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APPENDIX A

METHODOLOGY USED IN THE ANALYSIS OF MEALS OFFERED

A. OVERVIEW OF THE ANALYSIS OF MEALS OFFERED

The objectives of the analysis of meals offered are to determine the average nutrient content of National School Lunch Program (NSLP) lunches and School Breakfast Program (SBP) breakfasts *as offered*, and to examine the nutrient content of various types of lunches offered (including lower-fat lunches). The analyses of NSLP lunches and SBP breakfasts as offered complements the analyses of average nutrients consumed by students, which are based on dietary intake interviews with a sample of students.

To address these objectives, cafeteria managers were asked to supply information on all foods offered as part of NSLP and SBP meals during a target week.[1] The information requested included a list of all foods served at lunch and breakfast, complete descriptions of the foods, amounts served, recipes for foods prepared in the district, and labels (or vendors' names and addresses, so that nutrient information could be requested) for all preprepared items purchased by the school's food service program. Separate listings were completed for lunch and breakfast, if the school had a breakfast program. Respondents were asked to complete one list of foods served every day and to complete, for each day of the week, separate lists of foods that varied, by day. If the school offered a salad bar or other self-serve bar, respondents were asked to furnish information about the first self-serve bar offered during the week.[2] Respondents were asked to indicate on a separate milk checklist the types of milk served and the container sizes of each type of milk.

Staff at the Nutrition Coordinating Center (NCC) of the University of Minnesota coded the nutrients in each food item on the basis of the information provided. In addition, study staff at NCC and Mathematica Policy Research, Inc. (MPR) applied codes indicating to which U.S. Department

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[1]Target weeks were assigned randomly, and schools were asked to complete the data collection during one of three preassigned weeks, or during an agreed-on week with the school staff, if one of the preselected target weeks was unacceptable. In schools in which dietary intake data were collected from students, the target week was always the week of the visit to the school.

[2]Most salad bars were offered every day. Some schools provided information on all salad bars during the week, and the information was used, if available.

of Agriculture (USDA) meal-pattern requirement each food item was contributing (USDA codes), and codes linking items that were served together (LINK codes). For example, if the school offered a cheeseburger, the cheese, meat, and bun were linked. If it served mashed potatoes with gravy, the mashed potatoes and gravy were linked. If it served a salad with salad dressing, the dressing was linked to the salad.

Two aspects of school food service posed analytical challenges. To compute the average nutrients offered in a meal, the foods comprising the meal must be defined, and the nutrients in all foods must be summed. In general, each meal offered was assumed to contain the numbers and types of food items required by the USDA meal pattern, plus any noncreditable food items linked to the required items.[3] The first challenge was posed by the large number of choices that many school cafeterias offer within the required meal components. Schools that offer choices posed an analytical challenge because they made it necessary to take into account different possible combinations of foods when calculating the average nutrient content of meals offered on each day of the target week. The second challenge arose because, in some situations, students can choose the *amount* of the food item (self-serve foods). For meals containing self-serve foods, the only way to estimate the average nutrient content of the meal *as offered* is to make assumptions about the average amount of each self-serve item offered by cafeterias.

Choice and self-service were more prevalent at the middle school and high school levels. However, many elementary schools offered their students some choice among items and/or some self-serve items.

[3]Lunches were also assumed to include one serving of dessert (if offered), and one serving of unlinked condiments (if offered). See Section B for more details.

B. CALCULATING THE AVERAGE NUTRIENTS IN NSLP LUNCHES AS OFFERED

To be reimbursable by the USDA, a school lunch must include at least:

- One serving of meat or meat alternate (2 ounces or equivalent)
- One or two servings of bread or bread alternate (at least eight servings per week), where one serving is 1 slice of bread or equivalent
- Two or more distinct vegetables and fruits totalling 3/4 of a cup
- One serving (8 ounces) of fluid milk

The basic approach to variable construction and analysis was to define, for each day of the target week, the entrees offered, the breads offered that were not part of a particular entree, the fruits and vegetables offered, the types of milk offered, and the desserts and condiments offered.[4] The average nutrient content of each lunch was calculated as the sum of the nutrients in one average entree, one average bread, two average vegetable/fruit servings, one average milk, one average dessert (if offered), and one average condiment (if offered).[5]

The following subsections describe the operational procedures and assumptions used to construct these variables. The first subsection describes how lunch components were defined for non-self-serve foods. The second subsection describes how salad bars (and other self-serve bars) were handled. The third subsection describes how daily and weekly totals were calculated. The fourth subsection describes how the meal offering the lowest percentage of fat was defined.

1. Defining Lunch Components for Non-Self-Serve Foods

The following rules were used to define the various components of lunch:

1. Group together all foods that are served together, using the LINK codes.

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[4]References to bread also include bread alternates, such as rice or pasta.

[5]Rules for breakfast were slightly different, as described in Section C.

2. Define entrees:

   - An entree is an item with a USDA meal-component code indicating meat, either alone or in combination with bread and or vegetable/fruit.[6] There may also be items linked to an entree that do not contribute to a USDA meal component (sauces or condiments). In addition to meat, entrees included bread, but no vegetable, 51 percent of the time; both bread and vegetable 29 percent of the time; and vegetable, but no bread, 7 percent of the time.

   - For each entree, assign ***total nutrients*** (add up the nutrients in all linked foods), ***total gram weight*** (add up the weight of all linked foods), and a ***USDA meal-component code*** (based on the USDA component codes for each of the linked foods that comprise the entree). For example, an entree could consist of a hamburger (USDA code=meat) on a bun (USDA code=bread). The USDA code for the entree as a whole would be meat/bread.

3. Define bread items to include breads and bread alternates that are not linked to any entree defined above:

   - These items include breads and bread alternates not part of entrees, and items linked to breads, such as butter or gravy.

   - Assign total nutrients, total gram weight, and a USDA meal-component code (=bread) to each bread item.

4. Define vegetable/fruit items that are not linked to any of the entrees defined above:

   - These items include vegetable or fruit dishes not linked to entrees, and items linked to vegetables or fruits, such as butter, mayonnaise or salad dressing.

   - Assign total nutrients, total gram weight, and a USDA meal-component code indicating vegetable or fruit to each vegetable/fruit item.

   - There are a few vegetable/bread items. Because most of these appear to be satisfying primarily the vegetable requirement, they are counted as vegetables only.

5. Define desserts:

   - Desserts are foods with Nationwide Food Consumption Survey (NFCS) codes in these ranges: 531-536 (cakes, cookies, pies, cobblers), 915 (gelatin desserts), 916 (ice or popsicles), 917 (candies), or 131-132 (milk desserts).

     Most dessert items are coded as noncreditable foods (USDA code=none). However, some desserts are coded as vegetable/fruit items, because they contain enough fruit to count toward the meal pattern. It appears that schools do not usually rely on desserts to satisfy the vegetable/fruit requirement; thus, fruit desserts are coded as desserts, rather than as vegetable/fruit items. Each student is assumed to be offered one average dessert, if any are offered. (Thirty-eight

[6]"Meat" is used in the rest of this subsection to indicate meat or meat alternate.

percent of menus offer at least one dessert, and 8 percent offer at least two desserts.)

6. Define condiments:

   Salad dressings (NFCS = 831 or 832) are always linked to the salads they accompany. Each student taking a salad is assumed to be offered one average serving of salad dressing--i.e., when a choice of salad dressings is offered, the nutrients in each dressing are averaged.

   Other condiments (such as mayonnaise, pickles, catsup, or mustard) are not linked, except in the rare cases in which the link is unambiguous and obvious. A separate variable was created for unlinked condiments. Such condiments can be defined as follows:

   - Item is unlinked, and
   - NFCS = 744 (catsup, salsa, barbecue sauce),[7] or
   - NFCS = 755 (pickles, mustard, olives, Louisiana hot sauce), or
   - NFCS = 831 (mayonnaise)[8]

   Pickles may count as a vegetable, but most schools do not appear to be using pickles as a vegetable. (At least 1/8 of a cup of pickles must be offered to count as a vegetable.) Thus, pickles are treated as a condiment.[9]

7. Define spreads:

   Spreads are defined as unlinked foods with NFCS codes 123 (sour cream), 143 (cream cheese), 285 (gravy), 811 (butter or margarine), or 911-914 (sugar, syrup, jelly, jam). The nutrients in one serving of each type of spread offered are averaged and then added to the nutrients in an average serving of bread (if any unlinked breads). If there are no unlinked breads, the nutrients from the spreads are added to the average entree.

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[7]744 also includes tomato sauce without meat and tomato paste, but these should always be linked.

[8]831 includes salad dressing, but salad dressing should always be linked to salad.

[9]Portion sizes were assumed for self-serve condiments and spreads. See the discussion of salad bars.

2. Defining Lunch Components in Self-Serve Bars

Information on salad bars was provided on a form showing only the salad bar items. Respondents provided complete descriptions, labels, and recipes, as with all other foods. Sometimes amounts were indicated, but in most cases, respondents indicated only that the items were "self-serve."

a. Nutrient Coding

When no amount was indicated, standardized amounts were assumed for purposes of nutrient coding.

- For fruit/vegetable items that are likely to be a main ingredient in a salad (such as lettuce, tomato, carrot) 3/8-cup portions are coded (assuming at least two items totalling 3/4 of a cup to meet the meal-pattern requirement).
- For meat/meat alternate items, 2-ounce portions or equivalent are coded.[10]
- For items that are likely to be toppings, and for condiments, spreads, and salad dressings, smaller standardized portions are coded. (Table A.1 lists salad bar items and the serving sizes assumed for each.)

These serving sizes were assumed for nutrient coding purposes. In some cases, amounts were rescaled in the analysis (as discussed in the next subsection), and the nutrients in each item were adjusted proportionately.

b. Overview of Analysis

The most difficult problem in the analysis of salad bars is to develop reasonable assumptions about the quantity of each item offered and the combinations of items offered. Several approaches to constructing a "meal" from a salad bar were considered.

[10]Later, these items were scaled up to 3 ounces, for middle and high school students. See discussion in subsection B.2.b.

TABLE A.1

PORTION SIZES ASSUMED FOR SELF-SERVE ITEMS

Item	Portion Size
Fruits and Vegetables, Including Salads Composed Primarily of Fruits and Vegetables	3/8 cup
Cold Cuts or Cheese (Other than Shredded or Grated Cheese)	2 oz
Mixtures with Meat, Fish, Cheese, Egg, Macaroni	1/2 cup
Pasta (Spaghetti, Noodles, Macaroni, etc.)	1 cup
Pasta Sauce (Meat, Marinara, Clam, etc.)	1/4 cup
Soup	1 cup
Toppings	
Bacon bits	3/4 tb
Cheese, shredded or grated	3/4 tb
Croutons	3/4 tb
Dates	1 tb
Eggs, chopped hard-boiled	3/4 tb
Nuts	3/4 tb
Olives, sliced	3/4 tb
Onions, chopped	2 ts
Peppers (jalapeno, cherry, and other hot peppers), pimentos	3/4 tb
Pickles, sliced	3 slices
Pickles, spear	1 spear
Raisins	1 tb
Seeds	3/4 tb
Condiments/Spreads	
Butter	1 pat
Catsup	1 tb
Margarine	1 pat
Mayonnaise	1 tb
Mustard	2 ts
Relish (pickle, corn, piccalilli, hog dog, etc.)	2 ts
Salsa	2 tb
Sour Cream	2 tb
Crackers, Saltines	2 crackers

TABLE A.1 *(continued)*

Item	Portion Size
Salad Dressing	3/4 tb
Other Foods	
Chips (potato, corn, tortilla, etc.)	1 oz
Jello squares with fruit	1/2 cup
Pudding (includes tapioca)	1/2 cup

NOTE: If schools coded portion sizes, the school's portions were used. These default portion sizes were used only when schools did not code portion sizes.

One approach is to assume a student is offered the minimum amount necessary for the lunch to be reimbursable. For example, the minimum could be defined as:

- 1 serving of bread (for example, one slice of bread or eight saltines)
- 2 ounces of meat/meat alternate
- 3/4 of a cup of fruit/vegetable, with at least two different items, plus 1 serving of salad dressing (if dressing offered)

However, this approach seems inappropriate, because schools are encouraged to offer more than the minimum amounts, especially to older students, and salad bars enable students to take larger portions.

Another approach would be to assume students are offered one serving of everything on the salad bar. A problem with this approach is that schools did not offer full portions of everything on the salad bar. Furthermore, in some schools, so many items are offered that students who took a full serving of each item would consume well over 1,000 calories (1,000 calories was judged the maximum reasonable amount).

An intermediate approach between these extremes was chosen, which assumed that students are offered the minimum, and that students are offered everything on the salad bar. This approach is as follows:

- Assume students in elementary schools are offered the minimum plus up to three servings of "topping."
- Assume middle and high school students are offered:

  3 ounces of meat or meat alternate
  1 serving of bread or bread alternate
  3/4 of a cup of vegetables (one-half of which is lettuce)
  1 serving of fruit
  Up to 3 servings of "topping"
  1 serving of salad dressing

- When choices are offered for a given meal component on the salad bar (such as meat/meat alternate), average the nutrients in each choice, and rescale to the assumed amount, if necessary.

When salad bars did not offer all meal components, the meal components offered were coded using the same rules as the rules for full salad bars (detailed further in subsection B.2.c).

All other food bars were coded in the same way (with the exception of potato bars). Potato bars usually had amounts coded for each item by the schools. The serving sizes given were not rescaled. The potato was coded as a vegetable. All nonmeat toppings were treated as condiments--one average topping was linked to the potato. All meat toppings were averaged to equal one serving of meat. When combining potato bar items with other items, the composite stuffed potato from the potato bar was counted as one vegetable/fruit item if no meat toppings were served, and as one entree if any meat was offered.

c. Details of Calculation of the Average Nutrients Offered in Salad Bars

The first step in calculating the average nutrients offered in salad bars was to assign a portion size to each food. The calculation was performed as follows:

- ***Meat/meat alternates (entrees)***

  - Meats are foods with NFCS codes 140-147 (cheese), 210-284 (meat), or 311-350 (eggs).

