	478	(318)**
Type of school				
Title I (%)	85.3	(35.6)	91.6	(27.9)
Charter (%)	6.2	(24.2)	10.1	(30.2)
In city (%)	22.5	(41.9)	26.1	(44.1)
Student characteristics				
Approved for free/reduced price meals (%)	66.2	(16.4)**	70.7	(17.4)**
Black (%)	21.6	(28.4)	26.6	(33.2)
Hispanic/Latino (%)	7.2	(10.6)	8.7	(15.5)
Grade span[a]				
K-5 (%)	34.1	(47.6)	36.1	(48.2)
6–8 (%)	28.7	(45.4)	24.4	(43.1)
9–12 (%)	28.7	(45.4)	22.7	(42.1)
Other (%)	8.5	(28.0)	16.8	(37.6)
Grades sampled[a]				
K-5 (%)	39.5	(49.1)	46.2	(50.1)
6–8 (%)	31.8	(46.7)	30.3	(46.1)
9–12 (%)	28.7	(45.4)	23.5	(42.6)
Number of schools	129		119	

[a]The grade span refers to the actual grade coverage of a school. Grade coverage can be irregular, especially among charter schools, which may cover K-12, K-8, or other grade spans, all of which are included in the "Other" category in the table. The analysis has categorized these irregular grade spans according to three separate sampled grades: elementary (K-5), middle (6-8), and high (9-12). The table presents both the original grade span and the sampled grade category.

T-tests were used to test for differences between treatment and comparison means for all variables except for grade span and grades sampled. Differences in grade span and grades sampled were jointly tested using a chi-square test.

Source: Common Core of School Data

***=p<.01, **=p<.05, *=p<.10

7A.2 Univariate Statistics for Outcome Variables

Exhibit 7A.3 shows the means and standard deviation for the outcome variables used in the analysis of CEP impacts on procedural error rates for identified students.

Exhibit 7A.3. Procedural Error Rates for Identified Students

	Comparison Schools		Treatment Schools	
	Mean	(SD)	Mean	(SD)
No supporting documentation for free-eligible without application	3.0	(9.6)	2.1	(7.3)
Mismatched identifiers between FRP certification lists and supporting documents	1.2	(4.0)	1.0	(3.3)
Any procedural error	4.3	(10.6)	3.1	(8.4)
Number of schools	129		119	

T-tests were used to test for differences between treatment and comparison means for all outcomes

***=p<0.01; **=p<0.05; *=p<0.10

Source: Certification Record Review Data Collection

7A.3 Regression Results

Exhibits 7A.4–7A.6 present the complete set of regression results for CEP impacts on procedural and certification error rates for identified students. The vector of school characteristics used as control variables in all models included:

- the school's grade level (i.e., whether elementary, middle, or high), with high school as the reference category;
- the State, with West Virginia as the reference State; and
- LEA and school-level features where balance testing (detailed above) discerned a difference between treatment and comparison LEAs that was statistically significant at the 10 percent level, which included school enrollment and FRP participation, as well as the LEA's ISP.

Exhibit 7A.4. Procedural Error for Identified Students: No Supporting Documentation for Free-Eligible without Application

	Coef.	SE	Sig.
Treatment	-0.98	1.70	
Enrollment (in 1000s)	3.37	2.71	
% FRP	-4.13	4.98	
LEA ISP	6.41	6.93	
Middle school grades sampled	-0.43	0.49	
High school grades sampled	-1.54	1.39	
Illinois	3.60	2.54	
Kentucky	1.48	1.61	
Michigan	0.40	1.38	
New York	4.44	4.97	
Ohio	-1.74	1.96	
Constant	0.16	2.99	
Number of observations	245		
Number of LEAs	101		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Certification Record Review Data Collection

Exhibit 7A.5. Procedural Error for Identified Students: Mismatched Identifiers between FRP Certification Lists and Supporting Documents

	Coef.	SE	Sig.
Treatment	0.07	0.43	
Enrollment (in 1000s)	1.17	0.50	
% FRP	-0.45	2.14	**
LEA ISP	-2.08	1.64	
Middle school grades sampled	0.25	0.58	
High school grades sampled	-0.71	0.54	
Illinois	2.04	0.68	
Kentucky	1.88	0.99	***
Michigan	1.15	0.69	*
New York	1.02	0.61	*
Ohio	0.87	0.60	*
Constant	0.62	1.14	
Number of observations	245		
Number of LEAs	101		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Certification Record Review Data Collection

Exhibit 7A.6. Procedural Error for Identified Students: Any Procedural Error

	Coef.	SE	Sig.
Treatment	-1.03	1.77	
Enrollment (in 1000s)	4.96	2.90	
% FRP	-4.57	4.74	*
LEA ISP	4.67	7.08	
Middle school grades sampled	-0.26	0.84	
High school grades sampled	-2.29	1.54	
Illinois	5.66	2.75	
Kentucky	3.29	1.61	**
Michigan	1.48	1.41	**
New York	5.60	5.08	
Ohio	-0.93	2.00	
Constant	0.56	3.05	
Number of observations	245		
Number of LEAs	101		

Reference categories are Elementary for grades sampled and West Virginia for state.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Certification Record Review Data Collection

Appendix 7B: Analysis of Impacts on Cashier Errors

This appendix presents supporting information for the discussion in Chapter 7 about the impacts of the CEP on cashier errors in identifying reimbursable meals. The appendix begins with information on the data and results of balance testing. Next, univariate statistics for outcome variables are presented. The appendix concludes with the complete regression results supporting the impact estimates.

7B.1 Data and Balance Testing

7B.1.1 Balance Testing at LEA Level (Same for NSLP and SBP)

The analysis file for the cashier observation was constructed using data from the cashier observations data and the meal survey interview, completed as part of the data collection for Component 3 of the Impact Study, as described in Chapter 2. Two comparison LEAs selected for this data collection were found ineligible to participate. Therefore, the sample was drawn from 52 LEAs (27 treatment and 25 comparison) as explained in Chapter 2. Exhibit 7B.1 repeats the analysis from Exhibit 2.7 from Chapter 2 for this set of LEAs. The substantive conclusions from Chapter 2 are unaltered: treatment and comparison LEAs for the cashier observation analysis are balanced on all LEA-level observed covariates.

Exhibit 7B.1: LEA Characteristics for Cashier Observations Analysis Sample

	Component 3 (Cashier Observations)			
	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of observations	25		27	
Enrollment	5546	(7539)	6803	(8806)
Enrollment 1–499 (%)	0		3.7	
Enrollment 500–2,499 (%)	48		29.6	
Enrollment 2,500–4,999 (%)	20		33.3	
Enrollment 5,000+ (%)	32		33.3	
Percentage distribution of students in grades K-12				
Percent in grades K–5	44	(4.4)	44.3	(3.4)
Percent in grades 6–8	21.9	(1.7)	21.8	(1.7)
Percent in grades 9–12	30.1	(5.5)	29.5	(3.3)
Number of schools	10.7	(11.1)	14.4	(15.8)
1 school (%)	0		0	
2-5 schools (%)	36		29.6	
6–14 schools (%)	44		37	
15+ schools (%)	20		25.9	
ISP	44.5	(11.1)	49.6	(12.3)
Percent students free/reduced lunch	66.2	(14.2)	70.3	(12.7)
Percent Title I schools	79.1	(25.6)	80.4	(14.4)
Urban LEA (%)	20		33.3	
All charter schools (%)	0		3.7	
Percent English Language Learners	3.2	(4.4)	4.5	(8.2)
Percent students Black	15.5	(19.5)	24.2	(28.5)
Percent students Hispanic/Latino	7.6	(10.5)	10.5	(17.8)
Average Daily Participation (%) Lunch	65.6	(10.5)	67.2	(15.1)

T-tests were used to test for differences between treatment and comparison means for all variables except for grade distribution. Differences in grade distributions were jointly tested using MANOVA.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Common Core of School Data, State Administrative Data, Verification Summary Report Data

7B.1.2 Balance Testing at School Level

National School Lunch Program

Data were collected from 155 schools in the 54 LEAs that agreed to participate in Component 3 data collection for cashier observations for lunch. Characteristics of these schools are shown in Exhibit 7B.2. Treatment schools had more students eligible for free and reduced lunch and a higher percentage of students who were Black. Treatment schools also tend to be more urban, Title I or charter schools. On all over characteristics, the two groups of schools were statistically indistinguishable. The characteristics which were unbalanced between the treatment and comparison schools were included as control variables in the impact estimation model for lunch.

Exhibit 7B.2: Cashier Observations, NSLP Sample, School Level Measures

	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of schools	75		80	
Enrollment	603	(474)	530	(356)
Grade span [a]				
K-5 (%)	34.7		35	
6–8 (%)	30.7		27.5	
9–12 (%)	32		28.8	
Other (%)	2.7		8.8	
Grades sampled [a]				
K-5 (%)	34.7		38.8	
6–8 (%)	33.3		31.3	
9–12 (%)	32		30	
Percent students free/reduced lunch	63.3	(15.0)**	69	(16.2)**
Percent Title I schools	76	(43.0)	86.3	(34.7)
Charter school (%)	0	(0.0)*	3.8	(19.1)*
Urban School (%)	18.7	(39.2)**	33.8	(47.6)**
Percent students Black	15.6	(20.6)**	23.8	(28.9)**
Percent students Hispanic/Latino	6.9	(10.0)	10.4	(17.8)

[a] The grade span refers to the actual grade coverage of a school. Grade coverage can be irregular, especially among charter schools, which may cover K-12, K-8, or other grade spans, all of which are included in the "Other" category in the table. The analysis has categorized these irregular grade spans according to three separate sampled grades: elementary (K-5), middle (6-8), and high (9-12). The table presents both the original grade span and the sampled grade category.

T-tests were used to test for differences between treatment and comparison means for all variables except for grade span and grades sampled. Differences in grade span and grades sampled were jointly tested using a chi-square test.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Common Core of School Data

School Breakfast Program

Data were collected from 148 schools in the 54 LEAs that agreed to participate in Component 3 data collection for cashier observations for breakfast. Characteristics of these schools are shown in Exhibit 7B.3. Treatment schools had more students eligible for free and reduced lunch and a higher percentage of students who were Black. Treatment schools also tend to be more urban and charter schools. On all over characteristics, the two groups of schools were statistically indistinguishable. The characteristics which were unbalanced between the treatment and comparison schools were included as control variables in the impact estimation model for breakfast.

Exhibit 7B.3: Cashier Observations, SBP Sample, School Level Measures

	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of schools	73		75	
Enrollment	604	(481)	539	(365)
Grade span [a]				
K-5 (%)	35.6		34.7	
6–8 (%)	30.1		25.3	
9–12 (%)	31.5		30.7	
Other (%)	2.7		9.3	
Grades sampled [a]				
K-5 (%)	35.6		38.7	
6–8 (%)	32.9		29.3	
9–12 (%)	31.5		32	
Percent students free/reduced lunch	63.5	(15.2)**	68.7	(16.5)**
Percent Title I schools	78.1	(41.7)	85.3	(35.6)
Charter school (%)	0	(0.0)*	4	(19.7)*
Urban School (%)	19.2	(39.6)*	33.3	(47.5)*
Percent students Black	16	(20.7)*	23.8	(28.8)*
Percent students Hispanic/Latino	7.1	(10.1)	10.2	(17.9)

[a] The grade span refers to the actual grade coverage of a school. Grade coverage can be irregular, especially among charter schools, which may cover K-12, K-8, or other grade spans, all of which are included in the "Other" category in the table. The analysis has categorized these irregular grade spans according to three separate sampled grades: elementary (K-5), middle (6-8), and high (9-12). The table presents both the original grade span and the sampled grade category.

