Abt Associates Inc.

Child Nutrition Program Operations Study: Second Year Report

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ACKNOWLEDGEMENTS

The Child Nutrition Program Operations Study is a large long-term undertaking which requires the ongoing cooperation of food service personnel in school districts across the country and of program administrators in all States. Special thanks are due to all of the School Food Service Managers, State Child Nutrition Directors, State Distributing Agents, and other personnel who have helped with this study.

Members of the Education Information Advisory Committee (EIAC), Food and Nutrition Service Subcommittee, of the Council of Chief State School Officers have spent substantial time and effort reviewing instruments for this study and discussing study plans with school and state personnel. Key EIAC members include Karol Richardson from the Illinois State Board of Education, John Raftery from the Massachusetts State Department of Education, Tom Freeman from the Oklahoma State Department of Education, Kathy Kuser from the New Jersey Department of Education, and Carol Axtman from the South Dakota Department of Education and Cultural Affairs.

The study is also assisted by an Advisory Panel consisting of several experts. These persons include Susal Gilroy, School Food Service Manager from the San Diego Unified Schools, Jack Fowler, a sampling statistician from the University of Massachusetts, Jack Nelson, State Distributing Agent from Virginia, and John Raftery, State Child Nutrition Director from Massachusetts.

Staff of the Office of Analysis and Evaluation, Food and Nutrition Service, U.S. Department of Agriculture are responsible for oversight of the project. As Project Officer, John Endahl oversees all planning, implementation, and reporting activities of the study.

Finally, several staff members at Abt Associates Inc. play important roles in the project. Key staff include Robert St.Pierre (Project Director), Mary Kay Fox (Senior Analyst), Michael Puma (Senior Analyst), Frederic Glantz (Senior Analyst), Jean Layzer (Director of Field Operations), Michael Battaglia (Sampling Statistician), Marc Moss (Senior Analyst), Ellen Lee (Data Base Manager), Diane Stoner (Survey Director), Lyria Boast (Research Assistant), and Tracy Olcott (Project Secretary).

CHILD NUTRITION PROGRAM OPERATIONS STUDY SECOND YEAR REPORT

EXECUTIVE SUMMARY

STUDY BACKGROUND

Under contract to the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture, Abt Associates Inc. (AAI) of Cambridge, MA is conducting a multi-year study of the Child Nutrition Programs. This report presents findings from the second year of the study.

THE CHILD NUTRITION PROGRAMS

The school-based Child Nutrition programs operate in every State in the Nation. They include the National School Lunch Program (NSLP), the School Breakfast Program (SBP), the Food Donation Program (FDP), the Special Milk Program (SMP), and the Nutrition Education and Training Program (NET). State Administrative Expense (SAE) funding is provided for the NSLP, SBP, and SMP as well as for the Child and Adult Care Food Program (CACFP).

Administered by FNS, these programs represent an annual investment of over $4 billion of Federal funds to establish, maintain, and operate non-profit school lunch and breakfast programs for the benefit of the Nation's school children.

PURPOSE OF THE STUDY

To manage the Child Nutrition programs effectively, FNS collects and analyzes information from annual State-level management reports. However, because these State-level reports vary considerably in both format and content, FNS is unable to rely on this source for all of its ongoing information needs. FNS also has many one-time information needs to address current policy issues.

Consequently, FNS contracted with AAI to collect information from School Food Authorities (SFAs) through annual surveys to obtain information on issues that are of interest to FNS. Compared with the alternative of conducting several special-purpose studies, the implementation of an ongoing data collection capability reduces FNS' information collection costs, lessens overall respondent burden, and reduces the length of time required to obtain the needed data.

RESEARCH APPROACH

The Child Nutrition Program Operations Study is designed to collect data from States and participating SFAs through annual telephone surveys during School Years (SY) 1988-89, 1989-90, and 1990-91 and through on-site visits during SY 1989-90 and 1991-92. The specific information needs for each data collection effort are defined by FNS staff. The surveys provide a "snapshot" of administrative structure and, for selected research items that are included in all three of the annual surveys, an assessment of year-to-year changes in program operations.

Data collected in the annual SFA surveys are used to produce national estimates as well as estimates for the following subgroups of SFAs:

- public SFAs,
- private SFAs,
- SFAs that participate in both the NSLP and SBP,
- SFAs that participate only in the NSLP,
- SFAs that serve 60 percent or more lunches free or at a reduced-price (these SFAs are eligible to receive an extra two cents reimbursement for each meal served in the NSLP) and
- SFAs that serve 59 percent or fewer lunches free or at a reduced-price.

In Year Two of the study, the telephone survey of SFA managers yielded 1,359 completed interviews for a 78 percent response rate. Potential nonresponse bias was counteracted by weighting the responding sample to make the number of lunches served nationally match FNS' known universe counts for all SFAs and separately for SFAs that serve over and under 60 percent free or reduced-price lunches. Most of the findings from the second year survey are referenced to SY 1989-90. However, some of the findings rely on end-of-year data, and hence reference the previous year (SY 1988-89).

The second year of the study also included on-site meal observations conducted in 20 SFAs for the purpose of collecting information on meals offered to, selected by and consumed by students participating in the NSLP and SBP. The 20 SFAs were purposively selected--10 were considered by have exemplary food service programs and 10 were considered to be typical (non-exemplary) SFAs.1/ Typical SFAs were selected to roughly match

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1/The 10 exemplary SFAs were selected from a pool of approximately 70 SFAs that were nominated by FNS headquarters and regional office staff, the American School Food Service Association and State Child Nutrition Program Directors. All nominated "exemplary" SFAs had initiated steps to reduce the level of fat, cholesterol and/or sodium in school meals.

exemplary SFAs in terms of percentage of meals served free or at a reduced price, total enrollment, region, and kitchen configuration.

Three representative schools within each of the 20 SFAs (two elementary schools and one middle/secondary school) were included in the on-site meal observations, for a total of 60 schools. In each school, meal service was observed for five consecutive days and detailed data were collected on meals offered (meals that were made available to children on the day of observation), meals selected (actual food selections were observed for approximately 60 children at each meal), and meals consumed (at each meal, plate waste was observed for 12 of the 60 selected children).

FINDINGS

The major findings for the second year of the study are grouped into the following areas: participation in the NSLP and SBP, meal prices and meal costs, Food Donation Program operations, Child Nutrition labeling, technical assistance, and food and nutrient composition of NSLP and SBP meals.

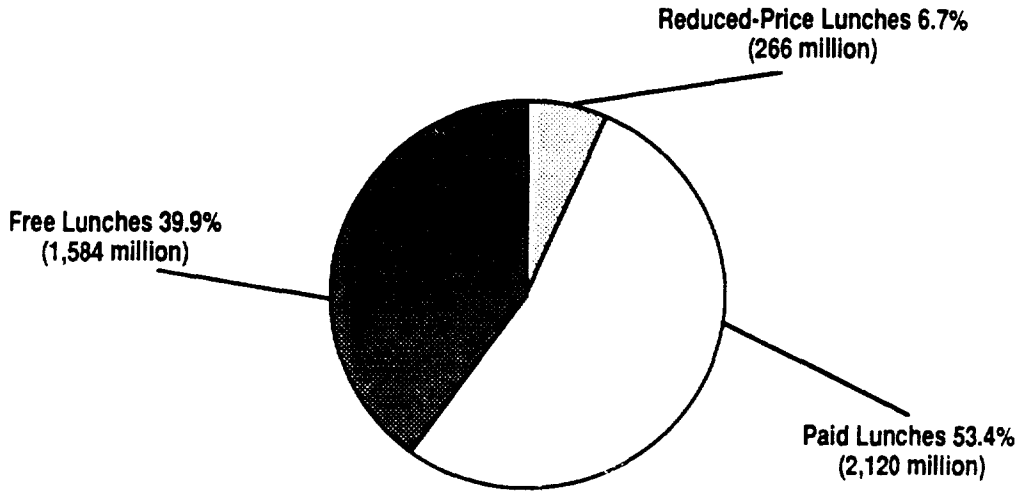
PARTICIPATION IN THE NSLP AND SBP

FNS has an ongoing interest in measuring and understanding participation in the Child Nutrition Programs because Federal subsidies are tied to the number of meals actually served. This study acquired data on the number of meals served in each year in the NSLP and SBP during SY 1987-88 (Year One Survey) and SY 1988-89 (Year Two Survey) and used these data to compute National estimates of the number of meals served as well as student-level participation rates. The study also evaluated year-to-year changes.