  - If a food with one of these codes has a coded weight of less than 14 grams, the item is a "topping" (an example would be grated parmesan cheese). Bacon bits are always coded as a topping (see Table A.1).

  - If the coded weight is greater than or equal to 14 grams, rescale the serving size (and associated nutrients) to:

    1. 2 ounces (2 × 28.35 grams) for elementary schools

    or

    2. 3 ounces (3 × 28.35 grams) for middle/high schools.

- Assume students are offered one average serving of meat/meat alternate from the salad bar.

- ***Breads and bread alternates***

  - Breads are foods with NFCS codes in the 500s.

- If the coded weight is less than 2 grams, the item is a "topping" (for example, croutons).

- If the coded weight is between 2 grams and 18 grams, inflate it to 20 grams (and inflate the nutrients proportionately), and treat as one serving of bread.

- If the coded weight is more than 18 grams, use the weight given and treat as one serving of bread.

- Assume students are offered one average serving of bread.

- If the salad bar contains a meat/meat alternate, link the average nutrients in the bread/bread alternate to those in the meat/meat alternate, to form a composite entree.

- ***Vegetables and Fruits***

  - Vegetables are foods with NFCS codes 721-755.

  - Fruits are foods with NFCS codes of 610-650.

  - If the item is on the "topping" list, code as one topping (Table A.1). Otherwise, each item is coded as one serving of vegetable/fruit (3/8 of a cup).

  - Compute a weighted average of nutrients per serving of vegetable, in which one-half of the amount of vegetable offered is assumed to be lettuce, with the balance equally divided among all other vegetables on the salad bar.

  - For elementary schools:
    Assume the student is offered either one average serving of vegetable (3/8 of a cup) plus one average serving of fruit (3/8 of a cup) or two servings of vegetable, if no fruit is offered.

  - For middle and high schools:
    Assume students are offered either two average servings of vegetable (3/4 of a cup) plus one average serving of fruit (3/8 of a cup) or three servings of vegetable, if no fruit is offered.

"Toppings" include both salad garnishes (such as olives or grated cheese), condiments, and spreads. The nutrients in an average topping and an average salad dressing are calculated for each salad bar. The nutrients in up to three average toppings plus one average serving of salad dressing are then added (linked) to the nutrients in the vegetable/fruit servings.

3. Calculation of Average Nutrients Offered per Day and per Week

To calculate the average nutrients in meals offered on each day of the week, all of the foods offered were considered:

- Foods on the "all days" list were included with the foods served each day of the week, and coded using the same rules.
- Items from salad (and other self-serve) bars were included along with other foods (see below).
- Milk items were marked on the milk checklist. In general, schools offered the same types of milk each day, and most offered only 8-ounce servings. The nutrients in each type of milk offered were averaged and added to the total.

Three formulas were used to calculate the average nutrients offered for lunch each day. For "simple" cases, in which the menu included no more than one entree, one bread (not in an entree), and three vegetables or fruits, students were assumed to be offered all items, and the nutrients in all these components were summed. For cases with choices among entrees or breads, or more than three fruits and vegetables, but no salad bar, the following formula was used:

Average nutrients offered =

(1 × average nutrients per entree) + (2 × average nutrients per vegetable/fruit) + (1 × average nutrients per bread) + (1 × average nutrients per milk) + (1 × average nutrients per dessert) + (1 × average nutrients per condiment)

For cases in which choices include a salad (or other self-service) bar:

- ***If salad bar includes an entree.*** The nutrients in the meat items on the salad bar were averaged into one composite meat (scaled--as described--to 2 ounces for elementary schools and 3 ounces for middle and high schools). The composite bread from the salad bar was linked to the meat to make up a composite entree. Then, the nutrients across all entrees (including the one composite salad bar entree and all other entrees) were averaged.
- ***Other salad bar items.*** The composite bread from the salad bar was counted as one bread offering if no entree was offered on the salad bar. The total nutrients in the composite vegetables and fruits from the salad bar were counted as two vegetable/fruit offerings in computing the average for the day.

Then, the formula for average nutrients offered was applied.

For each school, the average nutrients offered in school lunches during the target week were calculated by adding up the average nutrients offered each day and then dividing by the number of days that lunch was served.[11]

4. Defining the Lowest-Percent-of-Fat Lunch Offered

The nutrient content of the lowest-percent-of-fat full meal offered for lunch each day in the sample of schools providing menus was analyzed. The lowest-percent-of-fat meal was defined as follows:

- A meal was constructed as a sum of an entree, a bread (if any breads were on the menu that were not linked to entrees), two vegetables or fruits, and a milk. (As in the main analysis, a bread was added even if the entree already included bread.)
- In each meal-component category, the choice with the lowest percentage of food energy from fat was selected, except in the vegetable/fruit category, where the two choices with the lowest percentage of food energy from fat were selected, to meet the meal-pattern requirement of two servings. Note that items with the lowest percentage of food energy from fat do not necessarily have the lowest food energy.
- Desserts were not included.
- Salad bars or other foods bars were analyzed separately. An average meal from the salad bar was constructed (as described) and then compared with the lowest-percent-of-fat meal not from the salad bar. The meal with the lowest percentage of food energy from fat was selected.
- For salad bars that did not offer all meal components, missing meal components were completed with the lowest-percent-of-fat option available on the rest of the menu.
- The lowest-percent-of-fat options offered each day were averaged over the course of a week.

[11]Sixty-seven schools served lunch only on four days because of a holiday or snow day during the target week, three schools served lunch only on three days, and two schools served lunch only on two days. Because these cases are rare, these schools were weighted the same as others in the analysis, although the averages were based on fewer days of data.

C. CALCULATING THE AVERAGE NUTRIENTS IN SBP BREAKFASTS AS OFFERED

SBP breakfasts must offer:

- One serving of fluid milk
- One serving of either full-strength fruit or vegetable juice or fruit or vegetable
- Two servings of bread/bread alternate, or two servings of meat/meat alternate, or one serving of bread and one serving of meat

Because breakfast menus are generally much simpler than lunch menus, the computation of average nutrients offered at breakfast is more straightforward.

Servings were defined as follows:

- A serving of a breakfast entree was defined as any bread/bread alternate item served or any meat/meat alternate item served.[12] If a dish combined bread and meat (for example, french toast), it was assumed to constitute two servings of entree. All breakfasts were assumed to include two servings of entree.
- A serving of vegetable/fruit/juice was defined as any fruit or vegetable offering not part of an entree. The nutrients in multiple types of juice were averaged and counted as one serving.
- Milks offered at breakfast were listed on the milk checklist. The nutrients from a serving of each type of milk offered were averaged.

In calculating the average nutrients offered at breakfast, two cases were differentiated: (1) a simple breakfast, where it appeared that the student was offered all items; and (2) a breakfast with choices among items. If the breakfast consisted of three items or fewer (not including milk), it was defined as a simple breakfast, and the nutrients in all foods offered (other than milk) were summed and added to the nutrients in an average serving of milk. Almost one-half (49 percent) of breakfasts

[12]In some cases, breakfasts included items that are not creditable under the meal pattern, such as bacon. If the menu did not have two creditable entree servings, so that the school seemed to be counting the noncreditable item as an entree serving, that item was counted. If there were two creditable servings on the menu, but the item was served in addition, the nutrients in the "extra" item were linked to one of the entrees.

were of this form. In counting items, choices among juices were averaged together and counted as one item. Similarly, choices among types of cereal were averaged together and counted as one item.

In cases offering choice, the average nutrients offered at breakfast each day were computed as follows:

$$\textit{Average nutrients} = (1 \times \text{nutrients in average milk}) + (1 \times \text{nutrients in average vegetable/fruit/juice}) + (2 \times \text{nutrients in average bread/meat})$$

The average nutrients offered at breakfast over the course of the week at each school were computed by totalling the average nutrients offered each day and dividing by the number of days that breakfast was served.

D. CATEGORIES USED IN THE ANALYSIS OF FOODS OFFERED IN THE NSLP

Data on the variety of foods offered requires a system for classifying foods. The system used was based on the NFCS three-digit food codes. However, because these codes were deemed to be insufficiently detailed to provide a full picture of foods offered in the NSLP, four-digit codes based on the NFCS codes were developed.[13] This section describes the four-digit codes, and their use in defining entrees, breads, vegetables, and fruits on the menus.

1. Development of Four-Digit Codes

NCC coded each menu item with the appropriate three-digit NFCS code and a verbal food description. For items prepared from recipes, NCC coded NFCS codes and food descriptions for each recipe ingredient and coded the recipe name as described by the school.[14] MPR programmers assigned three-digit NFCS codes to recipes, based on the ingredient list.

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[13]The development of the codes was carried out under another contract with the Food and Nutrition Service.

[14]Recipe names were not always informative. For example, it was not possible to classify cobbler salad, cowboy bread, or surprise cake without looking at the ingredients.

The four-digit codes were developed by analyzing a printout of the detailed food descriptions of all food items offered on a sample of menus, and by deciding when subcategories were needed, based on the frequencies of the items and the nutritional relevance of distinctions. For example, baked french fries and fried french fries were distinguished, because both are common items on school menus and the difference in preparation method is of interest. The most extensive subcategories were developed for ground beef and cold cuts, white bread, fruits, and vegetables. In other cases, the four-digit codes group together NFCS codes that occur very infrequently in the school lunch menu data.[15] Table A.2 lists the four-digit codes developed and documents how they were defined according to NFCS codes and food descriptions.

2. Coding Entrees

Four categories of entrees were defined: (1) meats served separately or with bread on the side; (2) sandwiches; (3) salads that include meat; and (4) mixtures--that is, recipes with meat or cheese combined with bread/bread alternate or vegetable (such as pizza or lasagna). Codes for the more common types of entrees in each category were developed on the basis of the four-digit food codes and verbal food descriptions. These codes were used to tabulate the number of distinct entrees offered per week and the frequencies with which specific types of entrees were offered.

The rules for defining these categories are listed in Table A.3. The codes for meats served with bread may be picking up either meat served with bread on the side or sandwiches--for example, chicken with a roll. However, the most clear-cut cases (hamburgers, hot dogs, and combinations of bread with cheese and/or lunchmeats) were coded as sandwiches. The entree codes capture two-thirds of all entrees served (not counting those on self-serve bars).

[15]Because they were developed for another project, with different analytical objectives, these codes were developed at the level of recipe ingredients rather than of completed recipes. Thus, there are no codes for common foods usually prepared from recipes, such as pizza. However, it was possible to adapt these codes for the analysis needs.

TABLE A.2

FOOD CODE DEFINITIONS

4-Digit Code	Label	Definition
0071	CORNMEAL	
0072	BAKING POWDER	
0080	SALT	
0040	BAKING SODA	
1110	MILK USED IN RECIPES	NFCS 111-113, 115
1140	YOGURT	NFCS 114
1220	CREAM, SOUR CREAM	NFCS 122, 123
1310	MILK DESSERTS	NFCS 131, 132
1340	MILK GRAVIES	NFCS 134
1420	LOW-FAT CHEESES	MOZZARELLA, PARMESAN, COTTAGE CHEESE, RICOTTA
1440	HIGH-FAT CHEESES	NFCS 144, 146, REST OF 141
1450	IMITATION CHEESE	NFCS 145
2151	GROUND BEEF 20% FAT	
2152	GROUND BEEF 25-30% FAT	
2153	GROUND BEEF 25-30% FAT WITH TVP	INCLUDES GROUND BEEF, UNKNOWN % FAT WITH TVP
2154	BREADED GROUND BEEF	CHICKEN-FRIED STEAK OR SIMILAR DISHES
2155	BREADED GROUND BEEF WITH TVP	
2156	GROUND BEEF RECIPES	MEAT RECIPES WITH 215 AS MAIN INGREDIENT, E.G., SLOPPY JOE MIXTURE

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
2157	GROUND BEEF RECIPES WITH TVP	
2158	GROUND BEEF, UNKNOWN % FAT	DEFAULT ASSUMED ABOUT 21% FAT
2231	EXTRA LEAN HAM	
2232	GROUND HAM	
2233	OTHER HAM	
2521	TURKEY HAM	
2522	TURKEY SAUSAGE, ETC.	ALSO TURKEY BOLOGNA AND TURKEY SALAMI
2523	TURKEY HOT DOG	ALSO CHICKEN HOT DOG
2524	TURKEY BREAST	NFCS = 252 AND DESCRIBED AS "TURKEY" (LUNCHMEAT) AND NONE OF THE ABOVE
2525	MEAT/POULTRY HOT DOG	
2526	BEEF/PORK HOT DOG	ALL FRANKFURTERS EXCEPT THOSE WITH POULTRY
252N	LUNCHMEATS/SAUSAGES	ALL OTHER NFCS 252
2201	GROUND PORK	
2202	GROUND PORK WITH TVP	
2203	BREADED GROUND PORK	PORK PATTIES
220N	ALL OTHER RED MEATS	OTHER NFCS = 220, ALL NFCS = 210, 211, 214, 221, 222, 226
2413	PRE-BREADED CHICKEN	CHICKEN NUGGETS AND PATTIES
2411	CHICKEN WITHOUT SKIN	FAT AS % OF KCAL <.45
2412	CHICKEN WITH SKIN	FAT AS % OF KCAL $\geq$ .45

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
2414	CHICKEN SALAD	INCLUDES TURKEY SALAD
2423	PRE-BREADED TURKEY	
2421	TURKEY WITHOUT SKIN	FAT AS % OF KCAL <.40
2422	TURKEY WITH SKIN	FAT AS % OF KCAL $\geq$ .40
2612	PRE-BREADED FISH	FISH NUGGETS OR PATTIES
2611	TUNA IN WATER	
2613	TUNA SALAD	
261N	OTHER FISH	ALL OTHER NFCS 261 AND 262
285N	GRAVY	
283N	BOUILLON	
3110	EGGS	
3210	EGG SALAD	
4110	DRIED BEANS AND PEAS	NFCS 411 AND 413
4121	BAKED BEANS, VEG.	VEGETARIAN ONLY
4122	REFRIED BEANS	
412N	OTHER BEAN DISHES	ALL OTHER NFCS 412
4160	SOUPS WITH LEGUMES	LENTIL OR PEA SOUP
414N	SOY PRODUCTS	TVP, WORCESTERSHIRE SAUCE
418N	BACON BITS	
4210	NUTS AND SEEDS	NFCS 421 AND 431
4220	NUT BUTTERS	
5001	FLOUR - WHITE	ENRICHED WHITE FLOUR
5002	FLOUR - WHEAT	WHOLE WHEAT FLOUR