T-tests were used to test for differences between treatment and comparison means for all variables except for grade span and grades sampled. Differences in grade span and grades sampled were jointly tested using a chi-square test.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Common Core of School Data

7B.2 Univariate statistics for outcome variables

Exhibit 7B.4 shows the means and standard deviation for the types of error used to estimate the outcome which was used in the analysis of CEP impacts on cashier observations for breakfast and lunch.

The majority of cashier errors comes from over-claiming, where the cashier is counting meals as reimbursable when they are not. Most of the over-claiming error is due to students taking meals with missing components which would make the meal not reimbursable. The cashier error rate for counting breakfast meals for the schools that are participating in the CEP is about five percent, which is lower than the error rate for non-participating schools (6.4 percent). A similar pattern is seen in cashier errors for counting lunches but the error rate is much lower, 2.8 percent for participating schools and 3.7 percent for non-participating schools. The error rates found for this study are similar to those reported error rates found in the APEC study which gives confidence to the results which are

findings presented in the Results Section. [1] Exhibit 7B.5 does the same across grades for breakfast and lunch separately.

Exhibit 7B.4: Cashier Error Rates in School Breakfast and Lunch Program by Type of Error

	Breakfast				Lunch			
	Comparison		Treatment		Comparison		Treatment	
Type of Error	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Underclaiming error	0.35%	1.37%	0.20%	1.30%	0.31%	1.73%	0.11%	0.49%
Overclaiming error	6.05	7.82	4.94	8.18	3.41	6.32	2.69	7.03
Total cashier error	6.40	8.17	5.14	8.39	3.72	6.55	2.80	7.05
Number of schools	73		75		75		80	
Number of LEAs	25		27		25		27	

Notes: Under-claiming Error is the number of meals not counted as reimbursable when they are divided by the total number of meals served. Over-claiming Error is the number of meals counted as reimbursable when they are not divided by the total number of meals served. The Total Cashier Error rate is the sum of the over-claiming and under-claiming error rate. *** p<0.01; **p<0.05; * p<0.10

Source: Cashier Observations and Menu Survey Data Collection

Exhibit 7B.5: Cashier Error Rate across Grades for Breakfast and Lunch

	Breakfast				Lunch			
	Comparison		Treatment		Comparison		Treatment	
Type of Error	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Elementary schools								
Underclaiming error	0.42%	1.53%	0.00%	0.00%	0.66%	2.73%	0.00%	0.00%
Overclaiming error	6.33%**	10.15%	1.62%**	4.73%	1.39%	1.81%	3.48%	10.05%
Total cashier error	6.75%**	10.45%	1.62%**	4.73%	2.05%	3.76%	3.48%	10.05%
Number of schools	26		29		26		31	
Middle schools								
Underclaiming error	0.19%	0.95%	0.00%	0.00%	0.22%	1.11%	0.27%	0.81%
Overclaiming error	5.60%	6.24%	5.72%	7.38%	1.93%	3.25%	2.54%	4.19%
Total cashier error	5.80%	6.72%	5.72%	7.38%	2.15%	3.30%	2.81%	4.31%
Number of schools	24		22		25		25	
High schools								
Underclaiming error	0.42%	1.57%	0.64%	2.26%	0.03%	0.14%	0.07%	0.33%
Overclaiming error	6.20%	1.36%	8.23%	2.17%	7.13%**	9.61%	1.84%**	4.23%
Total cashier error	6.62%	4.31%	8.87%	10.92%	7.15%**	9.66%	1.91%**	4.23%
Number of schools	23		24		24		24	

Notes: Under-claiming Error is the number of meals not counted as reimbursable when they are divided by the total number of meals served. Over-claiming Error is the number of meals counted as reimbursable when they are not divided by the total number of meals served. The Total Cashier Error rate is the sum of the over-claiming and under-claiming error rate. *** p<0.01; **p<0.05; * p<0.10

Source: Cashier Observations and Menu Survey Data Collection

[1] For a benchmark, the APEC study found that total gross erroneous payments from cashier error represented 3.1 percent of total reimbursements in the NSLP and 9.8 percent of total SBP reimbursements. (Ponza, M., et al., p. 12)

7B.3 Regression Results

Exhibits 7B.6–8 present the complete set of regression results for lunch and breakfast respectively. The vector of school characteristics used as control variables in all models included:

- the school's grade level (i.e., whether elementary, middle, or high), with high school as the reference category;
- the State, with West Virginia as the reference State; and
- LEA and school-level features where balance testing (detailed above) discerned a difference between treatment and comparison LEAs that was statistically significant at the 10 percent level, which included school free and reduced price percentage, school is urban, Title I or charter school and percentage of Black students in the school.

Exhibit 7B.6: Cashier Error Rate in School Lunch Program Regression Results for All Grades Combined

CashierErr	Coef.	Std. Err.	Significance
Treatment	-0.008	0.011	
High school indicator	0.015	0.015	
Middle school indicator	-0.005	0.012	
Students free/reduced price (%)	0.058	0.039	
Urban LEA	0.010	0.018	
Title I school	-0.025	0.019	
Charter school	-0.055	0.028	*
Percent students Black	0.001	0.034	
IL state indictor	-0.003	0.021	
KY state indictor	0.028	0.017	
MI state indictor	0.032	0.021	
NY state indictor	0.013	0.017	
OH state indictor	-0.018	0.016	
Intercept	0.000	0.025	
Number of LEAs	52		
Number of schools	155		

Note: Reference for grade is Elementary. Reference for state is West Virginia state indictor.

Only school level variables that are not balanced are added due to the number of observation limitations.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Cashier Observations and Menu Survey Data Collection

Exhibit 7B.7: Cashier Error Rate in School Lunch Program Regression Results by Grade Level

CashierErr	Coef.	Std. Err.	Significance
High school indicator	0.042	0.020	**
Middle school indicator	-0.004	0.010	
Treatment impact at elementary school	0.011	0.018	
Treatment impact at high school	-0.043	0.022	*
Treatment impact at middle school	0.012	0.012	
Students free/reduced price (%)	0.047	0.037	
Urban LEA	0.009	0.018	
Title I school	-0.025	0.017	
Charter school	-0.055	0.029	*
Percent students Black	0.003	0.034	
IL state indictor	-0.001	0.021	
KY state indictor	0.030	0.016	*
MI state indictor	0.035	0.021	*
NY state indictor	0.016	0.016	
OH state indictor	-0.013	0.017	
Intercept	-0.005	0.026	
Number of LEAs	52		
Number of schools	155		

Note: Reference for grade is Elementary. Reference for state is West Virginia state indictor.

Only school level variables that are not balanced are added due to the number of observation limitations.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Cashier Observations and Menu Survey Data Collection

Exhibit 7B.8: Cashier Error Rate in School Breakfast Program Regression Results for All Schools Combined

CashierErr	Coef.	Std. Err.	Significance
Treatment	-0.011	0.014	
High school indicator	0.019	0.023	
Middle school indicator	0.008	0.017	
Students free/reduced price (%)	-0.031	0.067	
Urban LEA	-0.013	0.019	
Title I school	-0.033	0.026	
Charter school	0.086	0.032	***
Percent students Black	0.044	0.035	
IL state indictor	-0.002	0.018	
KY state indictor	0.043	0.018	**
MI state indictor	0.062	0.029	**
NY state indictor	0.046	0.028	
OH state indictor	0.022	0.039	
Intercept	0.065	0.047	
Number of LEAs	52		
Number of schools	148		

Note: Reference for grade is Elementary. Reference for state is West Virginia state indictor.

Only school level variables that are not balanced are added due to the number of observation limitations.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Cashier Observations and Menu Survey Data Collection

Exhibit 7B.9: Cashier Error Rate in School Breakfast Program Regression Results by Grade Level

CashierErr	Coef.	Std. Err.	Significance
High school indicator	-0.015	0.027	
Middle school indicator	-0.017	0.024	
Treatment impact at elementary school	-0.049	0.020	**
Treatment impact at high school	0.018	0.024	
Treatment impact at middle school	0.001	0.021	
Students free/reduced price (%)	-0.019	0.068	
Urban LEA	-0.011	0.020	
Title I school	-0.034	0.026	
Charter school	0.086	0.032	***
Percent students Black	0.038	0.036	
IL state indictor	-0.002	0.018	
KY state indictor	0.043	0.019	**
MI state indictor	0.059	0.030	*
NY state indictor	0.045	0.029	
OH state indictor	0.017	0.042	
Intercept	0.078	0.047	
Number of LEAs	52		
Number of schools	148		

Note: Reference for grade is Elementary. Reference for state is West Virginia state indictor.

Only school level variables that are not balanced are added due to the number of observation limitations.

***=p<0.01; **=p<0.05; *=p<0.10

Source: Cashier Observations and Menu Survey Data Collection

Appendix 7C: Analysis of Impacts on Meal Claiming Errors

This appendix presents supporting information for the discussion in Chapter 7 about the impacts of the CEP on meal claiming errors at the school and LEA levels. The appendix begins with information on the data and results of balance testing. Next, univariate statistics for outcome variables are presented. The appendix concludes with the complete regression results supporting the impact estimates.

7C.1 Data and Balance Testing

Exhibit 7C.1 presents the balance tests for the 47 LEAs included in the claiming analysis. All LEA-level observed covariates balance with the exception of the number of schools. Because the number of schools was unbalanced between treatment and comparison LEAs, it was including as a control variable in the impact estimation model.

Exhibit 7C.1: LEA Characteristics for the Claiming Error Analysis Sample

	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Enrollment	4201	(3484)	7331	(9429)
Enrollment 1–499 (%)	0		4.3	
Enrollment 500–2,499 (%)	50		30.4	
Enrollment 2,500–4,999 (%)	20.8		30.4	
Enrollment 5,000+ (%)	29.2		34.8	
Percentage distribution of students in grades K-12				
Percent in grades K–5	43.8	(4.4)	44.4	(3.6)
Percent in grades 6–8	21.9	(1.8)	21.6	(1.8)
Percent in grades 9–12	30.2	(5.6)	29.4	(3.5)
Number of schools	8.9	(6.6)*	15.3	(16.9)*
1 school (%)	0		0	
2-5 schools (%)	37.5		30.4	
6–14 schools (%)	45.8		34.8	
15+ schools (%)	16.7		26.1	
ISP	45.3	(10.6)	49.6	(12.0)
Percent students free/reduced lunch	67	(13.9)	69.6	(13.0)
Percent Title I schools	80.6	(25.1)	80.4	(14.1)
Urban LEA (%)	16.7		34.8	
All charter schools (%)	0		4.3	
Percent English Language Learners	3	(4.4)	5.1	(8.7)
Percent students Black	15.1	(19.8)	25.4	(28.3)
Percent students Hispanic/Latino	7.5	(10.7)	11.8	(19.0)
Average Daily Participation (%) Lunch	65.7	(10.8)	64.3	(15.2)
Number of LEAs	24		23	

T-tests were used to test for differences between treatment and comparison means for all variables except for grade distribution. Differences in grade distributions were jointly tested using MANOVA.

***p<0.01; **p<0.05; * p<0.10

Source: Common Core of School Data, State Administrative Data, Verification Summary Report Data

Characteristics of the 137 school included in the claiming error analysis are shown in Exhibit 7C.2.

Treatment and comparison schools are statistically different on a number of features. Treatment schools are much more likely to be located in an urban area (36 versus 16 percent); about 4.5 percent

of treatment schools are charter schools, but no comparison schools are. Treatment schools have more Black students (26 versus 16 percent, on average), Hispanic/Latino students (12 versus 7 percent, on average), and FRP meal eligible students (69 versus 64 percent, on average). Controls for these differences were included in the impact estimation model.