Estimated NSLP Participation. An estimated 4.0 billion lunches were served to school children in both SY 1987-88 and SY 1988-89. In each year, almost all of the lunches (about 98 percent) were served in public schools. Exhibit 1 shows the number and percentage of lunches served to children who qualified for free, reduced-price, and paid meals in SY 1988-89. The percentages are virtually identical to data for SY 1987-88. In each year, approximately 40 percent of all lunches were served free of charge to children from low-income families, about 7 percent were served at a reduced price, and about 53 percent were served to children who paid full price for their lunch. In both years, the distribution of NSLP meals by eligibility category varies by type of SFA. Public SFAs, SFAs that participate in both the NSLP and SBP, large SFAs, and SFAs that serve 60 percent or more free or reduced-price lunches were significantly more likely to serve free meals. Conversely, private SFAs, SFAs that do not

Exhibit 1

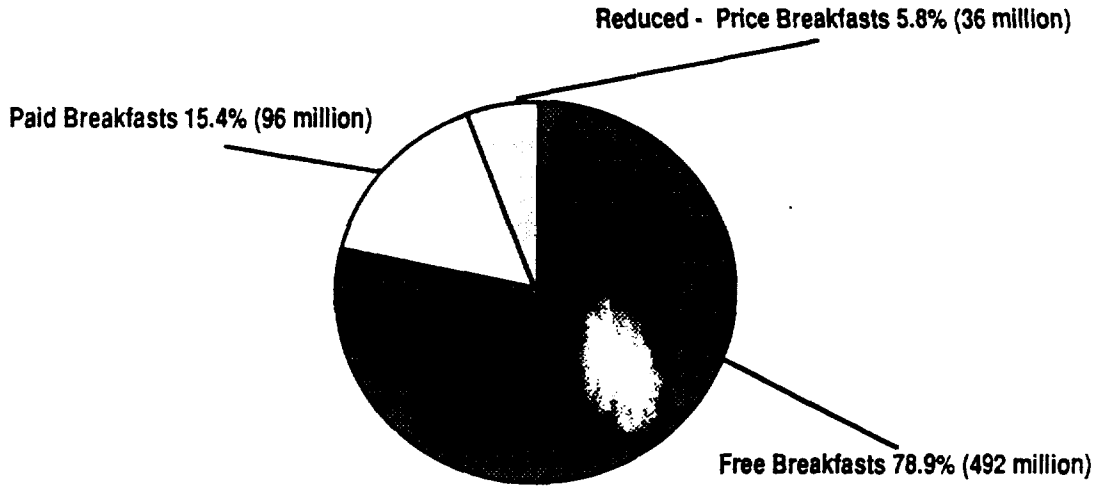
Total NSLP Participation
(SY 1988 - 89)



(3,970 million lunches)

Exhibit 2

Total SBP Participation
(SY 1988 - 89)



(623 million breakfasts)

participate in the SBP, small and medium-sized SFAs and SFAs that serve fewer than 60 percent free or reduced-price lunches served a higher proportion of paid meals--over 60 percent of the lunches served in these SFAs were paid meals.

Estimated SBP Participation. An estimated 604 million school breakfasts were served to school children in SY 1987-88 and about 623 million breakfasts were served in SY 1988-89. The difference between the two years is not statistically significant. The percentage of breakfasts served in public vs. private SFAs and in SFAs of varying sizes was consistent across the two years. In each year, over 98 percent of all breakfasts were served in public SFAs, and about 75 percent were served in large SFAs.

Exhibit 2 shows the number and percentage of breakfasts served to children who qualified for free, reduced-price and paid meals in SY 1988-89. The pattern is comparable to that seen in SY 1987-88--in both years, approximately 80 percent of all breakfasts were served free or at a reduced price.

There are several indicators that show growth in the SBP over the last few years. Data from this study show that the estimated number of SFAs offering the SBP increased from 3,867 in SY 1987-88 (26.9 percent of all SFAs) to 4,274 in SY 1988-89 (33.3 percent of all SFAs). This increase in the number of SFAs offering the SBP has been accompanied by an increase in the number of schools offering the SBP within the average SFA: 6.9 schools per SFA offered the SBP in SY 1987-88 and 7.0 schools per SFA offered the SBP in SY 1988-89. Data from FNS indicate that the SBP was made available to an increasing proportion of school children in each of the school years from 1984-85 (32.8 percent of all school children had the SBP available) through 1988-89 (40.4 percent).

Clearly, the number of SFAs offering the SBP is growing. However, with only two years worth of data from the present study, it is not possible to draw definitive conclusions about the pattern of SBP growth for subgroups of SFAs. This issue will be addressed in more detail in the third report from this study.

NSLP Student Participation Rates. The participation rate for students approved for free meals is defined as the number of meals served during the year to all students approved for free meals divided by the number of meals that would have been provided if all students approved for free meals had received a meal each day. The participation rate for students approved for reduced-price meals is similarly defined as the number of meals served during the year to all students approved for reduced-price meals divided by the number of meals that would have been provided if all students approved for reduced-price meals had received a meal each day. Finally, the participation rate for students who pay full price is defined as the number of meals

served during the year to all students not approved for either free or reduced-price meals divided by the number of meals that would have been provided if all students who pay full price had received a meal each day.

Exhibit 3 shows that overall student participation in the NSLP was estimated to be 60.2 percent for SY 1988-89. That is, on an average day, 60.2 percent of the students who had the NSLP available to them actually participated in the program. This estimate is not significantly different from the figure reported for the first year of the present study (59.1 percent). Moreover, it is very close to the participation rate of 59.4 percent which can be calculated from FNS' administrative data.1/ It is somewhat less than the rate of 65.9 percent reported by the National Evaluation of School Nutrition Programs, but that rate failed to account for absenteeism.2/

Exhibit 3 also shows SY 1988-89 NSLP participation rates for children in each income-eligibility category. Participation rates did not differ significantly from SY 1987-88. In both years, participation among children approved for free meals approached 90 percent. Reduced-price participation rates were somewhat lower at approximately 70 percent, and paid NSLP participation was lower still at about 47 percent. This pattern is consistent with findings from other studies.

In examining overall participation rates across types of SFAs, significantly higher rates of student participation were found in SFAs offering the SBP, small SFAs, and SFAs that serve 60 percent or more free or reduced-price lunches. In addition, participation rates were significantly higher in elementary schools than in middle/secondary schools. On an average school day in both years of the study, over 70 percent of elementary school students selected an NSLP meal, compared to 48 percent of middle/secondary school students.

SBP Student Participation Rates. Exhibit 4 shows that the overall student participation rate in the SBP was estimated to be 20.6 percent for SY 1988-89. This figure is almost identical to the estimate of 20.8 percent calculated for SY 1987-88. It is also quite close to the estimate of 20.1 percent derived from FNS administrative data for SY 1988-89.3/ Exhibit 4 also shows

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1/Annual Historical Review of FNS Programs: Fiscal Year 1989. USDA, Food and Nutrition Service, 1990.