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
5111	FRENCH BREAD	ALSO FRENCH ROLLS
5112	HAMB. OR HOT DOG BUN	ALSO HAMBURGER OR HOT DOG ROLL
5113	WHITE ROLL	ALSO "UNKNOWN" ROLL OR BUN, WHITE BUN
5114	SUBMARINE ROLL	ALSO SUBMARINE BUN
5115	WHITE LOAF BREAD	DESCRIPTION IS "WHITE BREAD"
5116	PIZZA DOUGH	OR PIZZA CRUST
511N	OTHER WHITE BREADS	ALL OTHER NFCS 511 (CROUTONS, ITALIAN BREAD, BREADSTICKS)
5121	WH. WHEAT BUN OR ROLL	NFCS = 512-515 AND BUN OR ROLL
5122	WH. WHEAT BREAD	NFCS = 512 AND DESCRIPTION IS "WHEAT BREAD"
512N	OTHER WHEAT BREADS	ALL OTHER NFCS = 512-515
5210	BISCUITS	
5221	CORNBREAD	ALL CORNBREAD EXCEPT HUSHPUPPIES
5222	TACO SHELL	(USUALLY FRIED)
5223	FLOUR TORTILLA	WHITE FLOUR TORTILLA, PLAIN (NOT FRIED)
522N	OTHER TORTILLA, ETC.	ALL OTHER NFCS 522 (USUALLY FRIED)
5230	MUFFINS	
5310	CAKES AND COOKIES	NFCS 531, 532
5411	SALTINE	NFCS 541, 542, 543 AND DESCRIPTION = SALTINE
541N	ALL OTHER CRACKERS	ALL OTHER NFCS 541, 542, 543

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
5440	CHIPS	NFCS 544 - SALTY SNACKS INCLUDING PRETZELS
551N	PANCAKES	NFCS 551, 552, 553 - PANCAKES, WAFFLES, AND FRENCH TOAST
5611	EGG NOODLES	
5612	MACARONI	
5613	SPAGHETTI	
5614	CHOW MEIN NOODLES	
5615	MACARONI/PASTA SALAD	
561N	OTHER PASTA	ALL OTHER NFCS 561
5621	RICE	NFCS 562, 573 OR 576 AND DESCRIPTION = RICE
562N	OTHER CEREALS	ALL OTHER NFCS 562, 573, 576
584N	GRAIN SOUPS	
6111	FRESH ORANGE	
6112	ORANGE JUICE	
6113	LEMON JUICE	
611N	OTHER CITRUS	ALL OTHER NFCS 611
6211	DATES	
6212	FIGS	
6213	PRUNE	
6214	RAISINS	
6311	APPLESAUCE	INCLUDES STEWED APPLES
6312	FRESH APPLE	

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
6313	CANNED APPLE	ALSO ALL OTHER APPLES (INCLUDING BAKED)
6314	CANNED APRICOT	
6315	FRESH BANANA	
6316	SWEET CHERRIES	FROZEN
6317	FRESH GRAPES	
6318	MARASCHINO CHERRIES	
6319	CANNED PEACH	
631A	FROZEN PEACH	
631B	CANNED PEAR	
631C	FRESH PEAR	
631D	CANNED PINEAPPLE	
631E	FRESH PINEAPPLE	
631F	CANNED PLUM	
631N	ALL OTHER FRUITS	ALL OTHER NFCS 631 AND ALL NFCS 632
6330	FRUIT COCKTAIL	NFCS 633
6340	FRUIT JUICE BAR	
6411	APPLE JUICE	INCLUDES APPLE - GRAPE JUICE
6412	GRAPE JUICE	
6413	PINEAPPLE JUICE	
641N	MIXED FRUIT JUICE	NOT CITRUS
6440	VINEGAR	

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
7100	POTATOES, NOT FURTHER SPECIFIED	
7110	BAKED/BOILED POTATO	
7120	POTATO CHIPS	INCLUDES POTATO STICKS
7130	CREAMED POTATOES	INCLUDES SCALLOPED OR AU GRATIN
7141	BAKED FRENCH FRIES	
7142	FRIED FRENCH FRIES	INCLUDES UNKNOWN IF BAKED OR FRIED
7143	HASH BROWNS	
7144	TATER TOTS	
7145	MASHED POTATOES	
714N	OTHER POTATOES W/ FAT	ALL OTHER NFCS 714 OR 715
7160	POTATO SALAD	
7180	POTATO SOUP	
7211	RAW SPINACH	
7212	COOKED GREENS	INCLUDES COOKED SPINACH
7221	RAW BROCCOLI	
7222	COOKED BROCCOLI	
723N	BROCCOLI SOUP	
7311	RAW CARROTS	
7312	COOKED CARROTS	
7320	PUMPKIN	
7330	WINTER SQUASH	

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
7340	SWEET POTATOES	
7410	RAW TOMATOES	
7420	COOKED TOMATOES	
7430	TOMATO JUICES	
7450	TOMATO MIXTURES	
7441	CATSUP, ETC.	ALSO BARBECUE SAUCE AND TACO SAUCE
7442	TOMATO SAUCE	ALL OTHER NFCS 744
7460	TOMATO SOUP	
7511	RAW CABBAGE	
7512	RAW CAULIFLOWER	
7513	RAW CELERY	
7514	RAW CUCUMBER	
7515	RAW GREEN PEPPER	
7516	ICEBERG LETTUCE	INCLUDES LETTUCE, UNKNOWN TYPE
7517	RAW ONION	EXCEPT GREEN ONION
7518	RADISH	
7519	COLE SLAW	INCLUDES ALL "SLAW" FROM RECIPES AND PRE-PREPARED
751N	OTHER RAW VEGETABLES	ALL OTHER NFCS 751
7521	COOKED CELERY	
7522	CANNED CORN	
7523	FROZEN CORN	

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
7524	CANNED PEAS	
7525	FROZEN PEAS	
7526	COOKED GREEN PEPPER	
7527	CANNED GREEN BEANS	
7528	YEAST	
7529	ONION FLAKES	
752A	COOKED ONION	
752B	COOKED CABBAGE	
752C	BEETS	
752D	HOT CHILI PEPPERS	
752E	PIMENTO	
752N	OTHER COOKED VEG.	ALL OTHER NFCS 752
7530	COOKED VEG. MIXTURES	ALL NFCS 753 MIXED VEGETABLES
7540	VEG. BATTER - FRIED	ALL NFCS 754
7551	MUSTARD OR RELISH	ALSO HOT PEPPER SAUCE
7552	PICKLES	NOT RELISH
7553	OLIVES	
756N	VEGETABLE SOUPS	NFCS 756
8111	BUTTER	
8112	MARGARINE	
8120	SHORTENING	
8130	TARTAR SAUCE	

TABLE A.2 *(continued)*

4-Digit Code	Label	Definition
8210	VEGETABLE OIL	
8310	SALAD DRESSING	INCLUDES MAYONNAISE
8320	LOW-FAT SALAD DRESS.	
9110	SUGAR	
9120	SUGAR SUBSTITUTE	
9130	SYRUP, HONEY	ALSO MOLASSES, SWEET TOPPINGS
9140	JELLIES, JAMS	ALSO PRESERVES
9150	GELATIN DESSERTS	ALSO GELATIN SALADS
9160	ICES	OR POPSICLES
9170	CANDIES	
9180	CHEWING GUMS	
9230	TEA	
9240	SOFT DRINKS	
9250	FRUITADES	

TABLE A.3

CODING OF ENTREES

Some definitions:
BREAD = 5111-5221
NOODLES OR RICE = 5611-5614, 561N, 5621
CHEESE = 1420, 1440, 1450

MEATS

Meat entrees may be defined as meat alone (no bread linked), meat with bread, or meat with noodles or rice. Each of the following meats should be defined as an entree with any of the meat codes listed, but no other meats, and no cheese.

BREADED BEEF = 2154, 2155, or 2153 and description="chicken-fried"
without bread, with bread

PORK OR HAM PATTY = 2203, 2201, 2232
without bread, with bread

HAM = 2233, 2231
without bread, with bread

CHICKEN OR TURKEY NUGGETS OR PATTY = 2413, 2423
without bread, with bread

CHICKEN (NOT BREADED) = 2412, 2411
without bread, with bread, with noodles or rice

TURKEY (NOT BREADED OR LUNCHMEAT) = 2421, 2422
without bread, with bread

FISH NUGGETS OR PATTY = 2612
without bread, with bread

TUNA SALAD = 2613
(includes tuna salad sandwiches)

Meats Usually in Sandwiches

HAMBURGER = any of 2151, 2152, 2153, 2158 (or description="hamburger" or "ground beef") and any bread in 5112, 5113, 5121, and NO CHEESE

CHEESEBURGER = HAMBURGER with CHEESE

TABLE A.3 *(continued)*

HOT DOG = any of 2523, 2525, 2526 and 5112

CORNDOG = any of 2523, 2525, 2526 and NO BREAD and 0071

HAM AND CHEESE SANDWICH = HAM with BREAD (see above), and CHEESE (no other meat)

CHEESE SANDWICH = CHEESE and BREAD and no meat, eggs or beans (no foodcode starting with 2 or 3 or 4)

PEANUT BUTTER SANDWICH = 4220 and BREAD

TURKEY SANDWICH = 2524 and BREAD (no other meat)
with cheese, without cheese

MIXED MEAT SANDWICHES = 2521 or 2522 or 252N and BREAD (also includes other meat sandwiches with cheese)
with and without CHEESE

MIXTURES

PIZZA= 5116 and cheese or description="pizza, frozen" with meat, and without meat

CHILI = any 215 code and any of 4110, 4121, 412N
without bread, with bread

BURRITO OR ENCHILADA = 5223 and one or more of the following: cheese, ground beef (any 215 code), refried beans (4122), or chicken (2411, 2412)

TACO, NACHOS, TACO SALAD = 5222 and either: ground beef (any 215), refried beans (4122), or cheese

MACARONI AND CHEESE = any pasta (5611, 5612, 5613, 561N) and CHEESE and no meat and no vegetables

PASTA WITH MEAT SAUCE = any pasta and any 215 and either 7442 or 7420
no cheese, with cheese

ENTREE SALADS

The following meat salads were identified based on recipe food descriptions:

EGG SALAD
HAM SALAD
TURKEY SALAD
CHICKEN SALAD
CHEF SALAD (also includes recipes labeled "cobbler salad")

3. Bread, Fruit, and Vegetable Codes

The four-digit codes for breads, fruits and vegetables listed in Table A.2 were used directly in preparing the tables on the frequency with which particular breads, bread alternates, fruits, and vegetables were offered. Because breads or bread alternates are usually part of entrees, the tabulations of the relative frequency with which breads were offered included those in entrees. The tabulations for vegetables did not include vegetables that were part of entrees.

APPENDIX B

TECHNICAL APPENDIX ON THE ANALYSIS OF PARTICIPATION IN THE NSLP AND SBP

A. INDIVIDUAL-LEVEL ANALYSIS OF PARTICIPATION IN THE NSLP

1. Definition of "Lunch" and Sources of Lunch

Two basic analytical issues for the School Nutrition Dietary Assessment study were (1) how to define "lunch," and (2) how to identify students who eat a "U.S. Department of Agriculture (USDA)-reimbursable lunch."

a. Definition of Lunch

The term "lunch" may mean different things to students in different locations or social groups. One student might think of crackers and a soda eaten at noon as "lunch," whereas another student considers these items a "snack." One student may consume a bag lunch, and 10 minutes later, eat a candy bar, which he or she considers a snack; another student might consider the candy bar part of lunch. To avoid the possibility that differences in the incidence of lunch eating could arise entirely from students' differing perceptions of what constitutes lunch, lunch was defined in terms of foods consumed during a period surrounding the lunch period at the student's school. The principal of each school in the study reported, in the School Characteristics Questionnaire, the time of day when the school's earliest lunch period began, and the time when the last lunch period ended. Lunch included all foods and beverages that a sample member consumed during the period beginning 45 minutes before the start of the earliest lunch period and ending 45 minutes after the end of the last lunch period. Thus, the lunches of students at the schools in the study may include foods eaten as snacks before or after students ate lunch.

b. NSLP Participation

NSLP participants are all students who obtained a lunch from the school cafeteria for which the school claimed federal reimbursement under the National School Lunch Program (NSLP). Several methods for identifying students who selected a USDA-reimbursable meal were considered:

- Direct observation of sample members by study staff
- Asking cafeteria staff about the lunches served to individual sample members
- Asking sample members whether they got the school lunch
- Determining whether the meal constituted a reimbursable meal by examining students' reports of what they selected for lunch in the school cafeteria

It was impractical to observe directly or to ask school staff whether individual sample members ate a lunch for which reimbursement was claimed.[1] Also rejected was the option of relying on students' responses to a question about whether they got the school lunch that day. This option was rejected because of the possibility that many students eating a la carte items might report that they got a school lunch. The approach followed was to use the dietary intake interviews to determine where each food item was obtained (including any foods that may have been selected but not eaten), and whether the item could be counted as a USDA-reimbursable item. For this purpose, foods that students reported obtaining from the school cafeteria were coded according to whether they contributed to the milk, meat, bread, or vegetable/fruit component; to some combination of these components; or to no component.

In principle, the definition of a USDA meal should differ according to whether a school uses offer versus serve (OVS). In a school using OVS, even if a student rejects one or two of the five required meal components, reimbursement may be claimed for the meal. In a school that does not use OVS, students must take all five of the required meal components for reimbursement to be claimed. All secondary schools must use OVS, and schools below the secondary level may do so at the option of local school officials. According to the data, about 75 percent of elementary schools and 90 percent of middle schools use OVS.

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[1]The alternative of observing whether the student was counted as a participant was judged to be too intrusive and too costly. Cafeteria staff do not keep records to show whether a given student was counted as taking a USDA-reimbursable meal on a given day. Thus, recovering this information from staff after the fact was not feasible, and asking the cafeteria staff at the decision point would have entailed unacceptable risks of identifying sample members to their peers and teachers.