Exhibit 7C.2: School Characteristics for the Claiming Error Analysis Sample

	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of schools	70		67	
Enrollment	591	(452)	561	(370)
Grade span[a]				
K-5 (%)	35.7		32.8	
6–8 (%)	30		26.9	
9–12 (%)	31.4		31.3	
Other (%)	2.9		9	
Grades Sampled[a]				
K-5 (%)	35.7		37.3	
6–8 (%)	32.9		29.9	
9–12 (%)	31.4		32.8	
Percent students free/reduced lunch	64	(14.8)**	68.9	(14.5)**
Percent Title I schools	75.7	(43.2)	86.6	(34.4)
Charter school (%)	0	(0.0)*	4.5	(20.8)*
Urban School (%)	15.7	(36.7)***	35.8	(48.3)***
Percent students Black	15.6	(21.2)**	25.5	(29.1)**
Percent students Hispanic/Latino	7	(10.3)*	11.8	(19.0)*

aThe grade span refers to the actual grade coverage of a school. Grade coverage can be irregular, especially among charter schools, which may cover K-12, K-8, or other grade spans, all of which are included in the "Other" category in the table. The analysis has categorized these irregular grade spans according to three separate sampled grades: elementary (K-5), middle (6-8), and high (9-12). The table presents both the original grade span and the sampled grade category.

T-tests were used to test for differences between treatment and comparison means for all variables except for grade span and grades sampled. Differences in grade span and grades sampled were jointly tested using a chi-square test.

***p<0.01; **p<0.05; * p<0.10

Source: Common Core of School Data

7C.2 Univariate statistics for outcome variables

Exhibits 7C.3 and 7C.4 show the means and standard deviation for the outcome variables used in the analysis of CEP impacts on claiming error rates. Exhibit 7C.3 shows the signed error rates, and Exhibit 7C.4 shows the unsigned error rates.

Exhibit 7C.3: Signed Claiming Error Rate in NSLP, SBP, and Combined Programs

	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
NLSP signed claiming error rate				
Elementary schools	-0.01	(0.10)	-1.51	(8.76)
Middle schools	1.79	(8.59)	-2.53	(11.46)
High schools	0.06	(0.26)	-1.42	(13.09)
All schools	0.60	(4.93)	-1.78	(10.98)
SBP signed claiming error rate				
Elementary schools	0.01	(0.03)	-1.07	(8.22)
Middle schools	0.13	(0.45)	-2.28	(10.11)
High schools	0.04	(0.17)	-1.76	(11.28)
All schools	0.06	(0.28)	-1.66	(9.73)
Combined signed claiming error rate				
Elementary schools	-0.01	(0.07)	-1.37	(8.63)
Middle schools	1.62	(7.71)	-2.50	(11.28)
High schools	0.05	(0.23)	-1.46	(12.44)
All schools	0.55	(4.42)	-1.74	(10.64)
Number of schools				
Elementary schools	25		25	
Middle schools	23		20	
High schools	22		22	
All schools	70		67	
Number of LEAs	24		23	

T-tests were used to test for differences between treatment and comparison means for all outcomes

***p<0.01; **p<0.05; * p<0.10

Source: Counting and Claiming Error Data Collection

Exhibit 7C.4: Unsigned Claiming Error Rate in NSLP, SBP, and Combined Programs

	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
NLSP signed claiming error rate				
Elementary schools	0.02	(0.10)	2.27	(8.59)
Middle schools	1.79	(8.59)	2.59	(11.44)
High schools	0.06	(0.26)	4.27	(12.42)
All schools	0.61	(4.92)	3.02	(10.70)*
SBP signed claiming error rate				
Elementary schools	0.01	(0.03)	2.38	(7.93)
Middle schools	0.13	(0.45)	2.28	(10.11)
High schools	0.04	(0.17)	4.35	(10.52)*
All schools	0.06	(0.28)	3.00	(9.40)***
Combined signed claiming error rate				
Elementary schools	0.02	(0.07)	2.33	(8.42)
Middle schools	1.62	(7.71)	2.55	(11.27)
High schools	0.05	(0.23)	4.23	(11.75)
All schools	0.56	(4.42)	3.02	(10.34)*
Number of schools				
Elementary schools	25		25	
Middle schools	23		20	
High schools	22		22	
All schools	70		67	
Number of LEAs	24		23	

T-tests were used to test for differences between treatment and comparison means for all outcomes

***p<0.01; **p<0.05; * p<0.10

Source: Counting and Claiming Error Data Collection

7C.3 Regression Results

Exhibits 7C.5–15 present the complete set of regression results. Exhibits 7C.5–10 present the regressions for the combined (all grade levels) impacts, while Exhibits 7C.11–15 present the regressions used for the grade level impact estimates. The vector of school characteristics used as control variables in all models included:

- the school's grade level (i.e., whether elementary, middle, or high), with elementary school as the reference category;
- the State, with West Virginia as the reference State; and
- LEA and school-level features where balance testing (detailed above) discerned a difference between treatment and comparison LEAs that was statistically significant at the 10 percent level, which included the LEA's number of schools, whether the school was urban, whether the school was a charter school, the school's enrollment, and the school's percent Black, percent Hispanic, and percent FRP.

Exhibit 7C.5: Regression Results for Signed Claiming Error Rate in SBP, Overall

	Coef.	SE	Sig.
Treatment	-1.44	0.77	*
Urban school	0.70	0.64	
Charter schools	2.82	1.52	*
Number of schools in LEA	0.99	2.12	
% FRP students	-2.20	1.92	
% Black students	2.79	5.14	
% Hispanic/Latino students	-0.13	0.09	
Middle school grades sampled	-0.73	1.39	
High school grades sampled	-0.14	2.12	
Illinois	-1.66	1.25	
Kentucky	-4.15	2.28	*
Michigan	-2.22	1.67	
New York	-2.76	1.56	*
Ohio	-2.17	2.02	
Constant	1.11	2.32	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.6: Regression Results for Unsigned Claiming Error Rate in SBP, Overall

	Coef.	SE	Sig.
Treatment	3.50	1.62	**
Urban school	-1.64	1.09	
Charter schools	-4.07	2.45	
Number of schools in LEA	-5.23	5.27	
% FRP students	0.79	2.43	
% Black students	-7.61	5.86	
% Hispanic/Latino students	0.11	0.09	
Middle school grades sampled	0.25	1.39	
High school grades sampled	0.27	1.51	
Illinois	2.77	1.89	
Kentucky	5.63	2.23	**
Michigan	6.87	3.84	*
New York	5.79	2.98	*
Ohio	3.98	2.60	
Constant	0.99	2.75	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.7: Regression Results for Signed Claiming Error Rate in NLSP, Overall

	Coef.	SE	Sig.
Treatment	-2.15	1.17	*
Urban school	2.62	1.79	
Charter schools	1.74	1.91	
Number of schools in LEA	-0.41	2.70	
% FRP students	-2.78	2.40	
% Black students	5.00	6.14	
% Hispanic/Latino students	-0.17	0.11	
Middle school grades sampled	0.32	1.84	
High school grades sampled	0.49	2.38	
Illinois	-2.02	1.54	
Kentucky	-4.85	2.94	
Michigan	-3.36	2.02	
New York	-1.80	2.17	
Ohio	-3.44	2.44	
Constant	0.22	2.64	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.8: Regression Results for Unsigned Claiming Error Rate in NLSP, Overall

	Coef.	SE	Sig.
Treatment	3.00	1.93	
Urban school	-0.31	1.82	
Charter schools	-5.01	2.91	*
Number of schools in LEA	-6.81	5.88	
% FRP students	0.82	2.86	
% Black students	-8.42	6.71	
% Hispanic/Latino students	0.10	0.11	
Middle school grades sampled	1.35	1.90	
High school grades sampled	0.22	1.78	
Illinois	2.87	2.03	
Kentucky	6.03	2.78	**
Michigan	6.96	4.32	
New York	7.13	3.41	**
Ohio	3.68	3.06	
Constant	1.48	3.24	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.9: Regression Results for Total Signed Claiming Error Rate, Overall

	Coef.	SE	Sig.
Treatment	-2.04	1.09	*
Urban school	2.36	1.65	
Charter schools	1.88	1.84	
Number of schools in LEA	-0.14	2.63	
% FRP students	-2.78	2.33	
% Black students	4.74	5.99	
% Hispanic/Latino students	-0.16	0.11	
Middle school grades sampled	0.16	1.76	
High school grades sampled	0.37	2.30	
Illinois	-1.98	1.50	
Kentucky	-4.73	2.76	*
Michigan	-3.17	1.98	
New York	-1.91	2.08	
Ohio	-3.29	2.37	
Constant	0.34	2.56	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.10: Regression Results for Total Unsigned Claiming Error Rate, Overall

	Coef.	SE	Sig.
Treatment	3.04	1.85	
Urban school	-0.46	1.69	
Charter schools	-4.86	2.81	*
Number of schools in LEA	-6.44	5.73	
% FRP students	0.75	2.78	
% Black students	-8.25	6.56	
% Hispanic/Latino students	0.10	0.10	
Middle school grades sampled	1.20	1.81	
High school grades sampled	0.18	1.69	
Illinois	2.83	2.00	
Kentucky	5.91	2.63	**
Michigan	6.93	4.21	
New York	6.94	3.31	**
Ohio	3.68	2.97	
Constant	1.40	3.12	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.11: Regression Results for Signed Claiming Error Rate in SBP, Grade-Level Differences

	Coef.	SE	Sig.
Treatment	-0.57	2.01	
Treatment * Middle school	-1.80	2.99	
Treatment * High school	-0.92	4.01	
Urban school	0.64	0.62	
Charter schools	2.97	1.67	*
Number of schools in LEA	0.95	2.13	
% FRP students	-2.16	1.85	
% Black students	2.46	4.93	
% Hispanic/Latino students	-0.13	0.09	
Middle school grades sampled	0.11	0.11	
High school grades sampled	0.29	0.46	
Illinois	-1.65	1.26	
Kentucky	-4.22	2.37	*
Michigan	-2.14	1.62	
New York	-2.72	1.53	*
Ohio	-2.02	1.97	
Constant	0.88	2.12	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.12: Regression Results for Unsigned Claiming Error Rate in SBP, Grade-Level Differences

	Coef.	SE	Sig.
Treatment	2.90	2.40	
Treatment * Middle school	-0.17	3.19	
Treatment * High school	2.04	2.47	
Urban school	-1.69	1.10	
Charter schools	-4.20	2.56	
Number of schools in LEA	-5.29	5.37	
% FRP students	0.85	2.40	
% Black students	-7.48	5.94	
% Hispanic/Latino students	0.11	0.09	
Middle school grades sampled	0.30	0.37	
High school grades sampled	-0.75	0.66	
Illinois	2.79	1.92	
Kentucky	5.53	2.30	**
Michigan	6.89	3.92	*
New York	5.82	3.02	*
Ohio	3.81	2.57	
Constant	1.23	2.61	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.13: Regression Results for Signed Claiming Error Rate in NLSP, Grade-Level Differences

	Coef.	SE	Sig.
Treatment	-1.16	2.13	
Treatment * Middle school	-3.08	3.75	
Treatment * High school	-0.05	4.49	
Urban school	2.49	1.73	
Charter schools	1.90	2.03	
Number of schools in LEA	-0.52	2.74	
% FRP students	-2.67	2.28	
% Black students	4.55	5.82	
% Hispanic/Latino students	-0.17	0.11	
Middle school grades sampled	1.74	1.78	
High school grades sampled	0.46	0.53	
Illinois	-2.00	1.54	
Kentucky	-5.05	3.04	
Michigan	-3.21	1.92	
New York	-1.72	2.15	
Ohio	-3.31	2.35	
Constant	0.02	2.40	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.14: Regression Results for Unsigned Claiming Error Rate in NLSP, Grade-Level Differences