2/Wellisch, J.B. et al., The National Evaluation of School Nutrition Programs: Final Report. Santa Monica, CA: Systems Development Corporation, 1983.

3/Annual Historical Review of FNS Programs: Fiscal Year 1989. USDA, Food and Nutrition Service, 1990.

Exhibit 3

NSLP Student Participation Rates
(SY 1988 - 89)

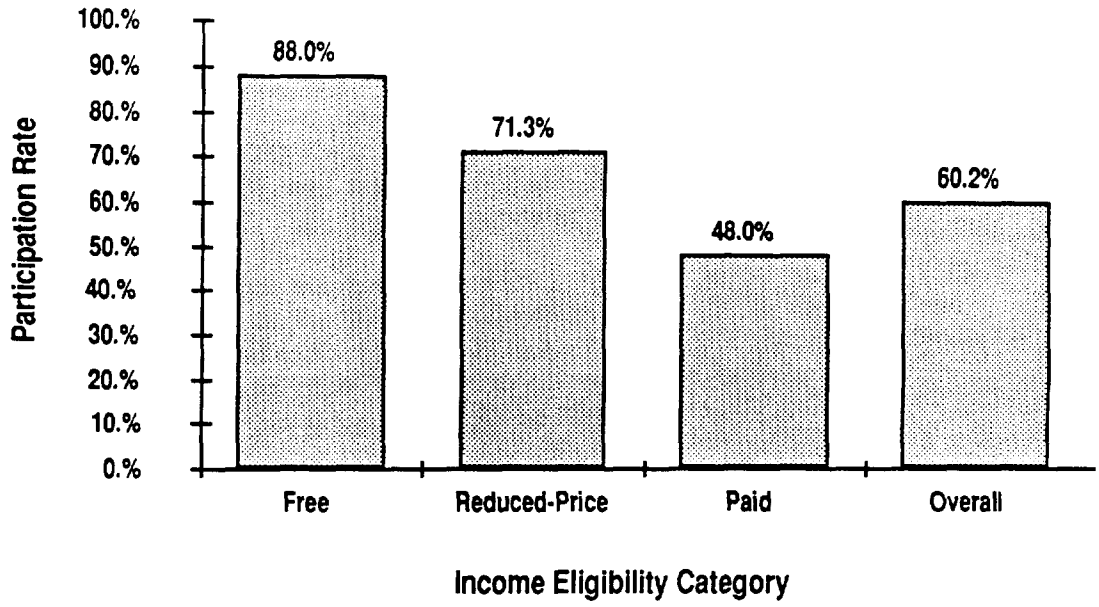
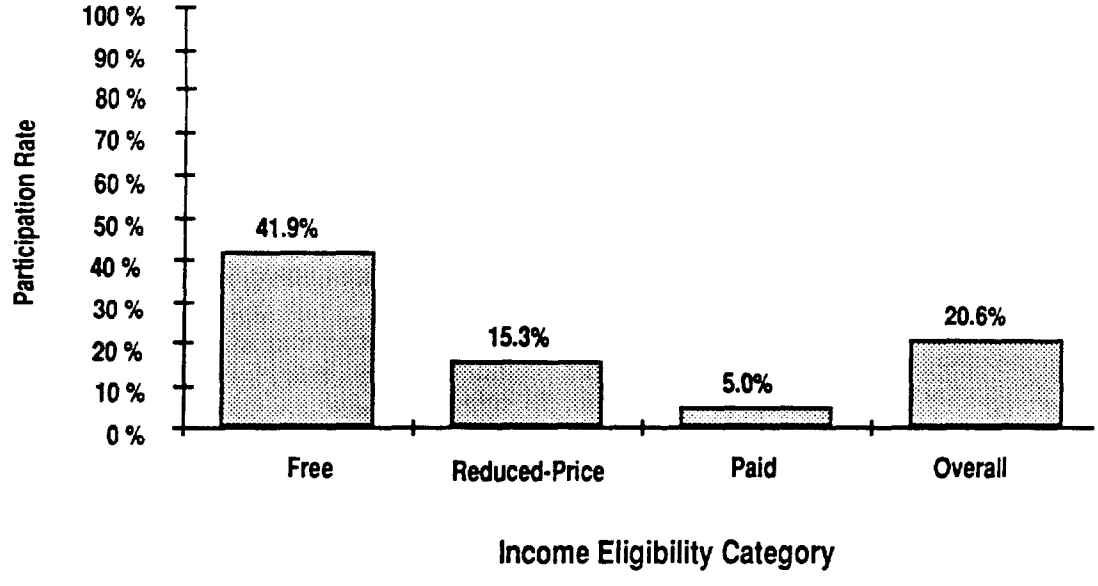


Exhibit 4

SBP Student Participation Rates
(SY 1988 - 89)



participation rates for SY 1988-89 by eligibility category. The data are quite consistent across years, indicating that SBP participation rates are highest for free meals (approximately 42 percent), and lowest for paid meals (about 5 percent).

MEAL PRICES AND MEAL COSTS

Previous research has shown that the price charged for an NSLP meal is a primary determinant of student participation decisions. This study acquired data on meal prices for SY 1988-89 and SY 1989-90. The study also examined the cost of producing an NSLP meal, as reported by SFAs, and evaluated year-to-year changes in meal prices and reported costs.

Meal Prices. The average price for a paid NSLP meal during SY 1989-90 was $.95 in elementary schools, $1.06 in secondary schools (Exhibit 5), and was $1.00 across all schools. These prices are not significantly different from those charged in SY 1988-89 which were only two to three cents lower. Prices charged in SFAs that participate in the SBP and in SFAs that serve 60 percent or more free or reduced-price lunches were lower--in both elementary and middle/secondary schools--than prices in other SFAs.

Reduced-price lunches averaged $.38 in both SY 1988-89 and SY 1989-90, with little variation across types of SFAs or across grade levels. In large part this is due to the Federally-set ceiling of $.40 for a reduced-price lunch. The average price for an adult lunch in SY 1988-89 was $1.55 in elementary schools and $1.60 in middle/secondary schools. Adult prices were $1.59 and $1.63 in elementary and middle/secondary schools, respectively, during SY 1989-90. The year-to-year differences are not statistically significant. Adults pay higher prices in elementary schools in public SFAs, and in middle/secondary schools in SFAs that do not participate in the SBP.

The price charged for a paid SBP breakfast in SY 1989-90 was $.50 in elementary schools and $.52 in middle/secondary schools (Exhibit 6). SBP prices were lower in small SFAs than in large SFAs and in SFAs that serve 60 percent or more free or reduced-price lunches than in SFAs that serve less than 60 percent free or reduced-price lunches. Prices in SY 1989-90 did not differ significantly from SY 1988-89 prices, except for middle/secondary schools in small SFAs, where the price for a paid breakfast increased from $.39 to $.48. This serves to bring the prices paid in small SFAs more in line with prices paid in larger SFAs.

The average price of a reduced-price SBP breakfast was $.26 with little variation across SFAs, grade levels or years of the study. Adult breakfast prices were about $.75 in elementary schools and $.82 in middle/secondary schools in both years of the study.