The strictest definition of participation would designate NSLP participants differently at OVS and non-OVS schools. Under the strictest definition, students at OVS schools who selected, from the cafeteria, a meal containing at least three of the five required components would be counted as participants. However, at non-OVS schools, only students who selected a meal containing all five components would be counted as participants. Unfortunately, requiring that students in non-OVS schools select all five components may cause some students who actually took a meal for which reimbursement was claimed to be classified incorrectly as nonparticipants. This misclassification can occur for two reasons. First, a school's stated policy regarding OVS as reported on the School Characteristics Questionnaire may differ from actual practice on the serving line. That is, cafeteria personnel may permit students to take only three or four items in a meal for which reimbursement is claimed, even though the school policy does not allow OVS. Indeed, analysts collecting data through direct observation of serving lines in another study funded by the Food and Nutrition Service (FNS) reported that divergence of actual practice from stated policy was widespread.[2] Second, some students may have forgotten to report one or more items that were part of their lunch, so that even though they may have taken five items, they would be classified as having taken fewer than five. This possibility is of most concern with younger children.[3]

Given reliance on students' reports, and given that OVS policy and practice may not coincide, some errors in the identification of NSLP participants are unavoidable. Accordingly, the sensitivity of estimated participation rates to alternative definitions of NSLP participation was examined. The definitions differ according to the treatment of students at non-OVS schools who selected three or four reimbursable items. In the narrowest definition (definition 1), at non-OVS schools, only students

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[2]This study was part of the Child Nutrition Program Operations Study, which was conducted by Abt Associates under contract with FNS (St. Pierre et al. 1992, p. A-43).

[3]On the basis of the results of the analysis of data from students' dietary intake interviews, under-reporting of foods consumed does not appear to have been widespread. Mean and median energy intakes are above the Recommended Dietary Allowances for food energy, which are set to reflect the mean energy needs of different age and gender groups.

who selected five items were counted as NSLP participants. In definition 2, students who selected at least four items were counted as participants. In definition 3, students who selected at least three items were counted as participants.

Table B.1 shows the (unweighted) number and percentage of all students, by age group, who are classified as participants under the three different definitions. Under the definition requiring five components, the percentage of students nationwide taking an NSLP lunch (the participation rate) is 48 percent. The nationwide participation rate increases to 51 percent under the definition requiring four components (an increase in the number participating of 114 students), and to 52 percent under the definition requiring three components (an increase of 35 students over definition 2). Two-thirds of the students whose status changes from nonparticipant to participant in moving from definition 1 to definition 3 are in the 6- to 10-year-old group, and one-third are in the 11- to 14-year-old group.

Also examined was whether students affected by the change in the definition of participation attend schools offering a la carte items. If they attend schools that do not offer a la carte items, then they cannot have selected a non-USDA meal. In fact, 106 of the 151 students whose participation status changed from the narrowest to the broadest definition attend schools that do not offer a la carte items; thus, their foods must have been part of a USDA-reimbursable meal.

Table B.2 shows, for each of the three definitions of participation, participation rates by eligibility and meal-price certification status of students at schools offering NSLP lunches. The table shows that, as the definition of participation is relaxed, the corresponding increase in the participation rate is proportionately larger among students who are certified for free or reduced-price meals than for students who are not certified (whether eligible or not). Moreover, under the definitions requiring only three or four components at non-OVS schools, the participation rate at schools offering NSLP lunches is about 56 percent. This rate is the same as the overall NSLP participation rate calculated from the most recently available administrative data.

TABLE B.1

NUMBER AND PERCENTAGE OF STUDENTS IDENTIFIED AS NSLP PARTICIPANTS, USING ALTERNATIVE DEFINITIONS OF PARTICIPATION AT NON-OVS SCHOOLS

Age Group	Total Number of Students	Students in Non-OVS Schools Select 5 Components		Students in Non-OVS Schools Select 4 Components		Students in Non-OVS Schools Select 3 Components	
		Number of Participants	Percent of Age Group	Number of Participants	Percent of Age Group	Number of Participants	Percent of Age Group
Age 6-10	1,383	743	53.7	824	59.6	848	61.3
Age 11-14	1,130	527	46.6	560	49.6	573	50.7
Age 15-18	837	325	38.8	325	38.8	325	38.8
Total	**3,350**	**1,595**	**47.6**	**1,709**	**51.0**	**1,746**	**52.1**

SOURCE: Unweighted tabulations collected from Dietary Intake Interviews with students, School Nutrition Dietary Assessment study.

OVS = offer versus serve.

TABLE B.2

PARTICIPATION RATES AT SCHOOLS OFFERING NSLP LUNCHES, USING ALTERNATIVE DEFINITIONS OF PARTICIPATION AT NON-OVS SCHOOLS
(Percentage)

Group	Number of Components Student in Non-OVS School Must Select To Be Classified as NSLP Participant		
	5 Components	4 Components	3 Components
Students Not Eligible for Free or Reduced-Price Meal	43	45	46
Students Eligible but Not Certified for Free or Reduced-Price Meal	43	45	46
Students Certified for Free or Reduced-Price Meal	71	77	79
All Students	52.0	55.5	56.4

SOURCE: Unweighted tabulations collected from Dietary Intake Interviews with students, School Nutrition Dietary Assessment study.

NOTE: Rates are computed using students at schools participating in the NSLP as bases.

In light of this information, the most inclusive definition of a USDA-reimbursable meal has been used for the main analysis presented in this report. That is, a student is identified as an NSLP participant if he or she reports selecting at least three food items that contribute to a USDA meal-pattern requirement (regardless of whether the school policy is to use OVS). As noted in the next subsection, with the single exception of the estimate of the effect of OVS availability on NSLP participation, the substantive findings are not sensitive to the operational definition of NSLP participation. Data presented in Table B.3 show that estimates of NSLP participants' nutrient intakes at lunch are not sensitive to this decision.

2. Specification and Estimation of the Model of NSLP Participation Using Individual-Level Data

Multivariate analysis was used to investigate whether particular personal characteristics, program characteristics, and meal-service characteristics are associated with the probability that a student eats a USDA lunch. Specifically, a probit model of the probability of eating a USDA lunch was estimated in order to account for the fact that the dependent variable in the model (participation in the NSLP) takes on the values 0 and 1 only.

The analysis investigated six groups of variables that may be related to the probability of eating a USDA lunch:

- ***Key Programmatic Variables***
  - The full price charged for a USDA lunch
  - Whether a student is certified to be eligible to receive a free meal
  - Whether a student is certified to be eligible to receive a reduced-price meal
  - Whether the school uses OVS
- ***Major Alternatives Available for the Student to Get Lunch***
  - Whether the school sells lunch items a la carte
  - Whether vending machines or a school store or snack bar are available to students at lunchtime
  - Whether the school has an open-campus policy that allows students to leave the school to get lunch

TABLE B.3

SENSITIVITY OF ESTIMATES OF NSLP PARTICIPANTS' LUNCH INTAKES TO ALTERNATIVE DEFINITION OF PARTICIPATION

Dietary Component	Basic Definition of Participation	Strict Definition of Participation
Macronutrients		
Food Energy (Percentage Consuming at Least One-Third of the RDA)	42	43
Protein (Percentage Consuming at Least One-Third of the RDA)	92	92
Percentage of Food Energy from:		
Fat	37	37
Saturated fat	14	14
Carbohydrate	48	48
Vitamins (Percentage Consuming at Least One-Third of the RDA)		
Vitamin A	33	34
Vitamin C	50	51
Thiamin	64	64
Riboflavin	84	84
Niacin	60	61
Vitamin B6	40	41
Folate	69	70
Vitamin B12	90	90
Minerals (Percentage Consuming at Least One-Third of the RDA)		
Calcium	64	65
Iron	47	48
Phosphorus	79	79
Magnesium	58	58
Zinc	39	40
Other Dietary Components (Intake)		
Cholesterol (mg)	85	86
Sodium (mg)	1,501	1,527
Sample Size (Unweighted)	**1,744**	**1,595**

SOURCE: Weighted tabulations of data collected from Dietary Intake Interviews with students, School Nutrition Dietary Assessment study.

mg = milligrams.

- *Characteristics of the Student and the Student's Family*

  - The age of the student (measured as dummy variables indicating whether the student is aged 11 to 14 or aged 15 to 18)
  - The gender of the student (measured as female relative to male)
  - The ethnic group of the student (measured as African American, Hispanic, and other ethnic group relative white, non-Hispanic)
  - Whether the income of the student's family makes the student eligible to receive a free or reduced-price meal[4]
  - Whether the student lives with his or her mother
  - Whether the mother works outside the home
  - Family size (measured as binary variables indicating whether the family size is 3 or 4 members, 5 to 7, or more than 7)

- *Location and Region of the Country*

  - Residential location (measured as residence in urban and in suburban locations relative to rural locations)
  - Region of the country (measured as residence in the Mid-Atlantic, Southeast, Midwest, Southwest, Mountain, and West, relative to New England)

- *Foods that Were Offered for Lunch on the Day of the Student's 24-Hour Recall*

  - Average percentage of calories from fat in the lunches offered during the week of the observation day
  - Average percentage of calories from fat in the lunch offered on the observation day

  A set of variables intending to capture specific foods that are thought to appeal to students:

  - Whether pizza was offered
  - Whether a high-fat vegetable was offered (primarily, but not exclusively, french fries)
  - Whether a dessert was offered

  A set of variables intending to capture the cafeteria's orientation toward healthful eating, measured as:

  - Whether a fresh fruit was offered
  - Whether a salad bar was offered
  - Whether a low-fat entree was offered[5]

[4]The model also includes a variable indicating whether eligibility could not be determined because the student's parents did not complete the household questionnaire. This variable enabled the statistical estimation to include the information on students whose data were otherwise complete but were missing income information.

[5]A low-fat entree is defined operationally as a meat item plus bread that together provide 35 percent of food energy from fat.

- *Other Characteristics of the School's Meal Service*

  - An index of serving capacity (defined as the number of students per cash register per minute in each lunch period)
  - Whether younger students have a play period after lunch

The estimation sample includes all students at schools offering the NSLP (treating students who did not eat lunch as NSLP nonparticipants).

Results of the estimation of the basic specification of the participation model are shown in Table VII.3 in the text, and the results of the estimation of alternative specifications are shown in Table B.4. The basic specification includes most of the variables listed above plus interaction terms between the full price and whether the student is certified for a free meal, as well as between the full price and whether the student is certified for a reduced-price meal. Given the relatively large number of variables in this specification, it is possible that the estimated effects of one independent variable might be sensitive to the other independent variables that were included in the model. Thus, the specific variables included in the model were varied in estimating the alternative specifications.

Table B.4 shows the "marginal effects" of various characteristics on the probability that a student participates in the NSLP. The marginal effect is the difference between the predicted probability of participation if the student (or meal) has a given characteristic and the predicted probability of participation if the student (or meal) does not have this characteristic but, rather, has some base characteristic.[6] These predicted probabilities of participation are calculated after controlling for all other characteristics. More specifically, the predicted probability of participation (or equivalently, the predicted participation rate) is calculated by estimating the probability that a student who has a given characteristic (the student is certified for free meals, for example), but who is like the "average sample member" in all other respects, will eat a NSLP lunch. Next, the probability of eating an NSLP lunch is calculated for a student who does not have the given characteristic but, rather, has the base

[6]Thus, the marginal effects shown in Table B.4 are comparable to the "difference" in predicted participation rates shown in Table VII.3.

TABLE B.4

ESTIMATED NET EFFECTS OF INDEPENDENT VARIABLES ON THE PROBABILITY OF PARTICIPATING IN THE NSLP, UNDER ALTERNATIVE MODEL SPECIFICATIONS

	Model 0 (Base Model)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Dependent Variable[a]	NSLP3	NSLP1	NSLP3	NSLP3	NSLP3	NSLP3	NSLP3	NSLP3	NSLP3	NSLP3
Key Programmatic Variables										
Full price of lunch ($0.40 change)[b]	-4.3	-5.5 ***	-9.5 ***	-5.1 ***	-9.7 ***	-9.0 **	-3.7	-3.4	-3.4	-3.3
Student is certified for a free meal	27.3 **	24.0 ***	25.5 **	26.9 **	25.7 **	25.7	24.9 **	25.1 **	25.1 **	25.0 **
Student is certified for reduced-price meal	21.1 **	18.7 ***	18.8 **	19.3 **	18.5 **	19.5	19.2 **	19.8 **	19.8 **	19.7 **
OVS is used	4.2	31.1 ***	3.8	2.1	3.2	4.7	4.2	3.7	3.7	3.8
Alternatives to the NSLP Lunch										
A la carte items available	-2.9	-4.5 **	-5.4 ***	-3.8	-5.4 **	-5.1 **	-3.6	-3.7	-3.7	-3.7
Vending/school store available	-0.6	-1.4	-1.4	-3.2	-2.3	0.2	-0.2	-1.0	-1.0	-1.0
Open campus	-9.1 ***	-8.7 ***	-11.9 ***	-9.1 ***	-11.4 ***	-11.1 ***	-9.1 ***	-9.6 ***	-9.6 ***	-9.7 ***
Personal and Family Characteristics										
Age 11-14	1.0	0.3	-4.7 **	-4.2 **	-4.7 **	0.3	0.9	0.9	0.9	0.9
Age 15-18	-4.3	-5.4	-10.9 ***	-13.3 ***	-11.9 ***	-2.9	-4.6	-4.8	-4.8	-4.6
Female	-8.3 ***	-7.3 ***	-7.8 ***	-8.2 ***	-7.5 ***	-7.5 ***	-7.9 ***	-8.0 ***	-8.0 ***	-7.9 **
African American	4.3	0.9	-0.0	2.7	-0.3	0.9	3.3	3.6	3.6	3.4
Hispanic	2.2	4.3	-4.4	1.1	-4.1	-3.9	0.3	0.4	0.4	0.4
Other race	10.6 **	7.9	4.3	8.8	4.9	6.4	10.8 **	10.5 **	10.6 **	10.4
Income eligible for free/reduced-price meal	-0.5	0.6	1.2	-0.8	1.5	1.8	-0.0	0.1	0.1	0.1
Lives with mother	-0.1	1.0	-2.1	-0.6	-0.8	-0.4	0.7	0.8	0.8	1.0
Mother employed	-1.0	-0.8	0.6	-0.4	0.4	-0.2	-0.9	-1.0	-1.0	-1.0
Family size 3-4	-0.6	-2.4	0.1	-0.4	-0.8	-0.4	-1.1	-1.4	-1.4	-1.5
Family size 5-7	0.6	-1.4	0.8	0.7	0.3	0.7	0.3	0.1	0.1	0.0
Family size >7	3.9	3.1	6.7	4.9	7.4	7.3	7.7	7.3	7.2	7.1
Location and Region										
Urban	-12.4 ***	-13.3 ***	--	-12.3 ***	--	--	-11.8 **	-12.3 ***	-12.3 ***	-12.1 ***
Suburban	-9.3 ***	-9.5 ***	--	-8.5 ***	--	--	-9.9 ***	-10.3 ***	-10.3 ***	-10.2 ***
Mid-Atlantic	-1.4	-2.2	--	0.8	--	--	3.6	3.5	3.5	2.5
Southeast	12.8 ***	12.3	--	14.9 ***	--	--	14.7 ***	13.2 ***	13.3 ***	12.9 ***
Midwest	1.5	4.1	--	3.2	--	--	4.0	3.8	3.9	3.0
Southwest	11.5 ***	10.5	--	12.2 ***	--	--	13.6 ***	13.1 ***	13.1 ***	12.6 ***
Mountain	12.3 ***	9.8	--	14.0 ***	--	--	15.6 ***	16.0 ***	16.1 ***	15.7 ***
West	-3.9	-3.8	--	-2.0	--	--	-1.1	-1.4	-1.3	-2.0