	Coef.	SE	Sig.
Treatment	2.73	2.66	
Treatment * Middle school	-1.29	4.02	
Treatment * High school	2.11	2.94	
Urban school	-0.40	1.79	
Charter schools	-5.08	3.02	*
Number of schools in LEA	-6.92	6.01	
% FRP students	0.92	2.82	
% Black students	-8.44	6.81	
% Hispanic/Latino students	0.11	0.11	
Middle school grades sampled	1.92	2.02	
High school grades sampled	-0.85	0.78	
Illinois	2.90	2.06	
Kentucky	5.85	2.84	**
Michigan	7.03	4.39	
New York	7.19	3.47	**
Ohio	3.56	2.99	
Constant	1.66	3.11	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.15: Regression Results for Total Signed Claiming Error Rate, Grade-Level Differences

	Coef.	SE	Sig.
Treatment	-1.00	2.11	
Treatment * Middle school	-3.04	3.62	
Treatment * High school	-0.25	4.34	
Urban school	2.23	1.60	
Charter schools	2.05	1.96	
Number of schools in LEA	-0.24	2.66	
% FRP students	-2.67	2.22	
% Black students	4.28	5.68	
% Hispanic/Latino students	-0.16	0.11	
Middle school grades sampled	1.57	1.60	
High school grades sampled	0.43	0.52	
Illinois	-1.96	1.50	
Kentucky	-4.91	2.86	*
Michigan	-3.03	1.89	
New York	-1.83	2.06	
Ohio	-3.14	2.29	
Constant	0.11	2.34	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Exhibit 7C.16: Regression Results for Total Unsigned Claiming Error Rate, Grade-Level Differences

	Coef.	SE	Sig.
Treatment	2.79	2.60	
Treatment * Middle school	-1.25	3.87	
Treatment * High school	2.00	2.78	
Urban school	-0.56	1.67	
Charter schools	-4.92	2.91	*
Number of schools in LEA	-6.54	5.86	
% FRP students	0.85	2.74	
% Black students	-8.27	6.65	
% Hispanic/Latino students	0.11	0.10	
Middle school grades sampled	1.75	1.83	
High school grades sampled	-0.83	0.76	
Illinois	2.86	2.02	
Kentucky	5.74	2.69	**
Michigan	7.00	4.28	
New York	7.00	3.36	**
Ohio	3.57	2.91	
Constant	1.57	3.01	
Number of observations	137		
Number of LEAs	47		

Reference categories are Elementary for grades sampled and West Virginia for state.

***p<0.01; **p<0.05; * p<0.10

Source: Meal Counting and Claiming Data Collection

Appendix 8A: NSLP and SBP Meal Standards

Traditional Food-Based Menu Planning Approach-Meal Pattern for Breakfasts

Food Components and Food Items	Grades K-12
MILK (fluid) (as a beverage, on cereal or both)	8 fluid ounces
JUICE/FRUIT/VEGETABLE: Fruit and/or vegetable; or full-strength fruit juice or vegetable juice	½ cup
SELECT ONE SERVING FROM EACH OF THE FOLLOWING COMPONENTS, TWO FROM ONE COMPONENT, OR AN EQUIVALENT COMBINATION:	
GRAINS/BREADS:	
Whole-grain or enriched bread	1 slice
Whole-grain or enriched biscuit, roll, muffin, etc.	1 serving
Whole-grain, enriched or fortified cereal	¾ cup or 1 ounce
MEAT OR MEAT ALTERNATES:	
Meat/poultry or fish	1 ounce
Alternative protein products[1]	1 ounce
Cheese	1 ounce
Large egg	½
Peanut butter or other nut or seed butters	2 Tablespoons
Cooked or dry beans and peas	4 Tablespoons
Nuts and/or seeds (as listed in program guidance)[2]	1 ounce
Yogurt, plain or flavored, unsweetened or sweetened	4 ounces or ½ cup

[1] Must meet the requirements in appendix A of 7 CFR 220.

[2] No more than 1 ounce of nuts and/or seeds may be served in any one breakfast.

The Traditional Food-Based Menu Planning Approach is designed to meet nutritional standards set forth in program regulations.

Final Rule Nutrition Standards in the National School Lunch and School Breakfast Programs – Jan. 2012

	Breakfast Meal Pattern			Lunch Meal Pattern		
	Grades K-5[a]	*Grades 6-8*[a]	*Grades 9-12*[a]	*Grades K-5*	*Grades 6-8*	*Grades 9-12*
Meal Pattern	Amount of Food[b] Per Week (Minimum Per Day)					
Fruits (cups)[c,d]	5 (1) [e]	5 (1) [e]	5 (1) [e]	2½ (½)	2½ (½)	5 (1)
Vegetables (cups)[c,d]	0	0	0	3¾ (¾)	3¾ (¾)	5 (1)
Dark green [f]	0	0	0	½	½	½
Red/Orange [f]	0	0	0	¾	¾	1¼
Beans/Peas (Legumes) [f]	0	0	0	½	½	½
Starchy [f]	0	0	0	½	½	½
Other [f,g]	0	0	0	½	½	¾
Additional Veg to Reach Total[h]	0	0	0	1	1	1½
Grains (oz eq) [i]	7-10 (1) [j]	8-10 (1) [j]	9-10 (1) [j]	8-9 (1)	8-10 (1)	10-12 (2)
Meats/Meat Alternates (oz eq)	0 [k]	0 [k]	0 [k]	8-10 (1)	9-10 (1)	10-12 (2)
Fluid milk (cups) [l]	5 (1)	5 (1)	5 (1)	5 (1)	5 (1)	5 (1)
Other Specifications: Daily Amount Based on the Average for a 5-Day Week						
Min-max calories (kcal)[m,n,o]	350-500	400-550	450-600	550-650	600-700	750-850
Saturated fat (% of total calories)[n,o]	< 10	< 10	< 10	< 10	< 10	< 10
Sodium (mg)[n, p]	≤ 430	≤ 470	≤ 500	≤ 640	≤ 710	≤ 740
Trans fat[n,o]	Nutrition label or manufacturer specifications must indicate zero grams of trans fat per serving.					

[a] In the SBP, the above age-grade groups are required beginning July 1, 2013 (SY 2013-14). In SY 2012-2013 only, schools may continue to use the meal pattern for grades K-12 (see § 220.23).

[b] Food items included in each food group and subgroup and amount equivalents. Minimum creditable serving is ⅛ cup.

[c] One quarter-cup of dried fruit counts as ½ cup of fruit; 1 cup of leafy greens counts as ½ cup of vegetables. No more than half of the fruit or vegetable offerings may be in the form of juice. All juice must be 100% full-strength.

[d] For breakfast, vegetables may be substituted for fruits, but the first two cups per week of any such substitution must be from the dark green, red/orange, beans and peas (legumes) or "Other vegetables" subgroups as defined in §210.10(c)(2)(iii).

[e] The fruit quantity requirement for the SBP (5 cups/week and a minimum of 1 cup/day) is effective July 1, 2014 (SY 2014-2015).

[f] Larger amounts of these vegetables may be served.

[g] This category consists of "Other vegetables" as defined in §210.10(c)(2)(iii)(E). For the purposes of the NSLP, "Other vegetables" requirement may be met with any additional amounts from the dark green, red/orange, and beans/peas (legumes) vegetable subgroups as defined in §210.10(c)(2)(iii).

[h] Any vegetable subgroup may be offered to meet the total weekly vegetable requirement.

[i] At least half of the grains offered must be whole grain-rich in the NSLP beginning July 1, 2012 (SY 2012-2013), and in the SBP beginning July 1, 2013 (SY 2013-2014). All grains must be whole grain-rich in both the NSLP and the SBP beginning July 1, 2014 (SY 2014-15).

[j] In the SBP, the grain ranges must be offered beginning July 1, 2013 (SY 2013-2014).

[k] There is no separate meat/meat alternate component in the SBP. Beginning July 1, 2013 (SY 2013-2014), schools may substitute 1 oz. eq. of meat/meat alternate for 1 oz. eq. of grains after the minimum daily grains requirement is met.

[l] Fluid milk must be low-fat (1 percent milk fat or less, unflavored) or fat-free (unflavored or flavored).

[m] The average daily amount of calories for a 5-day school week must be within the range (at least the minimum and no more than the maximum values).

[n] Discretionary sources of calories (solid fats and added sugars) may be added to the meal pattern if within the specifications for calories, saturated fat, trans fat, and sodium. Foods of minimal nutritional value and fluid milk with fat content greater than 1 percent milk fat are not allowed.

[o] In the SBP, calories and trans fat specifications take effect beginning July 1, 2013 (SY 2013-2014).

[p] Final sodium specifications are to be reached by SY 2022-2023 or July 1, 2022. Intermediate sodium specifications are established for SY 2014-2015 and 2017-2018. See required intermediate specifications in § 210.10(f)(3) for lunches and § 220.8(f)(3) for breakfast

Final Rule "Nutrition Standards in the National School Lunch and School Breakfast Programs (1/26/12)

Sodium Reduction: Timeline & Amount				
Age/Grade Group	**Baseline: Average Current Sodium Levels As Offered[1] (mg)**	**Target 1: July 1, 2014 SY 2014-2015 (mg)**	**Target 2: July 1, 2017 SY 2017-2018 (mg)**	**Final Target: July 1, 2022 SY 2022-2023 (mg)**
School Breakfast Program				
K-5	573 (elementary)	≤ 540	≤ 485	≤ 430
6-8	629 (middle)	≤ 600	≤ 535	≤ 470
9-12	686 (high)	≤ 640	≤ 570	≤ 500
National School Lunch Program				
K-5	1,377 (elementary)	≤ 1,230	≤ 935	≤ 640
6-8	1,520 (middle)	≤ 1,360	≤ 1,035	≤ 710
9-12	1,588 (high)	≤ 1,420	≤ 1,080	≤ 740

[1]SNDA-III

Appendix 8B: Menu Survey Processing for Meal Quality and Menu Variety Assessment

This appendix describes the methods used to assess the nutrient content and meal component composition of NSLP and SBP meals offered, over a week, based on cafeteria managers' responses to the menu surveys. This appendix also includes a discussion of the methods used to determine whether meals selected by students during the meal and cashier observations were reimbursable.

8B.1 Review and Processing of Completed Menu Surveys

Completed menu surveys were logged in to a tracking database upon receipt, and checked to assess whether all expected materials had been returned. Study staff followed up with cafeteria managers and in some cases LEA foodservice directors, by telephone or email to retrieve missing materials. Trained nutrition coders completed all data processing (e.g., cleaning and coding) and data entry into the nutrient analysis system.[1]

Each completed menu survey booklet was systematically reviewed, along with recipe information and production records, using form-specific procedures to (1) determine whether any key information was missing or needed clarification, and (2) cross-checked with school production records, other menu surveys from the same LEA, and with the meal observation booklets for details. If necessary, coders followed up with cafeteria managers or foodservice directors to obtain missing details or clarification for each menu survey before entering menu survey data into the nutrient analysis system.

8B.2 Entry of Menu Survey Data into the Nutrient Analysis System

Nutrition coders were trained to use the NUTRIKIDS menu planning software by Heartland School Solutions. The software is designed according to USDA specifications for the analysis of school meals. It includes the USDA Child Nutrition Database Release CN16 and USDA recipes for school foodservice. The software also includes an ingredient database of brand-specific foods that are commonly used in school foodservice operations. Due to software limitations and issues with multiple user interfaces, coders each used a separate database for entering school meal information on their assigned set of LEA menus. For each set of menus, the NUTRIKIDS software system generated nutrient and meal component output files, which were combined outside of the NUTRIKIDS program.