Exhibit 5

NSLP Meal Prices
(SY 1989 - 90)

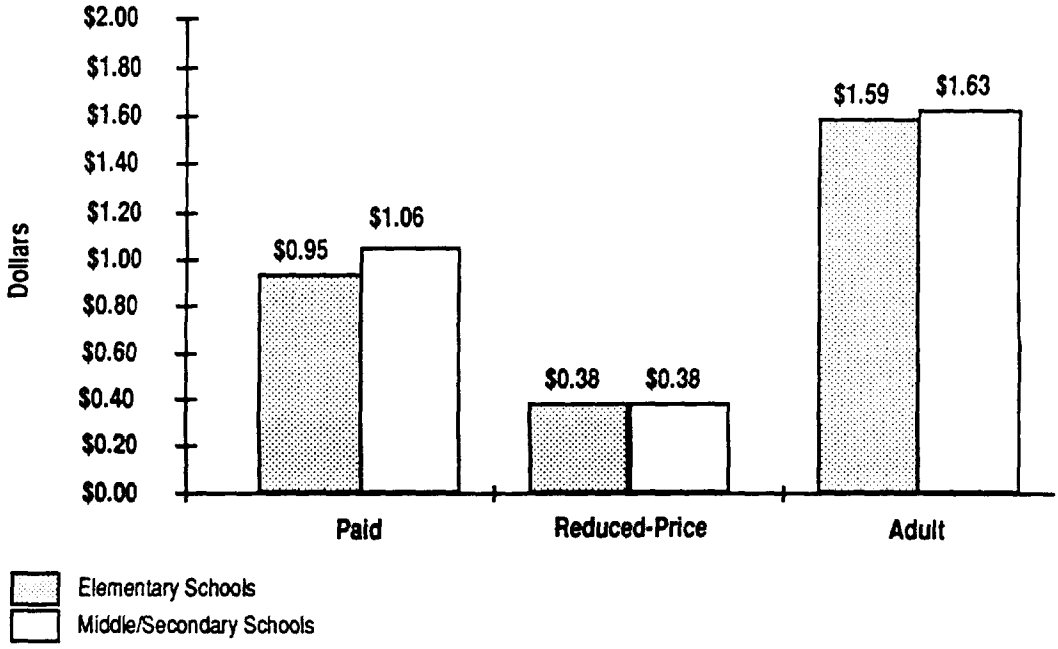
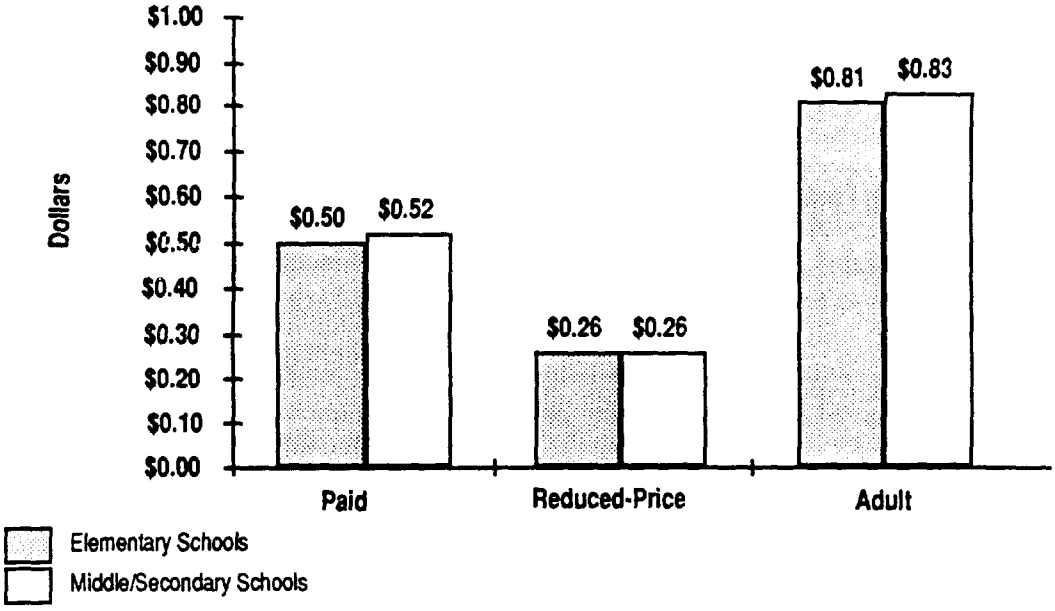


Exhibit 6

SBP Meal Prices
(SY 1989 - 90)



Prices charged in some SFA subgroups did increase significantly between SY 1988-89 and SY 1989-90. The average price for an adult breakfast in elementary schools increased by $.10 in small SFAs and $.07 in SFAs that serve 60 percent or more free or reduced-price lunches. Middle/secondary school prices increased by $.07 in medium-sized SFAs and $.06 in SFAs that serve 60 percent or more free or reduced-price lunches. Given the magnitude and prevalence of the increases in adult breakfast prices, it seems clear that SFAs are more likely to raise the price of an adult breakfast than a student breakfast.

Reported Meal Costs. To determine the cost of producing an average NSLP meal, this study converted breakfasts, adult meals, and a la carte sales into NSLP lunch equivalents (LEQs). The conversion was based on an econometric model of the joint production process used to produce these various cafeteria outputs.

Exhibit 7 shows that the average SFA incurred costs of $1.46 to produce an LEQ in SY 1988-89.1/ This is not significantly different than the SY 1987-88 figure of $1.43 per LEQ. Average costs per LEQ were higher in large SFAs ($1.65) than in small ($1.28) or medium-sized ($1.60) SFAs.

If the LEQ is used as the unit of analysis, rather than the SFA, the average cost of producing an LEQ in SY 1988-89 was $1.67, not significantly different from the cost of $1.62 in SY 1987-88.2/ The fact that the cost of producing a meal is higher when equal weight is given to each LEQ reflects the large number of meals produced in large SFAs, where reported costs per lunch are higher than in other SFAs.

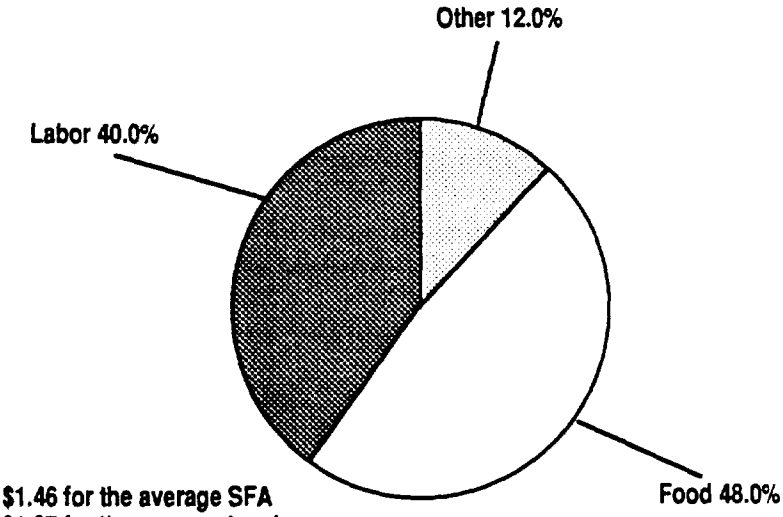
As one would expect, food and labor costs accounted for the vast majority of reported meal costs (Exhibit 7). Based on costs incurred by the average SFA, food costs, including the assigned value of donated commodities, accounted for about one-half of reported meal costs in both years, averaging $.68 per LEQ in SY 1987-88 and $.73 per LEQ in SY 1988-89. Labor costs accounted for almost 40 percent of reported costs in both years ($.57 per LEQ). Neither food costs nor labor costs changed significantly between SY 1987-88 and SY 1988-89 with the exception that food costs rose by $.06 per LEQ in medium-sized SFAs.

1/Calculated as the average cost per LEQ across all SFAs in the nation, i.e., the SFA is the unit of analysis. This analysis gives equal weight to each SFA, regardless of size.

2/Calculated as the average cost per LEQ across all LEQs served in the Nation, i.e., the LEQ is the unit of analysis. This analysis gives equal eight to each LEQ, and since most LEQs are produced in large SFAs, the results are dominated by the cost incurred in large SFAs.