TABLE B.4 *(continued)*

	Model 0 (Base Model)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
NSLP Meal Characteristics										
Average percent fat on observation day is <32 percent	--	--	--	--	-1.1	-1.5	-1.4	--	--	--
Average percent fat on observation day is 32-35 percent	--	--	--	--	0.3	-1.1	-1.0	--	--	--
Average percent fat on observation day is 35-40 percent	--	--	--	--	0.4	-0.1	-0.4	--	--	--
Average percent fat during week is <32 percent	-8.3 **	-7.1	--	--	--	--	--	--	--	--
Average percent fat during week is 32-35 percent	-2.1	-1.8	--	--	--	--	--	--	--	--
Average percent fat during week is 35-40 percent	1.7	3.4	--	--	--	--	--	--	--	--
Fresh fruit offered	--	--	--	--	-3.3	-3.5	--	--	--	-2.2
High-fat vegetable offered	--	--	--	--	3.1	3.4	--	3.4	3.4	3.7
Low-fat entree offered	--	--	--	--	0.7	1.6	--	--	0.4	0.4
Dessert offered	--	--	--	--	0.8	1.2	--	--	--	1.2
Pizza offered	--	--	--	--	-1.5	-1.6	--	--	-0.5	-0.2
Salad bar offered	--	--	--	--	4.5 ***	5.1 **	--	3.6	3.6	4.0
Other Meal Service Characteristics										
Elementary students play after lunch	1.4	1.1	--	--	--	-0.0	1.5	1.7	1.8	1.7
Students in grade 6 or above	-10.9 ***	-7.2 **	--	--	--	-12.3 ***	-10.7 ***	-11.2 ***	-11.2 ***	-11.1
Wait for lunch: medium	1.0	1.3	--	--	--	2.5	1.9	1.7	1.7	1.7
Wait for lunch: long	4.3	3.2	--	--	--	1.8	4.5	4.2	4.3	4.5
Sample Size	**3,084**	**2,970**	**3,084**	**3,020**	**3,022**	**2,971**	**2,976**	**2,975**	**2,975**	**2,975**
Number of Participants	**1,740**	**1,539**	**1,740**	**1,709**	**1,716**	**1,681**	**1,682**	**1,682**	**1,682**	**1,682**
Participation Rate	**56.4**	**51.8**	**56.4**	**56.6**	**56.8**	**56.5**	**56.5**	**56.5**	**56.5**	**56.5**

SOURCE: Tabulations of data from Dietary Intake Interviews with students, School Nutrition Dietary Assessment study.

NOTE: Models were estimated using probit analysis. Figures shown are "net effects."

[a]NSLP3 refers to the definition of NSLP participant in which a participant is someone who selects three meal components. NSLP1 refers to the definition of NSLP participant in which a student at a non-OVS school must select five components in order to be classified as an NSL participant.

[b]This row represents the effect of a $0.40 change in the full price of lunch on the predicted participation rate among those who are not certified.

/* indicate variable is statistically significant at the 95/99 percent confidence level with a two-tailed test.

characteristic (for example, the student must pay full price for meals). The difference between these two predicted probabilities is the marginal effect.

In the first column of Table B.4, Model 0 shows the marginal effects of the base model, which is the model summarized in Table VII.3. Model 1 is identical to Model 0, except that the narrowest definition of NSLP participation is used as the dependent variable. The major difference between the results of this model and those of the base model is in the effect of OVS availability. When the narrowest definition of NSLP participation (definition 1) is used, the availability of OVS is estimated to have a very large impact on the probability of participation. The estimate implies that students at OVS schools are 31 percentage point more likely than students at non-OVS schools to eat a USDA lunch. In contrast, when the broadest definition of NSLP participation (definition 3) is used, the effect of OVS availability on the probability of participation is only 4 percentage points, and the effect is not statistically significant.

Other minor differences in the results of the two models are related to the availability of a la carte foods, the average fat content of the meals offered during the week, and whether students are in grades 6 or above. When the narrowest definition of NSLP participation is used in Model 1, the effect of a la carte availability becomes more strongly negative and significant; the effect of offering low-fat meals during the week becomes less strongly negative and not statistically significant; and the effect of being in grade 6 or above is less strongly negative, but remains significant.

The remaining models in Table B.4 revert to using the broadest definition of NSLP participation as the dependent variable, but include various combinations of independent variables. In general, the results are not sensitive to the choice of independent variables, but there are a few exceptions. For example, the comparison between Model 0 and Model 6 shows that the results are sensitive to whether the fat content of the school's meal is characterized in terms of the average fat content over a week (as in Model 0) or in terms of the fat content on the day that the student's lunch is covered in the dietary intake interview. When the "weekly" definition is used, students are estimated to be

significantly less likely to participate if the USDA meal is "lower fat." However, when the "daily" definition is used, the fat content of the meal offered does not affect participation. This finding suggests that students' participation decisions are more likely to be based on *usual offerings* than on the offerings of any given day. This finding is also consistent with information from the Student Characteristics Interview that most participants get the school lunch every day, and that relatively few get it one or two days per week.

A second interesting finding of the estimation of these additional specifications of the participation model is that the estimated impact of the full price of lunch depends on whether the region and urban/suburban variables are included in the model. In models that exclude the region and urban/suburban variables (Models 2, 4, and 5), an increase in the lunch price of $0.40 is estimated to lead to a 9 to 10 percentage point decline in the probability of participation. When these variables are included in the model, the effect is only about 5 percentage points. This is due to the fact that students in urban and suburban schools are less likely than students in rural schools to eat a USDA lunch and also tend to face higher lunch prices than rural students. This suggests that, when estimating the effect of price on NSLP participation, it is important to control for where students live.

Finally, Models 0 through 8 show how sensitive is the estimate of the effect of age on participation to the inclusion or exclusion of the variable indicating whether a student is in grade 6 or above. In Models 2, 3, and 4, which exclude the student's grade, the effect of age is strongly negative. Students who are 15 to 18 years old are estimated to be 11 to 13 percentage points less likely than students 6 to 10 years old to eat a school lunch. However, when the students' grade is included in the model, the effect of age diminishes greatly and becomes insignificant. Instead, students in grade 6 or above are estimated to be 7 to 12 percentage points less likely than students in grades 1 through 5 to participate.

The individual-level analysis is the primary method of analyzing the relationship between participation in the NSLP on the one hand and personal characteristics and other factors on the

other. The individual-level analysis links NSLP participation and the dietary intakes of participants. Aggregate data on NSLP participation and on school enrollment, which were obtained in the School Characteristics Questionnaire, provide another avenue for examining the participation rate and the correlates of participation.

For the analysis of aggregate participation, the average daily participation rate was computed for each school in the sample as the number of participants per day during the reference week divided by total enrollment in the school. As described in Chapter III, the average percentage of students participating in the NSLP from this source was 56 percent, the same as the estimate derived from the individual-level analysis. The school and meal-service characteristics outlined in the beginning of this section were used to explain variation in school-level average participation rates in the same manner as they were used to explain variation in individual-level participation.

Results of the aggregate (school-level) analysis of participation are shown in Table B.5. The most important finding is that the school-level analysis confirms the finding of a negative relationship between offering low-fat meals (less than 32 percent of food energy from fat) and the average participation rate. Furthermore, the size of the effect is quite similar in the individual-level and school-level analyses. The results presented in the table are based on the full sample of schools available for the school-level analysis, rather than only on the schools in which individual data collection was conducted. Some of the estimated effects shown are sensitive to which sample is used. However, the negative relationship between offering low-fat NSLP lunches and aggregate participation is present in the smaller sample of in-person schools, as well. The fact that the relationship is found with both individual-level and aggregate data, and when alternative model specifications are used, strongly suggests that the relationship is not the result of chance correlation, but rather indicates a true relationship.

TABLE B.5

ESTIMATED EFFECT OF FAT CONTENT OF NSLP MEALS OFFERED AND OTHER FACTORS ON NSLP PARTICIPATION

Explanatory Variable	Full Sample of Schools[a]	Schools in Which In-Person Data Were Collected[b]
Characteristics of Food Service and School Meals		
Characteristics of NSLP Meal		
Percentage of food energy from fat in NSLP meals (Relative to more than 40 percent)		
Less than 32 percent	-11 **	-13 **
32-35 percent	1	3
35-40 percent	0.3	3
		1
Average food energy in meals offered (per 100 kilocalories)	<1	
Number of entrees offered	0.1	0.3
Whether dessert is offered	8 **	8 **
Whether fresh fruit is offered	-3	-3
Whether salad bar is offered	5 **	10 **
Whether cold meal is offered	-0.04	-8 **
Whether hot sandwich is offered	-2	1
Alternatives to NSLP Meal		
A la carte available	-1	1
Open campus	-5 *	-10 **
Vending machine/school store available	-2	-1
Characteristics of the School Food Service		
Full price of lunch (per $1)	-11 **	-10 *
Whether OVS is used	3	-1
Length of the lunch period	-0.2 **	-0.1
Serving line capacity	0.1	-2
Characteristics of the School and Community		
Type of Community (Relative to Rural)		
Suburban	-4 **	-1
Urban	-3	2
Region of the County (Relative to New England)		
Mid-Atlantic	-5	-14 **
Southeast	7 **	4
Midwest	-3	-4
Southwest	2	-1
Mountain	5	-2
West	-11 **	-12 **
School Level (Relative to High Schools)		
Elementary school	8 **	11 **
Middle school	2	8 **

TABLE B.5 *(continued)*

Explanatory Variable	Full Sample of Schools[a]	Schools in Which In-Person Data Were Collected[b]
School Enrollment and Student Characteristics		
Enrollment (per 100 students)	-1 **	-1 **
Percentage of students white	0	0
Percentage of students certified for a free meal or reduced-price meal	33 **	29 **
Mean Percentage Participating	56	56
Number of Schools (Unweighted)	**485**	**287**

SOURCE: School Characteristics Questionnaire and information on NSLP meals offered.

NOTE: Estimated effects were estimated using weighted least squares. Effects for various levels of fat content were measured relative to schools that offer lunches providing an average of 40 percent of food energy.

[a] Includes all schools in the study sample offering the NSLP and for which complete data were available.

[b] Sample limited to schools offering the NSLP in which in-person data were collected.

OVS = offer versus serve.

*/** indicates that the estimate differs significantly from zero at the 95/99 percent confidence level with a two-tailed test.

B. INDIVIDUAL-LEVEL ANALYSIS OF PARTICIPATION IN THE SBP

The SBP may affect the nutrient intake of students in one of two ways. First, it potentially could increase the likelihood that a student will eat breakfast. As an increasing number of parents work, they have less time to prepare breakfast at home. The SBP offers an alternative that may allow some students to eat breakfast who would not have done so otherwise. Second, the SBP potentially could increase the nutrient intake of students who do eat breakfast, by providing more food and/or a more balanced meal. This section describes the analysis of the factors that affect whether students eat breakfast, and, given that they do so, whether they select a School Breakfast Program (SBP) breakfast or a non-SBP breakfast.

The analysis examines, as separate, sequential decisions, decisions about whether to eat breakfast and decisions about whether to eat an SBP or a non-SBP breakfast. The analytical model used postulates that the decision to eat breakfast is determined by personal and family characteristics, urban or suburban location, region of the country, and whether an SBP or other morning food program is available in school.[7] Consistent with conceptualizing students' decisions about breakfast as a two-step process, the model of the decision to eat breakfast does *not* include the characteristics of the SBP at the student's school. The entire sample is used to estimate the determinants of the decision to eat breakfast, and probit estimating techniques are used to account for the binary nature of the dependent variable.

The explanatory variables in the model of the decision to select an SBP breakfast or non-SBP breakfast (given that the student eats breakfast) include key programmatic variables, alternatives to the SBP breakfast that are available in school, personal and family characteristics, urban/suburban/rural location, region of the country, and meal characteristics on the day that the student's breakfast was recorded on the 24-hour dietary recall. The programmatic variables are the

[7]The specific variables for personal characteristics, family characteristics, and location that are included in the model of the decision to eat breakfast are the same as the variables included in the model of participation in the NSLP.

same as those considered in the model of NSLP participation: the full price of breakfast, whether a student is certified for a free meal, whether the student is certified for a reduced-price meal, and whether OVS is available. Alternatives to the SBP breakfast include whether vending machines or a store or snack bar are available and whether the breakfast program offers foods a la carte. The characteristics of the meal include the percentage of food energy from fat and whether an entree with meat is offered. The analysis sample includes only students at schools that offer the SBP, and again, probit estimating techniques are used.