A unique menu file was created for each school's breakfast and lunch menus using the grade groupings (K-5, 6-8 and 9-12) as appropriate for the three schools in each LEA. The software requires every item on the menu, including single foods, be entered as a recipe. Coders created all recipes for a school before constructing the menu files. For consistency and efficiency, default recipes with appropriate food component crediting assigned were created by the trainer for commonly used school foods such as milk, common fruits and vegetables. Coders created new recipes or copied and modified default or existing USDA recipes included in the software for every food item listed on the

[1] The coders, primarily undergraduate nutrition students enrolled in local universities, were trained by an external expert with experience training school foodservice managers to use nutrient analysis software.

Reimbursable Food Form of the menu survey. Coders entered all recipes for one school, starting with the elementary school for each LEA, constructed the menu and then repeated the process for the middle, and then the high school. If ingredients were not in the CN or NUTRIKIDS brand name database, they were added to a list of missing Commercially Prepared Foods. Lead coders were responsible for finding the nutrient information online for the products on the list using information on manufacturer, brand name and product code provided in the menu survey document. Once obtained, the relevant information was entered into the database and communicated to the entire coding team, so that menu entry could be completed.

8B.3 Meal Component and Subgroup Calculations

During recipe creation, all foods that were not USDA recipes required the coder to assign food-based component and subgroup crediting, where applicable. The expert consultant trained coders on procedures for conducting component calculations for single component items, and using resources, primarily the USDA Food Buying Guide for determining creditable amounts of each contributing food component and subgroup for multiple component recipes, Coders used existing component values provided with USDA recipes and component values that were provided on CN label information obtained online for processed foods reported. The NUTRIKIDS software includes a module that allows for the assignment of meal component and relevant subgroup values per serving, and quantifies the daily summary (in cup equivalents for fruits, vegetables and milk; and in ounce weights for meat/meat alternates, grains and grain-based desserts). While the component crediting values must be manually entered for each recipe, the software automatically standardizes the component values by rounding the information entered by the coder down to the creditable component contribution. For meat/meat alternates and grains (measured in ounces) ,the software rounds the value down to the nearest quarter ounce equivalent; for fruits, vegetables and milk components (measured in cups), the software rounds the value down to the nearest eighth (1/8) cup. These procedures are consistent with the crediting guidelines issued by FNS to program operators (USDA, 2013).

The evaluation team programmed the calculations for the unweighted meal component assessment for each school's week of lunch menus using the May 2012 certification tool and guidance provided by FNS to all State CN directors for measuring compliance with the new meal requirements. The methodology used to assess meal quality for this evaluation sought to replicate the certification tool developed by FNS. LEAs complete the certification tool and submit the information to their State agencies in order to obtain certification as qualifying for the additional reimbursement authorized by the HHFKA. The LEA selects the menus and enters each reimbursable meal choice offered for each grade grouping. For each meal choice, the LEA enters all required food components (any grain/meat/meat alternates in a main dish and/or side dish, and amount of milk). The tool sums quantity information for each relevant meal component. The State uses the minimum of each food component in all meals offered to determine daily and weekly meal component compliance. The NUTRIKIDS software produces weekly compliance worksheets that follow the USDA guidance, but it was not feasible to use these for constructing the analysis files, due to the large number of menus and the format of the output files. However, the evaluation team used a sample of NUTRIKIDS weekly compliance worksheets to check that team's analysis programs produced the same results.

The study approach used information from the planned menu, the Menu Survey and production records from each school to group together foods that were offered together to constitute the

reimbursable meal choices in each daily menu. A senior project nutritionist identified separate entrées and other menu items and specifically linked them to complete the essential first step in the meal component compliance analysis. The full component minimum was assigned to all reimbursable combinations—if the combinations appeared to be available for all students. Results for any meals that did not meet the daily meal component minimums were reviewed and verified by project staff to ensure that foods had been assigned proper credit, as well as to ensure that no other foods had been offered with the meal. However, coders and nutritionists had to reconstruct the foods that made up each meal choice, relying on the combination of data from the Menu Survey, production records, and any follow-up notes or clarifications provided by the LEA. In most cases, schools were given the benefit of the doubt, but if more than one source revealed that a meal choice had insufficient offerings, only the components that appeared to be offered with the meal choice were credited, resulting in the meal choice being identified as not having met one or more standards. In most cases, the meals that did not meet the meal component standards in our analysis were most often those offered as an alternate meal, and were low on creditable amounts of meat/meat alternate or were offered without a grain. The rules governing the certification tool use the minimum value of each food component across all reimbursable meal choices, often the alternate meal, regardless of the proportion of students that take the meal. Thus, if there was a tendency for LEAs to provide incomplete data for alternate meals, these missing data would have had a disproportionate effect on the results.

The levels of meal components determined by the evaluation's methods may differ from results of the certification tool for two reasons. First, LEAs select the weekly menu for that will be reviewed by the State Agency, whereas the analysis in this report is based on data provided for a target week selected by the evaluation team. Second, LEAs have complete information on the foods making up each meal choice, whereas the evaluation may not always have had this information. Thus, both methods have potential biases: the certification tool may introduce an upward bias on compliance measures due to the LEA's discretion in selecting the menus for analysis, while the evaluation methods may have a downward bias due to missing information, perhaps amplified by the role of alternate meals. As discussed below, the quality control process included several steps to minimize errors in the coding of menus. Compared with the certification tool, the study's approach provides a somewhat more conservative and more objective assessment of meal component compliance in school meals. The evaluation team used the same methods for treatment and comparison schools, and so it is reasonable to assume that the methods did not affect the impact estimates.

8B.4 Self-Serve Salad and Theme Bars

Special procedures, based on methods of the SNDA-II study (Fox et al., 2001), were used to create recipes for self-serve (e.g., salad) and made-to-order (e.g., pasta) bars. LEAs completed a form to record the foods offered on such bars but did not specify the composition of a serving from the bar. A nutrition coder created an "average" food bar recipe for foods reported to be offered in a self-serve type of food bar by any school. These recipes were created to include some of each item offered on the self-serve bar; component and sub-group quantities were calculated accordingly. The coder used a guide and reference materials created by the expert consultant using examples of Self-Serve and Made to Order bars from the menu surveys. The recipe construction used default portion sizes for foods offered based on those used for the SNDA-II study, and the recipes were updated for the new meal standards according to the grade-specific differences in minimum fruit and vegetable serving sizes. This same procedure was followed to create recipes for condiment and finishing bars.

8B.5 Coding the Meal Observation Booklets

As discussed in Chapter 7, data collectors observed meals as taken by students and recorded by cashiers for the analysis of cashier error, using meal observation booklets. Coding the meal observation booklets for the one day of the target week when meal and cashier observations occurred as part of the review and coding of each school's menu surveys, because coders needed information on creditable amounts of meal components offered as well as information on the appropriate Offer versus Serve guidelines (where applicable) to determine whether individual observations met the requirements for a reimbursable meal. For breakfasts, coders used the Offer versus Serve guidelines for food-based menu planning that applied to SBP standards in effect in SY 2012–13. For lunches, coders used the Offer versus Serve standards consistent with the new meal pattern guidelines for lunch in effect during SY 2012–13.

8B.6 Quality Control Procedures

Any questions from coders were addressed by a supervising nutritionist as they arose. Weekly meetings with senior evaluation staff and the nutrition consultant allowed the team to resolve questions and clarify decision rules; such rules were documented throughout the coding process to ensure that issues were addressed consistently. Coders completed data entry for an initial LEA; those data were reviewed thoroughly by the supervising nutritionist, and feedback was provided. At two points during the entry process, all coder-assigned databases of recipes were downloaded and manually reviewed by a senior nutritionist to check for out-of-range values for individual serving sizes. The range checks were done with calories, fat, saturated fat and sodium. Out-of-range values found or suspect were checked against the original recipe and ingredient. Coders were provided with the edited database lists to research and resolve each issue identified. This was done in conjunction with a quality control check of each menu survey, completed by the coders who were assigned to check the work of other coders. The supervising nutritionist resolved issues as they were raised.

As a final cleaning step, an output file of all menus was reviewed by a senior project nutritionist to assess proper meal and subgroup component crediting. This was done as part of the step where reimbursable menu items were linked for the meal component analysis.

Appendix 8C: Analysis of Impacts on Meeting Nutritional Standards and Meal Variety

This appendix presents supplementary information for Chapter 8 about the CEP's impacts on meeting nutritional standards and variety for meals offered in the NSLP and SBP. The appendix begins with information on the data and results of balance testing. Next, univariate statistics for outcome variables, including food component subgroups are presented. The appendix concludes with the complete regression results supporting the impact estimates and statistics on the percentage of schools that offer dessert.

8C.1 Data and Balance Testing

8C.1.1 Balance Testing at LEA Level (Same for NSLP and SBP)

The analysis file for the meal quality and variety was constructed using data from the Menu Survey, completed by school cafeteria managers as part of Component 3 data collection for the impact study, as described in Chapter 2. Two comparison LEAs selected for this data collection were found ineligible to participate. Therefore, the sample was drawn from 52 LEAs (27 treatment and 25 comparison) . Exhibit 8C.1 repeats the analysis presented in Exhibit 2 for this set of LEAs. The substantive conclusions from Chapter 2 are unaltered: treatment and comparison LEAs for the menu quality and variety analysis are balanced on all LEA-level observed covariates.

Exhibit 8C.1: LEA Characteristics for Meal Quality and Variety Analysis Sample

	Component 3 (Cashier Observation)			
	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of observations	25		27	
Enrollment	5546	(7539)	6803	(8806)
Enrollment 1–499 (%)	0		3.7	
Enrollment 500–2,499 (%)	48		29.6	
Enrollment 2,500–4,999 (%)	20		33.3	
Enrollment 5,000+ (%)	32		33.3	
Percentage distribution of students in grades K-12				
Percent in grades K–5	44	(4.4)	44.3	(3.4)
Percent in grades 6–8	21.9	(1.7)	21.8	(1.7)
Percent in grades 9–12	30.1	(5.5)	29.5	(3.3)
Number of schools	10.7	(11.1)	14.4	(15.8)
1 school (%)	0		0	
2-5 schools (%)	36		29.6	
6–14 schools (%)	44		37	
15+ schools (%)	20		25.9	
ISP	44.5	(11.1)	49.6	(12.3)
Percent students free/reduced lunch	66.2	(14.2)	70.3	(12.7)
Percent Title I schools	79.1	(25.6)	80.4	(14.4)
Urban LEA (%)	20		33.3	
All charter schools (%)	0		3.7	
Percent English Language Learners	3.2	(4.4)	4.5	(8.2)
Percent students Black	15.5	(19.5)	24.2	(28.5)
Percent students Hispanic/Latino	7.6	(10.5)	10.5	(17.8)
Average Daily Participation (%) Lunch	65.6	(10.5)	66.4	(15.0)

T-tests were used to test for differences between treatment and comparison means for all variables except for grade distribution. Differences in grade distributions were jointly tested using MANOVA.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Common Core of School Data, State Administrative Data, Verification Summary Report Data

8C.1.2 Balance Testing at School Level

Data were collected from 156 schools in the 52 LEAs in Component 3 data collection for Menu Survey (for lunch and breakfast). Characteristics of these schools are shown in Exhibit 8C.2. Treatment schools had more students eligible for free and reduced price meals and a higher percentage of students who were Black. Treatment schools also tended to be more urban, Title I or charter schools. On all other characteristics, the two groups of schools were statistically indistinguishable. The characteristics which were unbalanced between the treatment and comparison schools were included as control variables in the impact estimation model for lunch.