Exhibit 7

Cost of a School Lunch
(SY 1988 - 89)



Total Cost = $1.46 for the average SFA
Total Cost = $1.67 for the average lunch

All other costs including supplies, contract services, capital expenditures, indirect charges by the school districts, and storage and transportation, represented only about 12 percent of SFA-reported costs ($.18 per LEQ in SY 1987-88 and $.16 per LEQ in SY 1988-89). Roughly the same distribution of cost is observed when the LEQ is the unit of analysis.

USDA subsidies to SFAs for the NSLP and SBP include both cash reimbursements and donated commodities. The reimbursement rate per free lunch was $1.405 in SY 1987-88 and $1.4625 in SY 1988-89. In addition, SFAs were eligible to receive $0.12 per NSLP lunch in entitlement commodities during SY 1987-88 and $.1225 during SY 1988-89 and, subject to availability, all the bonus commodities that could be used without waste (about $0.08 per NSLP lunch). Therefore, the total USDA subsidy for free lunches averaged $1.60 in SY 1987-88 ($1.405 + $0.12 + $0.08) and $1.66 in SY 1988-89 ($1.4625 + $0.1225 + $0.08). This is about the same as the average reported cost of producing an LEQ ($1.62 in SY 1987-88 and $1.67 in SY 1988-89). It is, however, somewhat greater than the reported cost of producing an LEQ for the average SFA ($1.43 in SY 1987-88 and $1.46 in SY 1988-89).

FOOD DONATION PROGRAM (FDP)

The Child Nutrition Programs have historically acquired large amounts of surplus agricultural commodities through the FDP. This study obtained data on several aspects of FDP operations in order to help FNS improve the program.

Buy American Provision. The Commodity Distribution Reform Act of 1987 required that, whenever possible, school districts purchase food products that are produced or manufactured in the United States. Data from this study indicates that this provision has not been well communicated to SFA managers. Nearly half of those queried were not aware of this requirement, with small and private SFAs particularly unlikely to know about this provision. (This does not mean that SFAs are not purchasing food items made with American agricultural products.)

Excess Commodity Inventories and Commodity Transfers. The extent to which SFAs are maintaining excessive inventories of USDA-donated commodities has been a long-term area of concern for both FNS and the recipient agencies. Based on results from the SFA Manager Survey, about one-fourth of all SFAs were carrying more than a six-month supply of at least one USDA-donated commodity during SY 1989-90. Excess inventories were more likely to be found in public SFAs, large SFAs, low-poverty SFAs, and those participating in both the NSLP and the SBP.

Seven specific commodities accounted for two-thirds of the reported excesses: flour (20 percent of the SFAs with over six-

month inventories), peanut butter (11 percent), butter (11 percent), dates/raisins/figs (seven percent), honey (six percent), oil (six percent), and nuts (five percent).

One way that SFAs can avoid excess inventories is by transferring commodities to eligible public or private, non-profit organizations providing food assistance to low-income groups and individuals (e.g., food banks, homeless shelters, soup kitchens, etc.). In addition, SFAs are eligible to receive excess commodities from these agencies. This transfer mechanism is rarely utilized however, with only five percent of SFAs transferring donated commodities to another recipient agency, and about six percent receiving such transfers during SY 1989-90. The amount of these transfers was generally small with about two-thirds being valued under $500.

Commodity Processing. There has been some concern that SFAs using processed end-products may not receive proper credit for value of the donated commodities included in the processed product. Beginning in SY 1989-90, program regulations require that processors indicate, on the invoice, the value of USDA-donated commodities contained in any processed end-product. Forty-five percent of the SFA managers surveyed reported receiving this information "all of the time." About one in four managers reported that they never received this information.

Delivery Systems. In recent years, FNS has made substantial efforts to develop new initiatives to reduce the cost of commodity distribution and to improve the quality of services received by SFAs. In particular, these efforts have focused on using commercial distributors by combining the distribution of commodities with deliveries of wholesale food purchases. Data from this study indicate that SFAs have taken advantage of such delivery systems. Fifty-five percent of SFAs receive donated commodities from commercial distributors either alone or along with purchased food items. Another 37 percent receive donated commodities through a system arranged by their State Distributing Agency -- either using a State-owned vehicle or through a commercial carrier -- and 28 percent use their own vehicles to pick up commodities from State-owned or contracted warehouses.

State Agency-Local SFA Interactions. In previous years, some SFAs have expressed dissatisfaction with the level of services received from their respective State Distributing Agents. By SY 1989-90, such concerns seem to have reached a very modest level. In the vast majority of instances, SFAs are well informed about delivery schedules and about the amounts and types of commodities to be received. When asked their opinion of the FDP in their respective States, most responded positively. Seventy-eight percent of SFA managers rated communications with State Distributing Agents as either excellent or very good, and 71 percent rated the overall performance of the commodity

distribution system (in SY 1989-90) as excellent or very good. About one-third of SFAs believe the program has improved in recent years and that communications with their State Distributing Agent have also improved. Only three percent noted any worsening in recent years.

CHILD NUTRITION LABELING

Child Nutrition (CN) Labeling is a voluntary technical assistance program that allows manufacturers, with appropriate Federal inspection, to make claims about the contribution of their products to NSLP and SBP meal pattern requirements. While the CN Labeling Program appears to be popular among SFA personnel and food industry representatives, FNS has several concerns. For this study, FNS requested information on SFA managers' awareness of the CN Labeling Program, the extent to which CN labels are required by SFAs, and SFA managers' opinions about potential benefits of the CN Labeling Program.

SFA Managers' Awareness of CN Labeling. More than one-third of SFA managers were not aware of the CN Labeling Program. Managers of public SFAs, SFAs offering both the NSLP and SBP, and large SFAs were most likely to be aware of the program. Managers of large SFAs appear to be the most familiar with CN Labeling (90 percent), while managers in private SFAs appear to be the least familiar with the program; only 37 percent of these managers were aware of CN Labeling.

Proportion of SFAs Requiring CN Labels. Approximately two-thirds of the SFA managers familiar with the CN Labeling Program required CN labels for one or more eligible food products in SY 1989-90. This requirement varied across SFA subgroups. For example, significantly more public SFAs required CN Labeling than private SFAs (68 percent vs. 44 percent). Requirements for CN levels were also more common in SFAs that offer the breakfast program and in high-poverty SFAs.

Among SFAs that required CN labels, 94 percent required labels for meat or poultry products and 80 percent required CN labels for seafood products. Less than half of the SFAs required CN labels for non-meat products and juice drinks.

SFA Managers' Opinions About CN Labeling. The most consistently held opinion about the benefits of CN Labeling is that it ensures that processed food products will meet USDA meal pattern requirements--90 percent of SFA managers agreed with this contention. SFA managers felt almost as confident about the ability of the CN Labeling Program to ensure standard food portion--81 percent of respondents agreed with this statement. Both of these opinions match the intent of the CN Labeling Program. However, the program does not address issues of food

quality, hence, it is surprising that half of the SFA managers believed that CN labels ensure higher food quality, and that 38 percent believed that CN-labeled products are nutritionally superior to other products.

Forty-two percent of SFA managers agreed that CN Labeling allows many vendors to bid for SFA business. However, only 22 percent of managers agreed that CN Labeling allowed them to purchase foods at lower prices. Once again, the program makes no claim that it will affect food prices.

Overall, almost two-thirds of SFA managers rated the CN Labeling Program as very important or important. However, 35 percent of the SFA managers who were aware of CN Labeling identified at least one disadvantage to the program. The disadvantage identified by most SFA managers is that CN-labeled products are more expensive (42 percent of those citing any disadvantages--about 14 percent of all respondents). Twenty-two percent felt that the program limits (rather than expands) the choice of vendors available to them. Eleven percent cited the fact that CN labels, in and of themselves, offer no guarantee of overall food or nutritional quality. Finally, some SFA managers (9 percent) felt that CN-labeled products are not readily available or are "hard to get".