APPENDIX C

SUPPLEMENTARY TABLES ON NSLP MEALS OFFERED

TABLE C.1

MEANS, STANDARD ERRORS, AND QUARTILE VALUES OF NUTRIENTS IN NSLP LUNCHES OFFERED

Dietary Component	Mean	Standard Error of Mean	25th Percentile	50th Percentile	75th Percentile
Macronutrients					
Food Energy (calories)	753	7.75	669	754	834
Protein (grams)	31	0.26	29	31	34
Carbohydrate (grams)	89	1.09	78	88	98
Fat (grams)	31	0.41	27	32	35
Saturated Fat (grams)	13	0.19	11	13	14
Percent of Energy from Protein	17	0.12	15	17	18
Percent of Energy from Carbohydrate	47	0.23	45	47	49
Percent of Energy from Fat	38	0.23	35	37	40
Percent of Energy from Saturated Fat	15	0.13	14	15	16
Vitamins					
Vitamin A (mcg RE)	401	11.31	294	366	465
Vitamin C (mg)	30	0.81	21	27	36
Thiamin (mg)	0.58	0.01	0.51	0.58	0.65
Riboflavin (mg)	0.84	0.01	0.78	0.84	0.90
Niacin (mg NE)	6.73	0.07	5.94	6.67	7.35
Vitamin B6 (mg)	0.53	0.01	0.48	0.52	0.58
Folate (mcg)	84	1.26	71	83	95
Vitamin B12 (mcg)	1.82	0.02	1.60	1.79	1.99
Minerals					
Calcium (mg)	496	4.10	453	493	541
Iron (mg)	4.38	0.06	3.87	4.37	4.82
Phosphorus (mg)	578	5.33	528	576	625
Magnesium (mg)	104	1.14	92	102	114
Zinc (mg)	3.99	0.06	3.61	3.89	4.27
Other Dietary Components					
Sodium (mg)	1,479	16.67	1,301	1,452	1,632
Cholesterol (mg)	88	1.24	73	86	98
Fiber (grams)	6.73	0.12	5.61	6.55	7.62
Number of Schools	**515**	–	–	–	–

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. All foods served as part of NSLP lunches are counted, including noncreditable foods.

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE C.1.A

MEANS, STANDARD ERRORS, AND QUARTILE VALUES OF NUTRIENTS IN NSLP LUNCHES OFFERED: ELEMENTARY SCHOOLS

Dietary Component	Mean	Standard Error of Mean	25th Percentile	50th Percentile	75th Percentile
Macronutrients					
Food Energy (calories)	723	10.17	634	727	804
Protein (grams)	30	0.32	28	30	32
Carbohydrate (grams)	85	1.30	74	86	94
Fat (grams)	30	0.55	26	30	34
Saturated Fat (grams)	12	0.26	10	12	14
Percent of Energy from Protein	17	0.15	16	17	18
Percent of Energy from Carbohydrate	47	0.24	45	47	49
Percent of Energy from Fat	37	0.28	36	37	40
Percent of Energy from Saturated Fat	15	0.18	14	15	17
Vitamins					
Vitamin A (mcg RE)	394	15.59	287	350	446
Vitamin C (mg)	28	0.95	19	25	34
Thiamin (mg)	0.56	0.01	0.49	0.56	0.63
Riboflavin (mg)	0.82	0.01	0.76	0.81	0.88
Niacin (mg NE)	6.51	0.09	5.80	6.42	7.18
Vitamin B6 (mg)	0.52	0.01	0.47	0.51	0.56
Folate (mcg)	81	1.64	69	78	92
Vitamin B12 (mcg)	1.79	0.03	1.56	1.75	1.98
Minerals					
Calcium (mg)	487	5.30	446	479	525
Iron (mg)	4.21	0.07	3.78	4.16	4.62
Phosphorus (mg)	562	6.89	514	559	614
Magnesium (mg)	103	1.55	91	100	114
Zinc (mg)	3.90	0.08	3.53	3.82	4.14
Other Dietary Components					
Sodium (mg)	1,406	19.80	1,250	1,405	1,529
Cholesterol (mg)	84	1.48	72	84	94
Fiber (grams)	6.52	0.15	5.39	6.31	7.43
Number of Schools	278	–	–	–	–

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. All foods served as part of NSLP lunches are counted, including noncreditable foods.

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE C.1.B

MEANS, STANDARD ERRORS, AND QUARTILE VALUES OF NUTRIENTS IN NSLP LUNCHES OFFERED: MIDDLE SCHOOLS

Dietary Component	Mean	Standard Error of Mean	25th Percentile	50th Percentile	75th Percentile
Macronutrients					
Food Energy (calories)	803	14.23	722	799	872
Protein (grams)	32	0.42	30	32	34
Carbohydrate (grams)	97	2.22	85	96	111
Fat (grams)	33	0.79	29	33	35
Saturated Fat (grams)	13	0.33	12	13	14
Percent of Energy from Protein	16	0.26	15	16	17
Percent of Energy from Carbohydrate	48	0.51	45	48	51
Percent of Energy from Fat	37	0.48	34	37	40
Percent of Energy from Saturated Fat	15	0.21	13	14	15
Vitamins					
Vitamin A (mcg RE)	419	19.86	295	384	476
Vitamin C (mg)	34	1.71	24	32	42
Thiamin (mg)	0.63	0.02	0.55	0.63	0.69
Riboflavin (mg)	0.88	0.01	0.81	0.88	0.95
Niacin (mg NE)	7.13	0.15	6.29	7.07	8.05
Vitamin B6 (mg)	0.56	0.01	0.48	0.56	0.60
Folate (mcg)	90	2.51	76	92	103
Vitamin B12 (mcg)	1.85	0.05	1.59	1.82	2.07
Minerals					
Calcium (mg)	509	7.80	468	505	549
Iron (mg)	4.74	0.11	3.99	4.80	5.34
Phosphorus (mg)	5.92	8.17	558	590	633
Magnesium (mg)	106	1.98	95	104	117
Zinc (mg)	4.15	0.10	3.68	4.05	4.36
Other Dietary Components					
Sodium (mg)	1,560	33.56	1,375	1,486	1,701
Cholesterol (mg)	91	2.46	76	87	102
Fiber (grams)	7.18	0.24	6.04	6.86	8.03
Number of Schools	92	–	–	–	–

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. All foods served as part of NSLP lunches are counted, including noncreditable foods.

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE C.1.C

MEANS, STANDARD ERRORS, AND QUARTILE VALUES OF NUTRIENTS IN NSLP LUNCHES OFFERED: HIGH SCHOOLS

Dietary Component	Mean	Standard Error of Mean	25th Percentile	50th Percentile	75th Percentile
Macronutrients					
Food Energy (calories)	832	10.76	753	817	895
Protein (grams)	34	0.73	32	33	36
Carbohydrate (grams)	99	2.17	87	94	113
Fat (grams)	35	0.68	31	34	38
Saturated Fat (grams)	14	0.25	12	14	15
Percent of Energy from Protein	16	0.33	15	16	18
Percent of Energy from Carbohydrate	47	0.74	44	48	52
Percent of Energy from Fat	38	0.57	34	37	41
Percent of Energy from Saturated Fat	15	0.19	14	15	16
Vitamins					
Vitamin A (mcg RE)	412	13.99	303	382	467
Vitamin C (mg)	33	2.06	24	31	42
Thiamin (mg)	0.64	0.01	0.57	0.62	0.70
Riboflavin (mg)	0.90	0.01	0.83	0.91	0.94
Niacin (mg NE)	7.27	0.16	6.49	6.92	8.00
Vitamin B6 (mg)	0.59	0.02	0.52	0.56	0.66
Folate (mcg)	93	2.15	83	87	101
Vitamin B12 (mcg)	1.92	0.03	1.78	1.89	2.08
Minerals					
Calcium (mg)	525	6.23	492	540	562
Iron (mg)	4.77	0.07	4.25	4.67	5.12
Phosphorus (mg)	627	9.94	580	617	677
Magnesium (mg)	108	1.16	100	107	116
Zinc (mg)	4.24	0.09	3.84	4.18	4.54
Other Dietary Components					
Sodium (mg)	1,704	35.96	1,520	1,664	1,869
Cholesterol (mg)	98	3.09	84	96	112
Fiber (grams)	7.18	0.15	6.19	7.08	7.81
Number of Schools	**145**	--	--	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. All foods served as part of NSLP lunches are counted, including noncreditable foods.

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE C.3.C

FREQUENCY WITH WHICH SELECTED ENTREES ARE OFFERED
IN NSLP LUNCHES: HIGH SCHOOLS
(Percentages)

Entree	School Days on Which Item Is Offered	Schools Serving Entree During Survey Week	
		Any Day	Every Day
Pizza with Meat	25.0	49.9	16.6
Hamburger	22.9	45.4	15.6
Mixed Meat Sandwich with Cheese	14.6	28.0	10.8
Peanut Butter Sandwich	13.9	23.3	9.0
Cheeseburger	13.8	29.2	7.9
Pizza with No Meat	12.6	26.0	9.0
Tuna Salad	12.4	19.6	8.7
Burrito	10.5	20.8	5.5
Hot Dog	10.0	30.3	3.5
Ham and Cheese Sandwich	9.8	18.2	6.6
Chicken Patty with Bread	6.4	22.5	0.5
Cheese Sandwich	6.1	16.4	3.0
Chili (No Bread)	6.1	25.2	1.1
Chicken with Bread	6.0	21.3	0.0
Chicken Nuggets (No Bread)	5.7	16.2	2.4
Taco, Nachos, Taco Salad	5.5	17.6	2.3
Chicken Salad	5.2	9.1	3.4
Corndog	5.0	18.1	1.3
Chicken (No Bread)	4.6	20.4	0.0
Ham (No Bread)	4.6	6.9	4.1
Chef Salad	4.6	5.4	4.0
Fish Patty with Bread	4.4	17.8	0.7
Egg Salad	4.2	7.8	2.7
Pasta with Meat Sauce and Cheese	4.1	18.4	0.0
Turkey with Bread	3.7	8.0	2.5

TABLE C.3.B *(continued)*

Entree	School Days on Which Item Is Offered	Schools Serving Entree During Survey Week	
		Any Day	Every Day
Fish Nuggets (No Bread)	2.4	11.8	0.0
Macaroni and Cheese	1.8	8.7	0.0
Turkey Sandwich (No Cheese)	1.7	1.8	1.6
Ham with Bread	1.5	2.3	1.3
Ham (No Bread)	1.2	1.8	1.1
Chicken Salad	0.9	4.6	0.0
Turkey (No Bread)	0.5	1.2	0.4
Pork Patty with Bread	0.4	1.9	0.0
Pork Patty (No Bread)	0.3	1.0	0.0
Chili with Bread	0.2	1.1	0.0
Ham Salad	0.1	0.7	0.0
Breaded Beef with Bread	0.1	0.6	0.0
Breaded Beef (No Bread)	0.1	0.3	0.0
Number of School Days	**441**	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. Items served a la carte are not included, unless they are also offered as part of the NSLP school lunch. The categories listed represent two-thirds of all entrees served. Appendix Tables A.2 and A.3 provide detailed definitions of entree categories.

TABLE C.3.B

FREQUENCY WITH WHICH SELECTED ENTREES ARE OFFERED IN NSLP LUNCHES: MIDDLE SCHOOLS
(Percentages)

Entree	School Days on Which Item Is Offered	Schools Serving Entree During Survey Week	
		Any Day	Every Day
Hamburger	26.5	62.2	15.0
Pizza with Meat	23.7	58.2	12.5
Hot Dog	14.7	34.4	7.7
Peanut Butter Sandwich	12.8	18.4	11.1
Cheeseburger	12.5	23.9	9.3
Tuna Salad	10.9	18.3	8.1
Mixed Meat Sandwich with Cheese	10.8	19.8	6.5
Pizza with No Meat	10.8	22.0	7.6
Burrito	9.7	30.6	2.9
Turkey with Bread	8.5	11.9	6.8
Chicken Patty with Bread	7.5	26.0	0.7
Corndog	7.3	25.2	2.2
Taco, Nachos, Taco Salad	7.1	27.3	1.8
Chicken (No Bread)	6.8	28.8	0.5
Chef Salad	6.4	6.9	6.2
Ham and Cheese Sandwich	6.2	12.8	3.9
Chicken Nuggets (No Bread)	5.6	19.8	1.6
Egg Salad	5.5	6.5	4.9
Pasta with Meat Sauce (No Cheese)	5.4	26.1	0.0
Cheese Sandwich	5.0	20.6	0.0
Chili (No Bread)	4.9	21.1	0.4
Chicken with Bread	4.4	19.1	0.5
Fish Patty with Bread	3.9	13.7	0.4
Pasta with Meat Sauce and Cheese	3.4	13.6	0.0
Turkey Sandwich with Cheese	2.9	3.9	2.6

TABLE C.3.A *(continued)*

Entree	School Days on Which Item Is Offered	Schools Serving Entree During Survey Week	
		Any Day	Every Day
Turkey (No Bread)	1.0	4.3	0.1
Ham (No Bread)	1.0	4.2	0.1
Breaded Beef (No Bread)	1.0	4.8	0.0
Breaded Beef with Bread	0.8	2.8	0.3
Chicken Salad	0.8	4.2	0.0
Ham with Bread	0.6	2.6	0.0
Egg Salad	0.5	2.2	0.0
Turkey Sandwich (No Cheese)	0.4	2.1	0.0
Chili with Bread	0.4	1.9	0.0
Pork Patty with Bread	0.3	1.4	0.0
Pasta Salad	0.3	1.3	0.0
Pork Patty (No Bread)	0.2	0.9	0.0
Chicken with Rice or Noodles	0.2	0.8	0.0
Turkey Sandwich with Cheese	0.2	0.8	0.0
Mixed Meat Sandwich (No Cheese)	0.0	0.7	0.0
Number of School Days	**1,359**	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. Items served a la carte are not included, unless they are also offered as part of the NSLP school lunch. The categories listed represent two-thirds of all entrees served. Appendix Tables A.2 and A.3 provide detailed definitions of entree categories.