Exhibit 8C.2: Meal Quality and Variety Sample, School Level Measures

	Component 3 (Meal Quality and Meal Counting/ Claiming Error Data)			
	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of observations	75		81	
Enrollment	603	(474)	523	(354)
Grade span				
K-5 (%)	34.7		34.6	
6–8 (%)	30.7		27.2	
9–12 (%)	32.0		29.6	
Other (%)	2.7		8.6	
Grades Sampled				
K-5 (%)	34.7		38.3	
6–8 (%)	33.3		30.9	
9–12 (%)	32.0		30.9	
Percent students free/reduced lunch	63.3	(15.0)**	69.0	(16.1)**
Title I school (%)	76.0	(43.0)*	86.4	(34.5)*
Charter school (%)	0.0	(0.0)*	3.7	(19.0)*
Urban School (%)	18.7	(39.2)**	33.3	(47.4)**
Percent students Black	15.6	(20.6)*	23.5	(28.8)*
Percent students Hispanic/Latino	6.9	(10.0)	10.3	(17.7)

[a] The grade span refers to the actual grade coverage of a school. Grade coverage can be irregular, especially among charter schools, which may cover K-12, K-8, or other grade spans, all of which are included in the "Other" category in the table. The analysis has categorized these irregular grade spans according to three separate sampled grades: elementary (K-5), middle (6-8), and high (9-12). The table presents both the original grade span and the sampled grade category.

T-tests were used to test for differences between treatment and comparison means for all variables except for grade span and grades sampled. Differences in grade span and grades sampled were jointly tested using a chi-square test.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Common Core of School Data

8C.2 Univariate Statistics for Outcome Variables

8C.2.1 Meal Quality

Exhibits 8C.3–8C.4 show the unadjusted percentages of treatment and comparison schools meeting the grade range-specific meal pattern requirements for daily and weekly minimums for specific meal components, as well as nutrient specifications for calories, and saturated fat for lunches offered, respectively. A comparison with the future Target 1 sodium standard is also included. Exhibit 8C.5 shows the unadjusted percentages of treatment and comparison schools meeting the appropriate meal component daily minimums and Target 1 for sodium for breakfasts offered. The tables include tests of significant differences between treatment and comparison schools. Unlike the regression results, these tests of unadjusted differences do not control for the observed differences in school characteristics identified in the balance tests.

Exhibit 8C.3: Unadjusted Percentages of Schools Meeting the Daily and Weekly Minimum for Food Components for Lunches Offered, by Treatment and Comparison Schools

	Meets All 5 Days of the Target Week		Meets at Least 4 out of the 5 Days of the Target Week		Meets at Least 3 out of the 5 Days of the Target Week	
	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment
FOOD COMPONENTS						
Meets fruit minimum	84	90.1	92	93.8	92	96.3
Meets daily fruit minimum	84	90.1	94.7	95.1	96	98.8
Meets weekly fruit minimum	92	96.3	92	96.3	92	96.3
Meets vegetable minimum	57.3	69.1	80	79	90.7	86.4
Meets daily veg. Minimum	57.3	69.1	82.7	81.5	94.7	90.1
Meets weekly veg. Minimum	92	90.1	92	90.1	92	90.1
Meets grains minimum	36	42	44	58*	46.7	59.3
Meets daily grains minimum	49.3	45.7	62.7	70.4	74.7	76.5
Meets weekly grains minimum	48	63*	48	63*	48	63*
Meets meat/meat alternate minimum	45.3	53.1	50.7	56.8	50.7	60.5
Meets daily meat/meat alternate minimum	70.7	72.8	78.7	84	82.7	90.1
Meets weekly meat/meat alternate minimum	50.7	60.5	50.7	60.5	50.7	60.5
Meets milk minimum	100	100	100	100	100	100
Meets daily milk minimum	100	100	100	100	100	100
Meets weekly milk minimum	100	100	100	100	100	100
Meets all minimum	12	14.8	20	30.9	24	37
SUBGROUP MINIMUMS						
Vegetable subgroup minimum						
Meets weekly dark green minimum	94.7	92.6	94.7	92.6	94.7	92.6
Meets weekly red/orange minimum	90.7	88.9	90.7	88.9	90.7	88.9
Meets weekly legume minimum	78.7	60.5**	78.7	60.5**	78.7	60.5**
Meets weekly starch minimum	97.3	92.6	97.3	92.6	97.3	92.6
Meets weekly other minimum	96	87.7*	96	87.7*	96	87.7*
Grains subgroup requirement						
Meets weekly 50% whole grains requirement	52	61.7	52	61.7	52	61.7
Other requirements						
Meets milk type requirement	96	97.5	96	97.5	96	97.5
Meets 2 oz/wk grain-based dessert requirement	94.7	98.8	94.7	98.8	94.7	98.8
Meets weekly juice 50% of total veg requirement	100	100	100	100	100	100
Meets weekly juice 50% of total fruit requirement	100	100	100	100	100	100
Number of schools	75	81	75	81	75	81

Meeting minimum (the first row for each component) means that the food components meet any daily and weekly minimum requirement for the respective grade range.

Meets milk type requirement implies that the school does not serve flavored 1% milk or flavored or unflavored 2% milk.

Meets 2 oz/wk grain-based dessert requirement implies that the school does not serve desserts during the week which total to more than 2 ounces of grain.

The regression results for component subgroups and meeting other requirements for lunch shown in Exhibit 8C.3 are not presented but are available if required.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.4: Unadjusted Percentages of Schools Meeting the Daily and Weekly Minimum for Nutrient Specifications for Lunches Offered, by Treatment and Comparison Schools

	Meets Requirements		Within 5% of Meeting the Requirements		Within 10% of Meeting the Requirements	
Nutrients	**Comparison**	**Treatment**	**Comparison**	**Treatment**	**Comparison**	**Treatment**
Meets calorie range specification	44.0	37.0	68.0	60.5	86.7	75.3*
Below calorie range specification	32.0	26.0	22.7	18.5	10.7	12.3
Above calorie range specification	24.0	37.0*	9.3	21.0**	2.7	12.3**
Meets saturated fat specification	89.3	90.1	94.7	97.6	98.7	98.8
Meets all nutrient specifications (calories and saturated fat)	37.3	34.6	62.7	59.8	85.3	74.1*
Meets sodium target 1 specifications	61.3	49.4	70.7	63.4	80	71.6
Number of schools	75	81	75	81	75	81

Meeting a specification means that a school met the daily requirements, on average, based on the weekly menu for the school's grade range. For the column presenting the percentage within 5% of meeting the requirements, "Below Calorie Range Specification" means below 95% of the specification, and "Above Calorie Range Specification" means above 105% of the specification. For the columns presenting percentages within 10% of meeting the requirements, "Below Calorie Range Specification" means below 90% of the specification, and "Above Calorie Range Specification" means above 110% of the specification.

The Target 1sodium standard was used in the analysis for comparison purposes and will be in effect in SY 2014–15. See Appendix 8A.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.5: Unadjusted Percentages of Schools Meeting the Daily Minimum for Food Components and the Target 1 Sodium Specification for Breakfasts Offered, by Treatment and Comparison Schools

	Breakfast	
	Comparison	**Treatment**
Food components		
Meets vegetable/fruit minimum	100%	97.5%
Meets meat/grains minimum	98.7	93.8
Meets milk minimum	100.0	100.0
Meets milk type requirement	*97.3*	*97.5*
Meets all components minimum (veg/fruit, meat/grain, milk)	98.7	91.4**
Nutrients		
Meets future sodium target 1	61.3%	59.3%
Within 5% of future sodium target 1	68	66.7
Within 10% of future sodium target 1	76	74.1
Number of schools	*75*	*81*

Meeting meal component requirements implies that the food components meet the daily minimum meal pattern requirement for grades K-12.

Meets milk type requirement implies that the school does not serve flavored 1% milk or flavored or unflavored 2% milk.

The Target 1sodium standard was used in the analysis for comparison purposes and will be in effect in SY 2014–15. See Appendix 8A.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

8C.2.2 Menu Choice and Variety

Exhibit 8C.6 and 8C.7 show the number of choices offered for each specific meal component category for lunches and breakfasts offered, respectively. The number of choices is an average of the daily number of choices offered over the period of a week during which data was collected.

Exhibit 8C.6: Number of Choices Offered for Lunches in Participating and Non-Participating Schools

Meal Component Choices	Lunch			
	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of fruits/100% juices	2.58	1.93	2.58	1.42
Number of vegetables	2.32	0.98	2.48	1.55
Number of separate grains/breads	0.52	0.43	0.68	0.83
Number of types of milks	2.96	0.67	2.83	0.71
Number of entrées	3.72	2.86	3.39	2.61
Number of desserts	0.07	0.16	0.15**	0.21
Number of schools	75		81	

Entrées for lunches offered include meat/meat alternates and combination entrées composed of a meat/meat alternate and at least one other meal component (grain or vegetable). Counts of separate grains/breads that were not part of a multi-component item were computed separately.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.7: Number of Choices Offered for Breakfasts in Participating and Non-Participating Schools

Meal Component Choices	Lunch			
	Comparison		Treatment	
	Mean (SD)		Mean (SD)	
Number of fruits/vegetables/100% juices	3.44	1.44	2.75***	1.68
Number of separate grains/breads	5.92	3.23	5.08	3.56
Number of separate meats/meat alternates	0.92	0.82	0.77	0.67
Number of types of milks	2.63	0.77	2.53	0.93
Number of combination entrées	0.78	0.87	0.61	0.73
Number of schools	75		81	

Combination entrées for breakfasts include only entrées composed of a meat/meat alternate and at least one other meal component (typically a grain). Counts of meat/meat alternates and grains that were not part of a multi-component item were computed separately.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibits 8C.8 and 8C.9 show the distribution of schools by the number of choices offered for each specific meal component category for lunches and breakfasts offered, respectively.

Exhibit 8C.8: Percentage of Schools for Average Daily Number of Choices for Lunches Offered

	Percentage of Schools with Average Daily Number of Choices for Lunches Offered	
	Comparison	Treatment
Number of Fruits/100% juices (not included in an entrée)		
No more than 1	25.3	21.0
Between 1 and 3	41.3	46.9
Between 3 and 5	28.0	27.2
5 or more	5.3	4.9
Average Median number of choices per day	2.2	2.2
Number of Vegetables/100% juices (not included in an entrée)		
No more than 1	1.3	8.6
Between 1 and 3	84.0	67.9
Between 3 and 5	12.0	18.5
5 or more	2.7	4.9
Average Median number of choices per day	2.0	2.2
Number of Separate Grains/Breads (not included in entrées)		
None	13.3	9.9
No more than 1	78.7	72.8
Between 1 and 2	6.7	9.9
Between 2 and 3	1.3	6.2
3 or more	0.0	1.2
Average Median number of choices per day	0.4	0.4
Number of types of Milks		
No more than 1	0.0	1.2
Between 1 and 2	0.0	0.0
Between 2 and 3	29.3	42.0
3 or more	70.7	56.8
Average Median number of choices per day	3.0	3.0
Number of entrées (includes meat/meat alternates as well as combination entrées)		
No more than 1	8.0	9.9
Between 1 and 3	42.7	44.4
Between 3 and 5	25.3	24.7
5 or more	24.0	21.0
Median number of choices per day	2.8	2.4
Number of Desserts		
None	74.7	51.9
No more than 1	25.3	48.2

Entrées for lunches offered include meat/meat alternates and combination entrées composed of a meat/meat alternate and at least one other meal component (grain or vegetable). Counts of separate grains/breads that were not part of a combination entrée were computed separately

Source: Menu Survey Data

Exhibit 8C.9: Percentage of Schools for Average Daily Number of Choices Offered for Breakfasts