TECHNICAL ASSISTANCE

FNS provides technical assistance materials to SFAs as a means of ensuring that programs operate effectively and efficiently, that they comply with Federal regulations and policies, and that nutritious, high-quality meals are served to school children. FNS develops technical assistance materials and, through its Regional Offices (FNSROs), provides technical assistance to State Agencies. State Agencies are, in turn, charged with providing technical and managerial assistance to local SFAs.

This study included a limited number of questions specifically designed to obtain feedback from SFA managers on four recent commodity-related technical assistance materials: 1) the quarterly Commodity Foods newsletter, 2) Facts About USDA Commodities (a set of fact sheets providing storage, handling, preparation and cooking information for each of the 70 commodity foods purchased by USDA), 3) USDA Quantity Recipes for School Food Service, and 4) Nutritive Value of USDA-Donated Commodities, a booklet providing detailed information on the nutrient composition of USDA commodities. SFA managers were asked whether they, or someone else in their SFA, had received the materials and, for the last three publications, were asked to rate the usefulness of the materials.

Commodity Foods Newsletter. Two-thirds of SFA managers indicated that they, or someone in their district, had been receiving the Commodity Foods newsletter.

Facts About USDA Commodities. Sixty-eight percent of SFA managers indicated that they, or someone in their district, had received this publication. Ninety percent or more of managers in all types of SFAs rated the material either somewhat useful or very useful.

USDA Quantity Recipes for School Food Service. Approximately three-quarters of all SFA managers had received the recipes. Managers of SFAs that participate in the SBP and managers of large SFAs were more likely to have received the recipe packet then managers of other SFAs. Fifty-eight percent of the managers that acknowledged receipt of the recipes rated them very useful; 36 percent felt that they were somewhat useful. Managers of SFAs that participate in the SBP and high-poverty SFAs found the recipes to be particularly useful.

Nutritive Values of USDA-Donated Commodities. Fewer SFA managers acknowledged receipt of this material than any of the three other technical assistance materials examined in this study. Overall, just over half (53 percent) of the SFA managers reported receiving the publication. Twenty-seven percent indicated that neither they nor anyone else in their district had received the material, and 20 percent did not know whether it had been received. The vast majority of managers who had received the material found it to be useful. Thirty-five percent rated it as very useful and 60 percent rated it somewhat useful.

FOOD AND NUTRIENT COMPOSITION OF NSLP AND SBP MEALS

This study examined the food and nutrient composition of NSLP and SBP meals at three levels (1) as offered by participating schools, (2) as selected by participating students, and (3) as actually consumed by participating students. At each level, the total nutrient content was compared to the Recommended Dietary Allowances for essential nutrients. The nutrient density and fat, cholesterol and sodium content of meals was also examined. For each portion of the analysis, differences between elementary and middle/secondary schools were evaluated.1/

1/As described previously, on-site meal observations were conducted in 20 purposively selected SFAs--ten were considered to be exemplary programs and ten were considered to be typical (non-exemplary). The ten exemplary SFAs were selected from a pool of approximately 70 SFAs that were nominated by FNS headquarters and regional office staff, the American School Food Service Association and State Child Nutrition Program Directors. All nominated "exemplary" SFAs had initiated steps to reduce the

Food-level analyses were also performed to answer specific research questions posed by FNS. These concerned the choices available to students participating in the NSLP and SBP (i.e., how often students have the option to choose between two or more food items within a major meal component category), the particular types of foods offered to students, and the foods that students tend to select and waste most frequently. FNS was also interested in how many and which food items students select under the offer-versus-serve (OVS) option.1/ Finally, the prevalence and extent of a la carte food service was examined.

Nutrient Composition of NSLP Meals. Meals Offered: The average NSLP meal offered in middle/secondary schools in SY 1989-90 provided greater amounts of calories and almost all nutrients than the average NSLP meal offered in elementary schools. This is not surprising since the NSLP meal pattern suggests serving larger portions to older children, in recognition of their increased nutrient needs.

Program regulations state that NSLP meals should provide, on average, one-third of students' daily nutrient needs. The average lunch offered in elementary schools met this goal for 4-6 year olds and 7-10 year olds. It also met the goal for older students for all nutrients except calories (29 percent) and vitamin B_6 (28 percent) for 11-14 year old males, and iron (28 percent) for 11-14 year old females.

The average lunch offered in middle/secondary schools provided approximately one-third of the RDA for almost all nutrients for the approximate age and sex groups. The only appreciable exceptions were calories (27 percent), vitamin B_6 (27 percent), and magnesium (26 percent) for 15-18 year old males.

Program guidelines encourage schools to provide larger portions or additional servings to older students whose nutritional needs are greater. These findings reinforce the importance of that policy and suggest that schools need to be conscious of the differential needs of the students they serve. They must

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level of fat, cholesterol and/or sodium in school meals. It turned out, however, that some the "typical" schools had undertaken similar actions. No significant differences were detected, at any level, between meals in exemplary SFAs and meals in typical SFAs. Therefore, all of the analyses discussed in this report were conducted on the pooled sample of observations.

1/Regulations for both the NSLP and SBP stipulate a particular meal pattern that must be offered to students, including the types of food (meal components) and quantities of food. Under the OVS option, which is mandatory in middle/secondary schools and optional (at the discretion of the SFA) in elementary schools, students are permitted to refuse up to two of five NSLP meal components and one of four SBP meal components.

maintain adequate flexibility when serving meals so that older students can indeed receive the additional food they need to meet the program goal of approximately one-third of the RDA.

The average NSLP meal offered in both elementary and middle schools was high in nutritional quality and well-balanced across a number of key nutrients. The average lunch offered in elementary schools provided more calories than needed by the youngest students and fewer calories than needed by the oldest male students. The mix of foods, however, was well-selected and nutrient dense. The data suggest that the portions actually served to students could be adjusted slightly to meet their differing caloric needs, and both groups would still receive one-third of the RDA for most nutrients examined in this study. The only exceptions are vitamin B_6 for 7-10 year olds and 11-14 year old males, and iron for 11-14 year-old females. The low iron density of the average NSLP meal relative to the iron requirement for 11-14 year-old females was the most significant shortfall. The Index of Nutritional Quality (INQ) score of 0.85 indicates that the target RDA for iron could not be met for this group of students with the average NSLP meal offered in elementary schools unless the RDA for calories was exceeded.

The average lunch offered in middle/secondary schools provided slightly less calories then needed by male students and more calories than needed by female students. The foods offered, however, were high enough in nutrient density that portions for each group of students could be adjusted slightly to better meet caloric needs without compromising total nutrient intake. The average lunch offered was somewhat low in nutrient density for vitamin B_6, magnesium and iron for some student groups. Again, the most significant shortfall was iron density for female students. The INQ score of 0.86 indicates that the average NSLP meal offered in middle/secondary schools met the RDA target for iron for these students only because it exceeded the RDA for calories.

The mean proportion of calories from fat was approximately 38 percent for the average meal offered in both elementary and middle/secondary schools. The Dietary Guidelines recommend 30 percent or less of calories from fat.1/ The mean proportion of calories from saturated fat was approximately 15 percent for both

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1/Fat and saturated fat content are evaluated in light of the Dietary Guidelines for Americans, recommendations which are issued jointly by USDA and the U.S. Department of Health and Human Services. Cholesterol and sodium content are compared to standards from the National Research Council's publication, Diet and Health, because the Dietary Guidelines do not provide quantified goals for these nutrients. The NRC Guidelines are not endorsed by the USDA, and are included in this report solely as reference points to assist the reader in interpreting the data.

schools; the recommended level is less than or equal to ten percent. NSLP meals were high in sodium when compared to recommendations from the National Research Council's Diet and Health report.