TABLE C.3.A

FREQUENCY WITH WHICH SELECTED ENTREES ARE OFFERED IN NSLP LUNCHES: ELEMENTARY SCHOOLS
(Percentages)

Entree	School Days on Which Item Is Offered	Schools Serving Entree During Survey Week	
		Any Day	Every Day
Hamburger	11.0	42.2	2.1
Peanut Butter Sandwich	10.6	21.1	7.3
Hot Dog	8.3	38.8	0.0
Pizza with Meat	8.1	36.2	0.3
Pizza with No Meat	6.7	21.2	2.5
Taco, Nachos, Taco Salad	5.4	25.4	0.2
Cheese Sandwich	5.0	23.6	0.0
Cheeseburger	4.9	17.3	1.7
Chicken (No Bread)	4.8	23.6	0.0
Chicken Patty with Bread	4.3	17.4	0.3
Burrito	4.0	16.6	0.1
Chicken Nuggets (No Bread)	3.9	19.0	0.0
Chicken with Bread	3.4	15.2	0.1
Corndog	3.1	13.7	0.4
Fish Nuggets (No Bread)	3.1	15.2	0.0
Chili (No Bread)	2.9	14.3	0.0
Pasta with Meat Sauce (No Cheese)	2.4	11.7	0.0
Ham and Cheese Sandwich	2.3	8.5	0.6
Chef Salad	2.2	4.8	1.6
Macaroni and Cheese	2.1	10.6	0.0
Tuna Salad	2.1	8.0	0.6
Mixed Meat Sandwich with Cheese	1.9	7.2	0.3
Fish Patty with Bread	1.6	8.0	0.0
Pasta with Meat Sauce and Cheese	1.5	7.1	0.0
Turkey with Bread	1.5	4.8	0.0

TABLE C.3 *(continued)*

Entree	School Days on Which Item Is Offered	Schools Serving Entree During Survey Week	
		Any Day	Every Day
Egg Salad	1.9	3.8	1.2
Ham (No Bread)	1.6	4.3	0.9
Chicken Salad	1.6	5.1	0.6
Turkey (No Bread)	1.3	4.1	0.5
Ham with Bread	1.0	3.5	0.3
Turkey Sandwich (No Cheese)	1.0	2.7	0.5
Breaded Beef with Bread	0.9	2.6	0.5
Breaded Beef (No Bread)	0.8	3.9	0.0
Turkey Sandwich with Cheese	0.8	1.7	0.5
Pork Patty with Bread	0.5	2.0	0.1
Mixed Meat Sandwich (No Cheese)	0.5	1.4	0.3
Chili with Bread	0.4	1.9	0.1
Ham Salad	0.4	0.6	0.3
Pork Patty (No Bread)	0.2	1.0	0.0
Chicken with Rice or Noodles	0.2	0.7	0.0
Number of School Days	**2,506**	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. Items served a la carte are not included, unless they are also offered as part of the NSLP school lunch. The categories listed represent two-thirds of all entrees served. Appendix Tables A.2 and A.3 provide detailed definitions of entree categories.

TABLE C.3

FREQUENCY WITH WHICH SELECTED ENTREES ARE OFFERED IN NSLP LUNCHES: ALL SCHOOLS
(Percentages)

Entree	School Days on Which Item Is Offered	Schools Serving Entree During Survey Week	
		Any Day	Every Day
Hamburger	15.3	45.8	6.3
Pizza with Meat	13.3	41.8	4.8
Peanut Butter Sandwich	11.5	21.1	8.1
Hot Dog	9.6	36.7	1.8
Pizza with No Meat	8.3	22.1	4.3
Cheeseburger	7.6	20.3	3.9
Burrito	6.0	19.4	1.4
Taco, Nachos, Taco Salad	5.7	24.4	0.8
Mixed Meat Sandwich with Cheese	5.4	12.6	3.0
Cheese Sandwich	5.2	21.9	0.5
Tuna Salad	5.2	11.5	3.1
Chicken Patty with Bread	5.1	19.5	0.4
Chicken (No Bread)	5.1	23.9	0.1
Chicken Nuggets (No Bread)	4.5	18.7	0.7
Ham and Cheese Sandwich	4.2	10.8	2.1
Corndog	4.1	16.2	0.8
Chicken with Bread	4.0	16.8	0.1
Chili (No Bread)	3.7	17.2	0.2
Chef Salad	3.3	5.2	2.7
Turkey with Bread	3.0	6.4	1.4
Pasta with Meat Sauce (No Cheese)	2.9	14.0	0.0
Fish Nuggets (No Bread)	2.8	13.7	0.0
Fish Patty with Bread	2.4	10.5	0.2
Macaroni and Cheese	2.3	11.0	0.0
Pasta with Meat Sauce and Cheese	2.2	10.0	0.0

TABLE C.2.C

MEAN NUTRIENTS IN LOWEST-PERCENT-FAT NSLP LUNCHES OFFERED RELATIVE TO THE RDA: HIGH SCHOOLS
(Schools with Lowest-Percent-Fat Lunches Less than 30 Percent)

Nutrient	Mean Nutrient	Mean Nutrient as a Percentage of the RDA for Each Age/Gender Group			
		11- to 14-Year-Old Females	11- to 14-Year-Old Males	15- to 18-Year-Old Females	15- to 18-Year-Old Males
Food Energy (calories)	676	31	27	31	23
Protein (grams)	32	70	72	74	55
Vitamin A (mcg RE)	321	40	32	40	32
Vitamin C (mg)	38	76	76	63	63
Thiamin (mg)	0.64	58	49	58	43
Riboflavin (mg)	0.82	63	55	63	46
Niacin (mg NE)	7.39	49	43	49	37
Vitamin B6 (mg)	0.52	37	31	35	26
Folate (mcg)	87	58	58	49	44
Vitamin B12 (mcg)	1.66	83	83	83	83
Calcium (mg)	477	40	40	40	40
Iron (mg)	4.69	31	39	31	39
Phosphorus (mg)	576	48	48	48	48
Magnesium (mg)	99	35	37	33	25
Zinc (mg)	3.77	31	25	31	25
Number of Schools	**109**	--	--	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools whose lowest-percent-fat NSLP lunch provides less than 30 percent of energy from fat are included in this table. The RDA standard for school lunches is one-third of the RDA. The lowest-percent-fat lunch is the full NSLP lunch offered with the lowest percentage of energy from fat (of all the options on each day's menu).

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE C.2.B

MEAN NUTRIENTS IN LOWEST-PERCENT-FAT NSLP LUNCHES OFFERED RELATIVE TO THE RDA: MIDDLE SCHOOLS
(Schools with Lowest-Percent-Fat Lunches Less than 30 percent)

Nutrient	Mean Nutrient	Mean Nutrient as a Percentage of the RDA for Each Age/Gender Group		
		7- to 10-Year-Old Students	11- to 14-Year-Old Females	11- to 14-Year-Old Males
Food Energy (calories)	716	36	33	29
Protein (grams)	33	117	71	73
Vitamin A (mcg RE)	329	47	41	33
Vitamin C (mg)	50	112	101	101
Thiamin (mg)	0.65	65	59	50
Riboflavin (mg)	0.83	69	64	55
Niacin (mg NE)	7.51	58	50	44
Vitamin B6 (mg)	0.53	38	38	31
Folate (mcg)	94	94	63	63
Vitamin B12 (mcg)	1.77	126	88	88
Calcium (mg)	493	62	41	41
Iron (mg)	5.05	51	34	42
Phosphorus (mg)	556	70	46	46
Magnesium (mg)	104	61	37	38
Zinc	3.95	39	33	26
Number of Schools	**62**	--	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools whose lowest-percent-fat NSLP lunch provides less than 30 percent of energy from fat are included in this table. The RDA standard for school lunches is one-third of the RDA. The lowest-percent-fat lunch is the full NSLP lunch offered with the lowest percentage of energy from fat (of all the options on each day's menu).

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE C.2.A

MEAN NUTRIENTS IN LOWEST-PERCENT-FAT NSLP LUNCHES OFFERED RELATIVE TO THE RDA: ELEMENTARY SCHOOLS
(Schools with Lowest-Percent-Fat Lunches Less than 30 Percent)

Nutrient	Mean Nutrient	Mean Nutrient as a Percentage of the RDA for Each Age/Gender Group		
		7- to 10-Year-Old Students	11- to 14-Year-Old Females	11- to 14-Year-Old Males
Food Energy (calories)	621	31	28	25
Protein (grams)	29	105	64	65
Vitamin A (mcg RE)	367	52	46	37
Vitamin C (mg)	40	90	81	81
Thiamin (mg)	0.56	56	50	43
Riboflavin (mg)	0.77	64	59	51
Niacin (mg NE)	6.52	50	43	38
Vitamin B6 (mg)	0.49	35	35	29
Folate (mcg)	86	86	57	57
Vitamin B12 (mcg)	1.75	125	88	88
Calcium (mg)	460	5[illegible]	38	38
Iron (mg)	4.33	43	29	36
Phosphorus (mg)	526	66	44	44
Magnesium (mg)	97	57	35	36
Zinc (mg)	3.71	37	31	25
Number of Schools	**104**	--	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTES: Only schools whose lowest-percent-fat NSLP lunch provides less than 30 percent of energy from fat are included in this table. The RDA standard for school lunches is one-third of the RDA. The lowest-percent-fat lunch is the full NSLP lunch offered with the lowest percentage of energy from fat (of all the options on each day's menu).

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE C.3.C *(continued)*

Entree	School Days on Which Item Is Offered	Schools Serving Entree During Survey Week	
		Any Day	Every Day
Turkey (No Bread)	3.4	5.8	2.4
Macaroni and Cheese	3.2	14.4	0.0
Pasta with Meat Sauce (No Cheese)	2.8	12.8	0.0
Turkey Sandwich (No Cheese)	2.6	5.8	1.8
Mixed Meat Sandwich (No Cheese)	2.4	5.5	1.6
Ham Salad	2.3	3.2	2.0
Ham with Bread	2.2	8.2	0.5
Fish Nuggets (No Bread)	1.9	9.6	0.0
Breaded Beef with Bread	1.9	3.5	1.3
Pork Patty with Bread	1.3	4.5	0.4
Turkey Sandwich with Cheese	1.3	3.5	0.6
Chili with Bread	0.9	2.7	0.4
Breaded Beef (No Bread)	0.7	3.3	0.0
Pork Patty (No Bread)	0.3	1.4	0.0
Chicken with Rice or Noodles	0.2	0.6	0.0
Number of School Days	**706**	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. Items served a la carte are not included, unless they are also offered as part of the NSLP school lunch. The categories listed represent two-thirds of all entrees served. Appendix Tables A.2 and A.3 provide detailed definitions of entree categories.

TABLE C.4

FREQUENCY WITH WHICH SPECIFIC BREADS AND BREAD ALTERNATES ARE OFFERED IN NSLP LUNCHES
(Percentage of School Days on Which Item Is Offered)

Food	Elementary Schools	Middle Schools	High Schools	All Schools
Hamburger or Hot Dog Bun	30.4	49.7	48.6	36.3
White Roll	19.8	27.9	48.2	25.8
White Loaf Bread	25.7	24.3	23.4	25.1
Pizza Crust	13.6	29.5	34.0	19.3
Other White Breads	7.8	24.1	32.8	14.4
Saltine	6.5	17.9	30.7	12.2
Whole Wheat Bread	7.4	13.1	13.4	9.3
Submarine Roll	1.9	11.7	22.3	6.8
Whole Wheat Bun or Roll	6.3	8.2	6.4	6.6
Tortilla, Flour	4.3	9.8	11.1	6.3
Taco Shell	5.8	6.7	6.6	6.0
Rice	4.7	5.0	6.9	5.1
Macaroni	4.2	4.7	7.7	4.8
French Bread	2.0	5.9	9.0	3.7
Egg Noodles	2.6	4.1	7.8	3.7
Other Cereals	2.4	6.2	6.2	3.6
Spaghetti	2.7	5.5	4.3	3.4
Cornbread	2.9	3.7	3.5	3.1
All Other Crackers	1.6	5.2	5.5	2.8
Other Wheat Breads	1.0	2.8	8.0	2.4
Biscuits	2.1	2.6	3.1	2.3
Pancakes	1.5	0.1	0.2	1.1
Macaroni/Pasta Salad	0.5	1.2	2.5	0.9
Other Tortilla, etc.	0.4	1.3	0.5	0.6
Chow Mein	0.1	0.8	2.2	0.6
Muffins	0.5	0.7	0.2	0.4
Other Pasta	0.2	0.0	1.0	0.3
Number of School Days	**1,359**	**441**	**706**	**2,506**

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. Appendix Table A.2 provides definitions of bread categories.