	Percentage of Schools with Average Daily Number of Choices for Breakfasts Offered	
	Comparison	Treatment
Number of Fruits/Vegetables/100% juices (not included in an entrée)		
No more than 1	5.3	24.7
Between 1 and 3	22.7	35.8
Between 3 and 5	60.0	30.9
5 or more	12.0	8.6
Average Median number of choices per day	3.0	2.6
Number of Separate Grains/Breads (not included in an entrée)		
None	0.0	0.0
No more than 1	2.7	1.2
Between 1 and 2	2.7	22.2
Between 2 and 3	9.3	12.4
3 or more	85.3	64.2
Average Median number of choices per day	5.6	4.2
Number of Separate Meats/Meat Alternates (not included in combination entrée)		
None	10.7	19.8
No more than 1	58.7	50.6
Between 1 and 2	14.7	22.2
Between 2 and 3	13.3	7.4
3 or more	2.7	0.0
Average Median number of choices per day	0.8	0.6
Number of types of Milks		
No more than 1	6.7	13.6
Between 1 and 2	1.3	4.9
Between 2 and 3	41.3	34.6
3 or more	50.7	46.9
Average Median number of choices per day	3.0	2.6
Number of Combination Entrées		
None	2.7	22.2
No more than 1	80.0	63.0
Between 1 and 2	10.7	6.2
2 or more	6.7	8.6
Average Median number of choices per day	0.5	0.4

Combination entrées for breakfasts include only entrées composed of a meat/meat alternate and at least one other meal component (typically a grain). Counts of meat/meat alternates and grains that were not part of a combination entrée were computed separately

Source: Menu Survey Data

8C.3 Regression Results

8C.3.1 Meal Quality

This section begins with regression results for meal quality of lunches offered. Exhibits 8C.10–8C.14 present the complete set of regression results for meeting food component requirements for lunches offered. The regression results for meeting the milk requirement are omitted, since all the schools meet the requirement. Exhibits 8C.15 – 8C.18 present the complete set of regression results for meeting nutrient specification standards for lunches offered. The remaining exhibits in this section provide regression results for meal quality of breakfasts offered. Exhibits 8C.19 – 8C.21 present the complete set of regression results for meeting meal pattern requirements for breakfasts offered. The regression results for meeting the milk type requirement for breakfast are omitted since all the schools meet the requirement. Exhibit 8C.22 presents the regression results for meeting nutrient specifications for the future sodium Target 1 for breakfasts offered. The vector of school characteristics used as control variables in all models included:

- the school's grade level (i.e., whether elementary, middle, or high), with elementary school as the reference category;
- the State, with West Virginia as the reference State; and
- LEA and school-level features where balance testing (detailed above) discerned a difference between treatment and comparison LEAs that was statistically significant at the 10 percent level, which included percent of students approved for free or reduced price meals, percent of students who were Black, and whether the school was in a city, or was a Title I or charter school.

Lunches Offered

Food Component Requirements

Exhibit 8C.10: Meeting Fruit Minimum for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.005	0.06	
Middle school indicator	0.038	0.044	
High school indicator	-0.125	0.078	
Students free/reduced price (%)	-0.137	0.188	
Urban LEA	0.183	0.076	**
Title I school	0.105	0.077	
Charter school	-0.187	0.13	
Percent students Black	0.341	0.158	**
IL state Indicator	-0.431	0.155	***
KY state Indicator	0.024	0.069	
MI state Indicator	-0.095	0.087	
NY state Indicator	-0.23	0.174	
OH state Indicator	-0.116	0.132	
Intercept	0.906	0.129	***
Number of LEAs	52		
Number of schools	156		

Meeting a minimum implies meeting both the daily and weekly grade-range-specific minimums.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.11: Meeting Vegetable Minimum for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.218	0.1	**
Middle school indicator	0.151	0.058	**
High school indicator	0.065	0.088	
Students free/reduced price (%)	-0.36	0.31	
Urban LEA	0.017	0.134	
Title I school	-0.306	0.141	**
Charter school	-0.483	0.203	**
Percent students Black	-0.445	0.161	***
IL state Indicator	0.211	0.186	
KY state Indicator	0.339	0.162	**
MI state Indicator	0.297	0.197	
NY state Indicator	0.235	0.22	
OH state Indicator	0.218	0.332	
Intercept	0.822	0.194	***
Number of LEAs	52		
Number of schools	156		

Meeting a minimum implies meeting both the daily and weekly grade-range-specific minimums.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations. .

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.12: Meeting Grains Minimum for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.093	0.089	
Middle school indicator	0.042	0.085	
High school indicator	-0.346	0.108	***
Students free/reduced price (%)	0.392	0.217	*
Urban LEA	-0.24	0.086	***
Title I school	-0.228	0.146	
Charter school	0.321	0.154	**
Percent students Black	-0.23	0.216	
IL state Indicator	0.027	0.207	
KY state indicator	-0.021	0.186	
MI state indicator	-0.164	0.189	
NY state indicator	0.195	0.174	
OH state indicator	0.195	0.177	
Intercept	0.454	0.131	***
Number of LEAs	52		
Number of schools	156		

Meeting a minimum implies meeting both the daily and weekly grade-range-specific minimums.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.13: Meeting Meat/Meat Alternate Minimum for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.104	0.1	
Middle school indicator	-0.171	0.085	**
High school indicator	-0.331	0.106	***
Students free/reduced price (%)	0.267	0.348	
Urban LEA	-0.218	0.132	
Title I school	-0.295	0.155	*
Charter school	-0.005	0.201	
Percent students Black	0.166	0.199	
IL state Indicator	-0.071	0.253	
KY state Indicator	-0.257	0.185	
MI state indicator	-0.345	0.197	*
NY state indicator	-0.395	0.223	*
OH state indicator	-0.114	0.198	
Intercept	0.901	0.209	***
Number of LEAs	52		
Number of schools	156		

Meeting a minimum implies meeting both the daily and weekly grade-range-specific minimums.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.14: Meeting All Meal Component Minimums for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.051	0.058	
Middle school indicator	0.013	0.06	
High school indicator	-0.124	0.083	
Students free/reduced price (%)	0.43	0.16	***
Urban LEA	-0.075	0.071	
Title I school	-0.36	0.111	***
Charter school	-0.065	0.092	
Percent students Black	-0.058	0.109	
IL state Indicator	0.061	0.124	
KY state Indicator	0.066	0.106	
MI state indicator	-0.029	0.075	
NY state indicator	-0.01	0.084	
OH state indicator	0.141	0.225	
Intercept	0.164	0.099	
Number of LEAs	52		
Number of schools	156		

Meeting all meal components implies that the school meets both the applicable daily and weekly minimums for the fruit, vegetable, grains, meat/meat alternate and milk components. .

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Nutrient Specifications

Exhibit 8C.15: Meeting Calorie Range Specification for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.024	0.075	
Middle school indicator	0.023	0.103	
High school indicator	-0.182	0.105	*
Students free/reduced price (%)	-0.236	0.254	
Urban LEA	-0.159	0.116	
Title I school	-0.001	0.142	
Charter SCHOOL	0.24	0.175	
Percent students Black	-0.245	0.2	
IL state indicator	0.242	0.143	*
KY state indicator	0.234	0.128	*
MI state indicator	0.183	0.166	
NY state indicator	0.303	0.152	*
OH state indicator	0.129	0.206	
Intercept	0.533	0.156	***
Number of LEAs	52		
Number of schools	156		

Meeting the calorie range specification implies meeting the average daily grade range-specific calorie range based on a week of menus.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.16: Meeting Percent of Calories from Saturated Fat Specification for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.008	0.058	
Middle school indicator	0.004	0.058	
High school indicator	0.046	0.044	
Students free/reduced price (%)	-0.094	0.198	
Urban LEA	0.068	0.099	
Title I school	0.062	0.089	
Charter school	0.276	0.188	
Percent students Black	-0.298	0.267	
IL state indicator	-0.014	0.107	
KY state Indicator	-0.042	0.099	
MI state indicator	-0.047	0.097	
NY state indicator	0.139	0.127	
OH state indicator	0.146	0.11	
Intercept	0.909	0.163	***
Number of LEAs	52		
Number of schools	156		

Meeting the percent of calories from saturated fat specification implies meeting the average daily grade range-specific specification based on a week of menus.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.17: Meeting Calorie Range and Percent of Calories from Saturated Fat Specifications for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.006	0.081	
Middle school indicator	-0.001	0.101	
High school indicator	-0.178	0.099	*
Students free/reduced price (%)	-0.298	0.278	
Urban LEA	-0.112	0.119	
Title I school	0.048	0.123	
Charter school	0.198	0.184	
Percent students Black	-0.173	0.214	
IL state Indicator	0.244	0.148	
KY state indicator	0.17	0.133	
MI state indicator	0.163	0.172	
NY state indicator	0.255	0.165	
OH state Indicator	0.108	0.227	
Intercept	0.481	0.174	***
Number of LEAs	52		
Number of schools	156		

Meeting specifications implies meeting the average grade range-specific daily specifications based on a week of menus for both the calorie range and percent of calories from saturated fat.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.18: Meeting Future Sodium Target 1 for Lunches Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.172	0.083	**
Middle school indicator	0.335	0.082	***
High school indicator	0.051	0.103	
Students free/reduced price (%)	-0.204	0.314	
Urban LEA	0.341	0.113	***
Title I school	0.235	0.152	
Charter school	-0.133	0.181	
Percent students Black	0.166	0.252	
IL state indicator	-0.404	0.201	**
KY state indicator	-0.216	0.152	
MI state indicator	-0.192	0.167	
NY state indicator	-0.14	0.194	
OH state indicator	-0.521	0.185	***
Intercept	0.528	0.186	***
Number of LEAs	52		
Number of schools	156		

Meeting future sodium Target 1 implies meeting the. average daily grade range-specific specification based on a week of menus.

The Target 1sodium standard was used in the analysis for comparison purposes and will be in effect in SY 2014–15. See Appendix 8A.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Breakfasts Offered

Food Component Requirements

Exhibit 8C.19: Meeting Vegetable/Fruit Minimum for Breakfasts Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.018	0.019	
Middle school indicator	-0.027	0.027	
High school indicator	-0.04	0.037	
Students free/reduced price (%)	-0.152	0.132	
Urban LEA	-0.076	0.065	
Title I school	0.001	0.012	
Charter school	0.134	0.111	
Percent students Black	0.068	0.066	
IL state indicator	0.011	0.02	
KY state indicator	0.026	0.024	
MI state indicator	-0.038	0.036	
NY state indicator	0.044	0.044	
OH state indicator	0.056	0.057	
Intercept	1.111	0.097	***
Number of LEAs	52		
Number of schools	156		

Meeting a Requirement implies meeting the daily minimum food component servings.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.20: Meeting Meat/Grains Minimum for Breakfasts Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.064	0.054	
Middle school indicator	-0.017	0.017	
High school indicator	0.034	0.021	
Students free/reduced price (%)	0.11	0.201	
Urban LEA	0.067	0.093	
Title I school	0.006	0.051	
Charter school	-0.02	0.085	
Percent students Black	-0.03	0.106	
IL state indicator	0.008	0.046	
KY state indicator	0.006	0.033	
MI state indicator	-0.012	0.051	
NY state indicator	-0.189	0.156	
OH state indicator	-0.022	0.08	
Intercept	0.938	0.092	***
Number of LEAs	52		
Number of schools	156		

Meeting the meat/grains requirement implies meeting the daily minimum food component servings for the combination of the meat/meat alternate and grain meal components.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.21: Meeting All Food Components Minimum for Breakfasts Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.082	0.059	
Middle school indicator	-0.043	0.031	
High school indicator	-0.006	0.044	
Students free/reduced price (%)	-0.043	0.253	
Urban LEA	-0.009	0.116	
Title I school	0.006	0.055	
Charter school	0.114	0.144	
Percent students Black	0.039	0.106	
IL state indicator	0.019	0.048	
KY state indicator	0.032	0.043	
MI state indicator	-0.05	0.068	
NY state indicator	-0.144	0.166	
OH state indicator	0.035	0.101	
Intercept	1.049	0.137	***
Number of LEAs	52		
Number of schools	156		

Meeting all food components minimum implies that the school meets all the fruit/vegetable, meat/grains and milk daily serving minimums combined.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations..