Meals Selected: The nutrient content of the average NSLP meal as selected did not differ significantly from the nutrient content of the average meal offered. This finding indicates that students are selecting meals that include all or most of the components contained in the pattern NSLP meal. The average meal selected in middle/secondary schools contained significantly greater amounts of calories and all nutrients, except carbohydrate and vitamin A, than the average meal selected in elementary schools.

In evaluating the proportion of RDAs contributed by the average NSLP meal as selected, a target range of intake was identified for each school type based on the RDAs for the groups of students included in the school population.1/ The average NSLP meal selected in both elementary and middle/secondary schools met or exceeded the target range for all nutrients examined. In some instances, the average meal contained less than one-third of the RDA for a particular nutrient for a particular group of students. If these students indeed consumed the "average" meal, then they would not receive one-third of the RDA for these nutrients. In the absence of actual data on how particular age- and sex-groups selected NSLP meals, however, it is not possible to determine how the meals selected by these students might differ from the "average" NSLP meal.

The nutrient density of meals as selected in both elementary and middle/secondary schools was similar to the nutrient density of the average meals offered. This suggests that most students selected meals that included all of the NSLP meal components. Iron density for female students remained the only appreciable problem at both school levels. INQ scores for iron for the average meal as selected were consistently higher than for the average meal offered (0.88 vs. 0.85 for elementary schools and 0.92 vs. 0.86 for middle/secondary schools.) This suggests that students who omitted one or more of the NSLP meal components in

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1/This approach was necessary because the average meal as selected (and consumed), as defined in this study, represents the nutrient content of the meals selected by the average student in each school averaged across five days in a selected week. The sample included children of different ages and sexes, both of which are important factors in judging nutritional adequacy. It is not possible, therefore, to identify with certainty specific groups of students who may be selecting (or consuming) meals that provide less than one-third of the RDA for a given nutrient. This issue is discussed in detail in Chapter VII of the full report. (FNS is collecting age- and sex-specific data through the Special Nutrition Dietary Assessment Study.)

the meals they selected tended to include iron-rich foods and exclude other foods. Because age- and sex-specific data are not available, however, it is impossible to determine the iron density of the meals actually selected by the students with the greatest iron requirements (females 11 years old or older.)

The average meal selected in both elementary and middle/secondary schools, like the average meal offered, exceeded the Dietary Guidelines recommendations for total fat and saturated fat. The average meal selected was also high in sodium when compared to NRC recommendations, especially in middle/secondary schools. Cholesterol levels in the average meals selected compared favorably with NRC recommendations.

Meals Consumed. The mean nutrient content of the average meal consumed was consistently lower than the nutrient content of the average meal selected in both elementary and middle/secondary schools. This indicates that, in general, students did not consume all of the foods they selected. This was particularly true in elementary schools.

None of the nutritional differences between the average meal consumed and the average meal selected in middle/secondary schools reached statistical significance. In elementary schools, however, the average meal consumed was significantly lower in calories and all nutrients than the average meal selected. On average, elementary school students wasted about 23 percent of the nutrients contained in the meals they had selected. Middle/secondary school students wasted about nine percent of the available nutrients.

The average lunch consumed by children in elementary schools exceeded the target range for protein, vitamin C, riboflavin and phosphorus (i.e., it provided more than one-third of the RDA for these nutrients for all age/sex groups). The levels of vitamin A, thiamin, niacin, calcium and magnesium were within the target range, but older students would have to consume more than is included in the "average" NSLP meal in order to meet their needs for these nutrients. Calories, vitamin B_6 and iron levels were below the target range. Thus, the average meal as consumed did not provide one-third of the RDA for these nutrients for the majority of elementary school children. This finding is comparable to results of other studies which have indicated that levels of calories, vitamin B_6 and iron may be low in NSLP meals consumed by elementary school children.

The nutrient content of the average NSLP meal consumed in middle/secondary schools exceeded the target range for protein, vitamin C, thiamin, riboflavin, niacin, calcium and phosphorus. It was within the target range for magnesium and iron, although the previous caveat about greater needs for older students

applies here also. The average NSLP meal consumed by middle/secondary students was below the target range for calories, vitamin A and vitamin B_6. The findings for calories and vitamin B_6 are consistent with those noted for NSLP meals consumed in elementary schools and with other studies of NSLP meals. The apparent shortfall of vitamin A in NSLP meals as consumed has also been noted in previous studies.

When viewed in concert, the results of the three analyses (i.e., NSLP meals as offered, selected and consumed) indicate that meals planned in accordance with program guidelines and offered to students are successful in meeting the program goal of one-third of the RDA. Further, the nutrient content of meals selected by students, even under the OVS option, are, with few exceptions within the target range for calories and all nutrients. Significant nutritional shortfalls arise only in the meals actually consumed by students, particularly at the elementary school level. Thus, the key to ensuring that students receive approximately one-third of their daily nutritional needs from an NSLP meal is to increase the likelihood that students actually consume the meals they select. It is also important to ensure that the oldest students in each school have the ability to receive larger or additional portions of food.

While the average NSLP meal consumed by students may have been low in total calories, the mix of foods included was high in nutritional quality and well-balanced. Iron density for female students was the most notable potential problem. Food waste had little effect on levels of fat, cholesterol and sodium. The average lunch consumed in both elementary and middle/secondary schools exceeded Dietary Guidelines recommendations for total fat and saturated fat. The average meal was also high in sodium. While the average elementary school lunch came close to meeting the NRC recommendation for sodium, this was primarily due to the fact that students wasted almost 25 percent of the foods they received.

Food Availability, Selection and Consumption. Foods Offered: Students in middle/secondary schools had a greater number of choices for all NSLP meal component categories, except breads/bread alternates and desserts, than students in elementary schools. In both elementary and middle/secondary schools, students had the greatest number of options when it came to choosing milk. In most cases, three or more types of milk were offered. The types of milk offered most frequently were, in descending order, low-fat (unflavored) milk, flavored milk, and whole milk.

Most schools also offered students a choice of fruits or juices. Fifty-four percent of the meals offered in elementary schools included two or more types of fruit or juice, as did 73 percent

of the meals offered in middle/secondary schools. A wide variety of fruits were offered to students in both types of schools, with canned fruits offered more than fresh fruits.1/ Dried fruits were offered infrequently in both types of schools.

Students tended to have fewer options in choosing vegetables. Forty-eight percent of the meals in elementary schools and 35 percent of middle/secondary school meals either offered vegetables only as part of a combination item (e.g., pasta with sauce, salad bars, chef salad, etc.) or offered only one vegetable choice.

Of all the major meal components, students had the fewest options when it came to selecting a main entree. This was particularly true for elementary schools, where fifty percent of the meals offered included only one entree. In middle/secondary schools, on the other hand, only 29 percent of meals were limited to one entree. The specific entrees offered most frequently in elementary schools were pizza (22 percent of all meals offered), hot dogs and corn dogs (19 percent), and peanut butter and jelly sandwiches (13 percent). In middle/secondary school meals, hamburgers and cheeseburgers were the most common entree (39 percent of all meals), followed by pizza (27 percent), and hot dogs and corn dogs (24 percent). Hamburgers and cheeseburgers were offered in middle/secondary school meals about four times more often than in elementary school meals (39 percent vs. nine percent).

Across all schools, almost half of the meals did not include a separate bread or bread alternate offering. This finding is not as surprising as it may seem, since the majority of entrees offered in the NSLP were combination items that included a bread/bread alternate component--for example, hamburgers (the bun), sandwiches (the bread) and pizza (the crust).