TABLE C.5

FREQUENCY WITH WHICH SELECTED VEGETABLES ARE OFFERED IN NSLP LUNCHES
(Percentage of School Days on Which Item Is Offered)

Vegetable	Elementary Schools	Middle Schools	High Schools	All Schools
Iceberg Lettuce	12.4	34.8	51.0	22.2
Raw Carrots	15.0	27.2	41.9	21.3
Green Salad	11.5	28.8	20.2	15.5
Raw Tomatoes	6.7	24.2	40.3	14.9
Fried French Fries	9.6	23.8	26.8	14.6
Tater Tots	11.2	19.7	14.7	13.1
Raw Celery	8.7	20.2	23.5	12.9
Canned Green Beans	10.9	13.3	16.0	12.1
Raw Cucumber	3.7	20.4	28.9	10.4
Mashed Potatoes	8.5	11.8	15.1	10.1
Canned Corn	9.8	8.8	11.3	9.9
Pickles	6.2	12.5	19.0	9.3
Cole Slaw	6.1	12.3	15.5	8.6
Cooked Vegetable Mixtures	6.9	7.7	9.7	7.5
Raw Broccoli	3.4	13.3	18.7	7.4
Raw Green Pepper	2.0	10.4	27.1	7.4
Radish	2.5	14.6	21.0	7.4
Raw Cauliflower	2.5	12.3	19.4	6.8
Other Raw Vegetables	2.9	14.2	12.5	6.2
Baked French Fries	5.2	6.5	8.4	5.9
Canned Peas	5.4	2.6	7.7	5.4
Frozen Peas	4.3	5.5	4.4	4.5
Cooked Carrots	3.4	6.6	3.1	3.8
Other Cooked Vegetables	1.9	6.2	8.8	3.7
Raw Onion	1.6	6.6	8.8	3.6
Baked/Boiled Potato	1.8	4.9	8.8	3.4
Other Bean Dishes	3.4	2.8	3.1	3.3
Vegetable Soups	2.3	6.4	4.0	3.2
Frozen Corn	2.6	3.0	3.9	2.9
Cooked Broccoli	2.1	3.7	4.1	2.7
Potato Salad	0.7	5.1	7.6	2.5
Raw Cabbage	1.0	4.7	6.0	2.4
Baked Beans, Vegetarian	2.2	1.7	2.9	2.3

TABLE C.5 *(continued)*

Vegetable	Elementary Schools	Middle Schools	High Schools	All Schools
Vegetable Batter-Fried	2.7	1.3	1.6	2.3
Dried Beans and Peas	1.0	3.9	5.2	2.1
Olives	0.4	6.5	4.8	2.1
Hash Browns	1.8	2.3	1.6	1.8
Sweet Potatoes	1.4	1.0	2.1	1.5
Other Potatoes with Fat	1.6	0.2	0.4	1.2
Tomato Sauce	0.8	0.1	1.1	0.8
Tomato Soup	0.6	1.8	0.8	0.8
Cooked Greens	0.5	0.5	2.0	0.7
Cooked Tomatoes	0.5	0.5	1.9	0.7
Beets	0.3	1.5	1.7	0.7
Creamed Potatoes	0.5	0.5	1.1	0.6
Raw Spinach	0.2	0.2	2.6	0.6
Refried Beans	0.2	0.0	0.6	0.3
Potato Soup	0.0	1.5	0.2	0.3
Cooked Cabbage	0.1	0.5	0.9	0.3
Broccoli Soup	0.1	0.3	0.0	0.1
Cooked Onion	0.0	0.2	0.1	0.1
Number of School Days	**1,359**	**441**	**706**	**2,506**

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. Vegetables in entrees are not counted in this table. Includes dried beans and peas not in entrees, although some may count as meat alternates. Appendix Table A.2 provides definitions of vegetable categories.

TABLE C.6

FREQUENCY WITH WHICH SELECTED FRUITS ARE OFFERED IN NSLP LUNCHES
(Percentage of School Days on Which Item Is Offered)

Fruit	Elementary Schools	Middle Schools	High Schools	All Schools
Fresh Apple	12.1	31.3	29.6	17.8
Canned Peach	14.1	24.4	27.4	17.8
Fresh Orange	13.1	25.4	25.8	17.1
Fruit Cocktail	11.1	22.0	27.0	15.4
Canned Pear	12.8	19.2	21.0	15.1
Applesauce	11.1	15.4	16.1	12.6
Canned Pineapple	10.2	17.1	16.4	12.3
Orange Juice	7.6	15.4	17.0	10.3
Apple Juice	5.5	14.1	13.5	8.1
Fresh Banana	4.3	9.1	15.6	6.9
Grape Juice	4.3	9.3	11.0	6.2
Fresh Pear	4.5	7.1	5.7	5.1
Canned Apple[a]	3.8	6.1	6.0	4.5
Raisins	3.7	3.1	8.1	4.4
Other Citrus	2.1	5.2	3.8	2.8
Dates	3.0	1.7	1.8	2.6
Fresh Grapes	1.1	4.2	6.5	2.5
Other Fruit, not Fresh	1.8	3.9	3.5	2.4
Prune	1.4	0.7	6.1	2.1
Fruit Juice Bar	2.3	1.3	2.0	2.1
Mixed Fruit Juice	0.9	2.7	3.4	1.6
Pineapple Juice	0.7	4.8	1.0	1.3
Other Fresh Fruit	0.9	0.7	2.0	1.0
Canned Apricot	0.3	0.4	3.9	0.9
Frozen Peach	0.4	2.0	1.2	0.7
Maraschino Cherries	0.2	0.0	2.8	0.6
Canned Plum	0.3	0.2	0.5	0.3
Sweet Cherries	0.2	0.0	0.5	0.2
Fresh Pineapple	0.1	0.0	0.1	0.1
Lemon Juice	0.0	0.0	0.0	0.0
Number of School Days	**1,359**	**441**	**706**	**2,506**

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table. Appendix Table A.2 provides definitions of fruit categories.

[a]Includes apple crisps and cobblers.

TABLE C.7

TYPES OF MILK IN NLSP LUNCHES OFFERED
(Percentage of Schools)

Type of Milk	Elementary Schools	Middle Schools	High Schools	All Schools
White, Whole	93.5	95.7	99.2	94.7
White, 2 %	85.6	81.7	88.8	85.5
White, 1.5 %	7.0	3.2	7.9	6.6
White, 1 %	30.6	34.1	17.1	29.0
White, 0.5 %	0.9	0.0	0.1	0.7
White, Skim	24.9	29.4	45.5	29.2
Chocolate, Whole	8.5	5.5	1.1	6.8
Chocolate, 2 %	42.8	45.8	47.7	44.1
Chocolate, 1.5 %	7.4	6.1	7.4	7.2
Chocolate, 1 %	39.8	46.3	47.1	42.1
Chocolate, 0.5 %	6.9	6.1	7.1	6.8
Chocolate, Skim	6.9	11.1	8.3	7.8
Buttermilk	1.4	1.1	1.4	1.4
Strawberry	1.4	1.1	0.0	1.2
Chocolate Milk Shake	0.0	0.2	3.4	0.6
Vanilla Milk Shake	0.0	0.2	0.5	0.1
Number of Schools	**278**	**92**	**145**	**515**

SOURCE: Milk checklists collected in the School Nutrition Dietary Assessment study, from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving NSLP lunches are included in this table.

APPENDIX D

SUPPLEMENTARY TABLES ON SBP MEALS OFFERED

TABLE D.1

MEANS, STANDARD ERRORS, AND QUARTILE VALUES OF NUTRIENTS IN SBP BREAKFASTS OFFERED

Dietary Component	Mean	Standard Error of Mean	25th Percentile	50th Percentile	75th Percentile
Macronutrients					
Food Energy (calories)	495	6.46	445	486	530
Protein (grams)	17	0.21	15	16	18
Carbohydrate (grams)	71	1.12	62	69	78
Fat (grams)	17	0.42	14	16	19
Saturated Fat (grams)	8	0.19	6	7	8
Percent of Energy from Protein	14	0.16	12	14	15
Percent of Energy from Carbohydrate	57	0.58	54	57	61
Percent of Energy from Fat	31	0.51	27	30	34
Percent of Energy from Saturated Fat	14	0.25	12	14	15
Vitamins					
Vitamin A (mcg RE)	291	9.37	230	269	329
Vitamin C (mg)	34	1.22	24	34	43
Thiamin (mg)	0.51	0.01	0.44	0.50	0.57
Riboflavin (mg)	0.81	0.01	0.73	0.79	0.87
Niacin (mg NE)	4.44	0.13	3.40	4.27	5.24
Vitamin B6 (mg)	0.46	0.01	0.34	0.46	0.55
Folate (mcg)	87	3.16	61	83	108
Vitamin B12 (mcg)	1.26	0.02	1.07	1.22	1.39
Minerals					
Calcium (mg)	401	3.22	375	392	422
Iron (mg)	3.91	0.17	2.57	3.40	4.68
Phosphorus (mg)	402	4.28	375	394	421
Magnesium (mg)	70	1.14	61	68	75
Zinc (mg)	2.23	0.05	1.89	2.06	2.40
Other Dietary Components					
Sodium (mg)	673	12.60	570	664	770
Cholesterol (mg)	73	3.39	48	67	92
Fiber (grams)	3.03	0.08	2.36	2.90	3.63
Number of Schools	290	–	–	–	–

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving SBP breakfasts are included in this table.

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE D.1.A

MEANS, STANDARD ERRORS, AND QUARTILE VALUES OF NUTRIENTS IN SBP BREAKFASTS OFFERED: ELEMENTARY SCHOOLS

Dietary Component	Mean	Standard Error of Mean	25th Percentile	50th Percentile	75th Percentile
Macronutrients					
Food Energy (calories)	479	6.63	437	465	518
Protein (grams)	16	0.25	15	16	18
Carbohydrate (grams)	68	1.09	62	67	74
Fat (grams)	16	0.50	14	16	19
Saturated Fat (grams)	7	0.22	6	7	8
Percent of Energy from Protein	14	0.19	12	14	15
Percent of Energy from Carbohydrate	57	0.70	53	57	60
Percent of Energy from Fat	31	0.62	28	30	34
Percent of Energy from Saturated Fat	14	0.32	12	14	15
Vitamins					
Vitamin A (mcg RE)	290	12.09	231	269	325
Vitamin C (mg)	33	1.56	23	32	43
Thiamin (mg)	0.49	0.01	0.44	0.49	0.56
Riboflavin (mg)	0.80	0.01	0.73	0.79	0.87
Niacin (mg NE)	4.33	0.16	3.37	4.21	4.97
Vitamin B6 (mg)	0.45	0.02	0.34	0.46	0.55
Folate (mcg)	85	3.97	60	83	108
Vitamin B12 (mcg)	1.25	0.02	1.06	1.23	1.37
Minerals					
Calcium (mg)	397	3.72	374	390	418
Iron (mg)	3.83	0.20	2.57	3.39	4.68
Phosphorus (mg)	397	5.01	372	394	418
Magnesium (mg)	69	1.47	61	68	75
Zinc (mg)	2.20	0.06	1.89	2.06	2.38
Other Dietary Components					
Sodium (mg)	654	14.75	560	660	735
Cholesterol (mg)	73	4.31	47	68	95
Fiber (grams)	2.99	0.10	2.41	2.88	3.53
Number of Schools	**169**	–	–	–	–

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving SBP breakfasts are included in this table.

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE D.1.B

MEANS, STANDARD ERRORS, AND QUARTILE VALUES OF NUTRIENTS IN SBP BREAKFASTS OFFERED: MIDDLE SCHOOLS

Dietary Component	Mean	Standard Error of Mean	25th Percentile	50th Percentile	75th Percentile
Macronutrients					
Food Energy (calories)	535	18.43	455	506	600
Protein (grams)	17	0.44	15	16	18
Carbohydrate (grams)	78	3.01	65	73	92
Fat (grams)	18	1.04	15	17	22
Saturated Fat (grams)	8	0.49	6	8	9
Percent of Energy from Protein	13	0.31	11	13	14
Percent of Energy from Carbohydrate	58	1.12	54	58	64
Percent of Energy from Fat	30	1.00	27	31	34
Percent of Energy from Saturated Fat	13	0.48	12	13	15
Vitamins					
Vitamin A (mcg RE)	305	17.42	230	271	367
Vitamin C (mg)	38	1.65	32	35	41
Thiamin (mg)	0.55	0.02	0.46	0.53	0.61
Riboflavin (mg)	0.83	0.03	0.72	0.81	0.87
Niacin (mg NE)	4.83	0.28	3.47	4.81	5.76
Vitamin B6 (mg)	0.49	0.03	0.38	0.47	0.60
Folate (mcg)	94	6.53	67	84	117
Vitamin B12 (mcg)	1.29	0.07	1.07	1.13	1.44
Minerals					
Calcium (mg)	409	8.48	374	411	444
Iron (mg)	4.34	0.56	3.05	3.63	4.81
Phosphorus (mg)	411	11.15	372	391	446
Magnesium (mg)	70	2.13	62	66	73
Zinc (mg)	2.38	0.17	1.81	2.03	2.85
Other Dietary Components					
Sodium (mg)	708	29.90	589	711	836
Cholesterol (mg)	68	5.61	44	58	84
Fiber (grams)	3.07	0.21	2.24	2.88	3.51
Number of Schools	49	--	--	--	--

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving SBP breakfasts are included in this table.

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

TABLE D.1.C

MEANS, STANDARD ERRORS, AND QUARTILE VALUES OF NUTRIENTS IN SBP BREAKFASTS OFFERED: HIGH SCHOOLS

Dietary Component	Mean	Standard Error of Mean	25th Percentile	50th Percentile	75th Percentile
Macronutrients					
Food Energy (calories)	539	12.79	480	512	578
Protein (grams)	18	0.35	16	17	18
Carbohydrate (grams)	77	2.16	67	71	87
Fat (grams)	19	0.80	15	17	19
Saturated Fat (grams)	8	0.42	7	8	8
Percent of Energy from Protein	13	0.25	12	14	15
Percent of Energy from Carbohydrate	57	0.89	54	57	62
Percent of Energy from Fat	31	0.80	25	31	33
Percent of Energy from Saturated Fat	14	0.41	12	14	15
Vitamins					
Vitamin A (mcg RE)	280	12.83	201	266	323
Vitamin C (mg)	37	2.28	28	37	47
Thiamin (mg)	0.54	0.02	0.46	0.53	0.59
Riboflavin (mg)	0.82	0.02	0.74	0.82	0.88
Niacin (mg NE)	4.63	0.24	3.76	4.61	5.71
Vitamin B6 (mg)	0.46	0.03	0.34	0.44	0.60
Folate (mcg)	88	6.69	63	84	118
Vitamin B12 (mcg)	1.28	0.04	1.13	1.26	1.42
Minerals					
Calcium (mg)	410	6.58	388	406	427
Iron (mg)	3.86	0.41	2.57	3.33	4.43
Phosphorus (mg)	419	8.39	392	405	431
Magnesium (mg)	70	1.92	61	69	80
Zinc (mg)	2.23	0.09	1.93	2.07	2.50
Sodium (mg)	739	26.42	594	725	806
Cholesterol (mg)	79	6.08	53	70	90
Fiber (grams)	3.20	0.18	2.28	3.20	4.26
Number of Schools	72	–	–	–	–

SOURCE: Menu data from the School Nutrition Dietary Assessment study, based on one week of school menus from a nationally representative sample of schools, collected from February to May 1992.

NOTE: Only schools serving SBP breakfasts are included in this table.

mg = milligrams.
mcg = micrograms.
RE = retinol equivalent.
NE = niacin equivalent.

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