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Nutrient Specifications

Exhibit 8C.22: Meeting Future Sodium Target 1 for Breakfasts Offered: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.057	0.085	
Middle school indicator	0.096	0.08	
High school indicator	0.155	0.093	
Students free/reduced price (%)	0.186	0.295	
Urban LEA	0.125	0.131	
Title I school	-0.026	0.156	
Charter school	-0.077	0.14	
Percent students Black	0.23	0.223	
IL state indicator	-0.349	0.158	**
KY state indicator	-0.381	0.148	**
MI state indicator	0.135	0.154	
NY state indicator	-0.127	0.171	
OH state indicator	0.087	0.178	
Intercept	0.487	0.192	**
Number of LEAs	52		
Number of schools	156		

Meeting the future sodium Target 1 implies meeting the average grade-range-specific daily specification based on a week of menus.

The Target 1sodium standard was used in the analysis for comparison purposes and will be in effect in SY 2014–15. See Appendix 8A.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

8C.3.2 Menu Choice and Variety

Exhibits 8C.23– 8C.33 present the complete set of regression results for the number of menu choices within each food component category, first for lunches and then for breakfasts offered. The vector of school characteristics used as control variables in all models included:

- the school's grade level (i.e., whether elementary, middle, or high), with elementary school as the reference category;
- the State, with West Virginia as the reference state; and
- LEA and school-level features where balance testing (detailed above) discerned a difference between treatment and comparison LEAs that was statistically significant at the 10 percent level, which included percent of students approved for free or reduced price meals, percent of students who were Black, and whether the school was in a city, or was a Title I or charter school.

Lunches Offered

Exhibit 8C.23: Number of Fruits and 100% Fruit Juice Choices Offered for Lunches: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.216	0.29	
Middle school indicator	0.683	0.19	***
High school indicator	1.536	0.416	***
Students free/reduced price (%)	-0.52	0.849	
Urban LEA	0.984	0.397	**
Title I school	1.014	0.448	**
Charter school	-2.305	0.56	***
Percent students Black	0.85	0.684	
IL state indicator	-1.369	0.383	***
KY state indicator	0.645	0.429	
MI state indicator	0.175	0.508	
NY state indicator	-0.378	0.511	
OH state indicator	0.21	1.241	
Intercept	1.159	0.505	**
Number of LEAs	52		
Number of schools	156		

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.24: Number of Vegetable Choices Offered for Lunches: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.086	0.263	
Middle school indicator	0.382	0.169	**
High school indicator	0.719	0.301	**
Students free/reduced price (%)	1.151	1.3	
Urban LEA	0.609	0.687	
Title I school	0.167	0.244	
Charter school	-1.584	1.172	
Percent students Black	-0.35	0.684	
IL state indicator	-0.839	0.239	***
KY state indicator	0.423	0.322	
MI state indicator	0.417	0.488	
NY state indicator	-0.628	0.494	
OH state indicator	-0.688	1.002	
Intercept	1.13	0.859	
Number of LEAs	52		
Number of schools	156		

Number of vegetable choices also includes 100% vegetable juice offerings.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.25: Number of Separate Grain/Bread Choices Offered for Lunches: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.137	0.125	
Middle school indicator	0.038	0.078	
High school indicator	0.301	0.144	**
Students free/reduced price (%)	0.024	0.341	
Urban LEA	0.231	0.209	
Title I school	-0.054	0.194	
Charter school	-1.063	0.399	**
Percent students Black	0.478	0.509	
IL state indicator	-0.443	0.179	**
KY state indicator	0.217	0.169	
MI state indicator	0.143	0.223	
NY state indicator	-0.435	0.173	**
OH state indicator	-0.459	0.26	*
Intercept	0.405	0.2	**
Number of LEAs	52		
Number of schools	156		

Separate Grains are those that are not part of an entrée.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.26: Number of Milk Choices Offered for Lunches: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.124	0.154	
Middle school indicator	0.064	0.088	
High school indicator	0.137	0.121	
Students free/reduced price (%)	0.178	0.471	
Urban LEA	0.035	0.213	
Title I school	0.026	0.21	
Charter school	-0.234	0.324	
Percent students Black	-0.31	0.41	
IL state indicator	-0.137	0.227	
KY state indicator	0.245	0.243	
MI state indicator	-0.57	0.281	**
NY state indicator	0.2	0.357	
OH state indicator	-0.137	0.311	
Intercept	2.853	0.319	***
Number of LEAs	52		
Number of schools	156		

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.27: Number of Entrée Choices Offered for Lunches: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.378	0.42	
Middle school indicator	1.377	0.276	***
High school indicator	2.535	0.463	***
Students free/reduced price (%)	-1.789	1.417	
Urban LEA	1.958	0.7	***
Title I school	0.635	0.643	
Charter school	-3.81	0.674	***
Percent students Black	0.287	1.041	
IL state indicator	0.106	0.766	
KY state indicator	1.229	0.647	*
MI state indicator	3.263	0.683	***
NY state indicator	1.811	0.956	*
OH state indicator	0.235	1.251	
Intercept	1.393	0.889	
Number of LEAs	52		
Number of schools	156		

Entrées for lunches offered include meat/meat alternates and combination entrées comprised of a meat/meat alternate and at least one other meal component (grain or vegetable).

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations..

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.28: Number of Dessert Choices Offered for Lunches: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	0.087	0.034	**
Middle school indicator	0.037	0.022	*
High school indicator	0.093	0.046	**
Students free/reduced price (%)	-0.052	0.105	
Urban LEA	-0.021	0.036	
Title I school	0.027	0.053	
Charter school	-0.096	0.052	*
Percent students Black	-0.014	0.066	
IL state indicator	-0.127	0.059	**
KY state indicator	-0.079	0.063	
MI state indicator	-0.106	0.06	*
NY state indicator	-0.086	0.07	
OH state indicator	-0.099	0.067	
Intercept	0.123	0.069	*
Number of LEAs	52		
Number of schools	156		

Desserts include grain-based desserts, such as cakes, cookies, cobblers and pastries, as well as other desserts such as gelatin, pudding, sherbet or ice cream.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations..

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Breakfasts Offered

Exhibit 8C.29: Number of Fruit and Vegetable Choices Offered for Breakfasts: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.528	0.307	*
Middle school indicator	0.543	0.174	***
High school indicator	1.286	0.276	***
Students free/reduced price (%)	-0.242	0.921	
Urban LEA	-0.454	0.354	
Title I school	0.426	0.498	
Charter school	0.18	0.476	
Percent students Black	-0.95	0.551	*
IL state indicator	-0.736	0.479	
KY state indicator	-1.261	0.513	**
MI state indicator	-1.092	0.575	*
NY state indicator	-1.111	0.596	*
OH state indicator	-1.467	0.472	***
Intercept	3.738	0.558	***
Number of LEAs	52		
Number of schools	156		

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.30: Number of Grain Choices Separate from Combination Entrées Offered for Breakfasts: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.643	0.673	
Middle school indicator	1.618	0.48	***
High school indicator	1.91	0.633	***
Students free/reduced price (%)	-2.517	1.878	
Urban LEA	0.213	0.726	
Title I school	0.632	0.926	
Charter school	-3.141	1.402	**
Percent students Black	-0.017	1.183	
IL state indicator	-2.442	0.924	**
KY state indicator	0.234	0.907	
MI state indicator	2.23	1.487	
NY state indicator	-1.985	1.212	
OH state indicator	-0.139	0.972	
Intercept	6.039	1.092	***
Number of LEAs	52		
Number of schools	156		

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.31: Number of Meat/Meat Alternate Choices Separate from Combination Entrées Offered for Breakfasts: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.168	0.149	
Middle school indicator	0.299	0.122	**
High school indicator	0.421	0.148	***
Students free/reduced price (%)	-0.112	0.433	
Urban LEA	0.342	0.204	*
Title I school	0.351	0.203	*
Charter school	-1.217	0.28	***
Percent students Black	0.069	0.381	
IL state indicator	-0.681	0.261	**
KY state indicator	-0.686	0.255	***
MI state indicator	-0.426	0.261	
NY state indicator	-0.905	0.28	***
OH state indicator	-0.845	0.465	*
Intercept	0.934	0.296	***
Number of LEAs	52		
Number of schools	156		

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.32: Number of Milk Choices Offered for Breakfasts: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.149	0.17	
Middle school indicator	0.127	0.108	
High school indicator	0.224	0.14	
Students free/reduced price (%)	-0.132	0.408	
Urban LEA	0.123	0.226	
Title I school	0.077	0.225	
Charter school	-0.194	0.449	
Percent students Black	0.347	0.501	
IL state indicator	-0.252	0.308	
KY state indicator	0.378	0.243	
MI state indicator	-0.854	0.348	**
NY state indicator	-0.769	0.393	*
OH state indicator	-0.5	0.538	
Intercept	2.76	0.269	***
Number of LEAs	52		
Number of schools	156		

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

Exhibit 8C.33: Number of Combination Entrée Choices Offered for Breakfasts: Regression Results

Variable	Estimate	Std. Err.	Sig.
Treatment	-0.169	0.141	
Middle school indicator	0.134	0.142	
High school indicator	0.365	0.174	**
Students free/reduced price (%)	-0.218	0.441	
Urban LEA	0.294	0.165	*
Title I school	-0.046	0.287	
Charter school	-0.687	0.246	***
Percent students Black	-0.049	0.24	
IL state indicator	-0.151	0.179	
KY state indicator	0.591	0.238	**
MI state indicator	0.25	0.24	
NY state indicator	-0.084	0.26	
OH state indicator	-0.308	0.278	
Intercept	0.623	0.23	***
Number of LEAs	52		
Number of schools	156		

Combination entrées for breakfasts include only entrées comprised of a meat/meat alternate and at least one other meal component (typically a grain). Meat/Meat alternates and grains that were not part of a combination entrée were computed separately.

Reference category for grade is Elementary; Reference for state is West Virginia state indicator.

Only school level variables that are not balanced were added due to the limited number of observations.

***=p<0.01, **=p<0.05, *=p<0.1

Source: Menu Survey Data

8C.4 Percentage of Schools that Offered Dessert

Exhibit 8C.34–8C.37 show the unadjusted percentages of treatment and comparison schools that offered dessert at least once a week as a part of lunch. Desserts included grain-based desserts, such as cakes, cookies, cobblers, and pastries, as well as other desserts such as gelatin, pudding, sherbet or ice cream.

Exhibit 8C.34: Percentage of Schools that Offered Dessert at Lunch at least Once a Week

	Comparison	Treatment
Desserts not offered	74.7%	51.9%
Desserts offered at least once a week	25.3%	48.2%
Total number of schools	75	81

Source: Menu Survey Data

Exhibit 8C.35: Percentage of Elementary Schools that Offered Dessert at Lunch at least Once a Week

	Comparison	Treatment
Desserts not offered	76.9%	60%
Desserts offered at least once a week	23.1%	40%
Total number of schools	26	30

Source: Menu Survey Data

Exhibit 8C.36: Percentage of Middle Schools that offered Dessert at Lunch at least Once a Week

	Comparison	Treatment
Desserts not offered	70.8%	52%
Desserts offered at least once a week	29.2%	48%
Total number of schools	23	25

Source: Menu Survey Data

Exhibit 8C.37: Percentage of High Schools that Offered Dessert at Lunch at least Once a Week

	Comparison	Treatment
Desserts not offered	76%	42.3%
Desserts offered at least once a week	24%	57.7%
Total number of schools	26	26

Source: Menu Survey Data