Finally, dessert items that did not contribute to meeting the meal pattern requirement were included in reimbursable meals only 31 percent of the time.

Foods Selected: The majority of students observed in this study selected meals that included all five NSLP meal components. Elementary school students were more likely to select meals with all components (68 percent) than middle/secondary school students (55 percent). Only six percent of elementary school students and 10 percent of middle/secondary school students selected a reimbursable meal that contained only three of the five required components. The meal component most frequently omitted in meals

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1/The timing of meal observation (in mid-March) may have limited the number of SFAs offering fresh fruit.

that did not contain all five components was the second fruit and/or vegetable.

While over 25 different meal component combinations were encountered, four combinations accounted for two-thirds of the meals selected. The most common type of meal in elementary schools, representing more than one-third of all NSLP meals, consisted of milk, two fruit and vegetable choices and a meat/bread combination entree. Considering the most common foods offered and selected in elementary schools, an example of the actual meal represented by this combination would be flavored milk, fresh apple, french fries and a slice of pizza.

The most common meal selected in middle/secondary schools included milk, one fruit or vegetable, and a meat/bread combination entree (22 percent of all meals selected). Given the foods most often offered and selected in these schools, this translates into flavored milk, french fries, and either a slice of pizza, a hamburger or a cheeseburger.

A la carte items were available in the same serving line as reimbursable meals in over half of the schools in the sample. Eighty percent of middle/secondary schools had at least some a la carte items available as did 58 percent of elementary schools.1/ Both the number and variety of a la carte items offered in middle/secondary schools was significantly greater than in elementary schools.

Food Consumed. Overall, elementary school students consumed about three-quarters of the lunch foods they selected, and middle/secondary school students consumed almost 90 percent of the foods they selected. The particular foods that elementary school students wasted more often than middle/secondary school students were, in descending order, salads, rolls and milk.

Nutrient Composition of SBP Meals. Meals Offered: The level of calories and nutrients in the average SBP meal as offered did not differ significantly for elementary and middle/secondary schools. This finding is not surprising in view of the fact that SBP guidelines specify only one meal pattern (i.e., types and amounts of food) for all students in grades K-12.

The average breakfast offered in elementary schools supplied one-fourth or more of the RDA for all nutrients for 4-6 year olds, 7-

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1/For this study, field staff collected information on the types of a la carte items that were available in the same serving line as the reimbursable meals that were being observed. These data undoubtedly underestimate the prevalence of a la carte items in schools, since a la carte items were frequently available elsewhere in the cafeteria or school.

10 year olds and 11-14 year olds.1/ The average elementary school breakfast also supplied 25 percent of daily calorie needs for 4-6 year old students, but fell short of this level for 7-10 year olds (23 percent), 11-14 year old females (21 percent) and 11-14 year old males (19 percent). The average breakfast offered in middle/secondary schools provided approximately one-fourth of students' calorie and nutrient needs as well, with three exceptions: calories (21 percent) for 11-14 year old males and calories (17 percent) and magnesium (18 percent) for 15-18 year old males.

Breakfasts offered in both elementary and middle/secondary schools were high in nutritional quality and balanced across a number of key nutrients. While the overall caloric value of SBP meals may have been somewhat low, the meals were high in nutrient density, supplying in excess of 30 percent of the RDA for most nutrients examined.

The average breakfast offered in elementary and middle/secondary schools provided approximately 30 percent of total calories from fat, the level recommended by the Dietary Guidelines. The level of saturated fat, however, exceeded the Dietary Guidelines recommendation of 10 percent of calories in both elementary (14 percent) and middle/secondary (13 percent) schools. The amount of cholesterol and sodium in average SBP meals were within acceptable ranges.

Meals Selected: The nutrient content of the average SBP meal selected did not differ significantly from the nutrient content of the average meal offered. This indicates that most students selected meals that included all of the SBP meal components.

In assessing the percent RDA contribution for average meals selected and consumed, the target level concept, described in the preceding discussion of NSLP meals, was used. The average breakfast selected in elementary schools met or exceeded the target range for all nutrients except calories. Students aged 4-6 would receive 25 percent of the RDA for calories from the "average" elementary school breakfast. All other elementary school students, however, would not. The level ranges from 18 percent of the RDA for 11-14 year old males to 22 percent of the RDA for 7-10 year olds. The available data do not indicate, however, how the meals selected by these students may differ from the average. Given the USDA's policy of encouraging schools to serve larger portions or additional foods to older students, it is possible that these students would in fact select meals that

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1/Program regulations do not specify a target RDA level for SBP meals. Twenty-five percent of the RDA was used as a target in these analyses.

provide more calories than the average SBP meal, and thereby satisfy their increased caloric needs.

The average SBP meal selected in middle/secondary schools met or exceeded the target range for all nutrients except magnesium. The calorie level of the average breakfast was also below the target range in middle/secondary schools. Female middle/secondary school students selecting the average breakfast would receive almost one-fourth of their daily caloric needs; male students would not.

The average breakfast selected by elementary and middle/secondary school students was well-balanced in terms of total calories and relative nutrient density. The nutrient density of the average meal selected varied little from the nutrient density of the average meal offered. The average breakfast selected in elementary and middle/secondary schools contained approximately 30 percent of calories from total fat, in keeping with the Dietary Guidelines recommendation, but exceeded the Dietary Guidelines recommendation for saturated fat. Cholesterol and sodium content were within acceptable ranges.

Meals Consumed: The nutrient content of SBP meals consumed in elementary and middle/secondary schools was consistently lower than the nutrient content of the meals selected, indicating that, in general, students did not consume all of the foods they selected. The magnitude of the differences was consistently higher for elementary schools where, on average, students did not consume about 24 percent of the nutrients that were contained in the meal they had selected (compared to nine percent for middle/secondary schools).

Despite the nutrient losses associated with food waste, the average breakfast consumed in elementary schools exceeded the target nutrient range for vitamin C, thiamin and riboflavin. It was within the target range for protein, vitamin A, niacin, vitamin B_6, calcium, phosphorus, magnesium and iron. However, older students (11-14 year olds) would need to consume a meal containing greater amounts of these nutrients than the "average" meal in order to satisfy one-fourth of their daily nutrient needs. The average SBP meal consumed in elementary schools failed to provide 25 percent of daily caloric needs for even the youngest students (4-6 year olds).

The average breakfast consumed in middle/secondary schools exceeded the target range for protein, vitamin A, vitamin C, thiamin, riboflavin, calcium, phosphorus and iron. It fell below the target range for calories and magnesium and just reached the lowest limit of the target range for niacin and vitamin B_6.

Plate waste had little effect on the nutrient density or fat, cholesterol and sodium content of SBP meals. While the average SBP meal consumed in elementary and middle/secondary schools may have been somewhat low in calories, students received concentrated amounts of nutrients in every calorie they consumed. Further, the breakfasts contained appropriate levels of fat, cholesterol and sodium. They exceeded recommended levels of saturated fat.

Food Availability, Selection and Consumption. **Foods Offered**: Data from this study indicate that students are offered relatively few choices in SBP meals. Twenty-two percent of elementary schools did not even offer students a choice of milk. Almost three-quarters of the breakfasts observed included only one choice to meet the fruit/juice/vegetable meal requirement. This was almost always orange juice.

The number of options available for bread/bread alternates were also limited. Thirty-five percent of the breakfasts in elementary schools and 40 percent of the breakfasts in middle/secondary schools offered two bread/bread alternates. In most schools, however, students had to take both of these items in order to select a breakfast that fully complied with meal pattern requirements.1/ Cold cereal and toast were the most common offerings. Forty-five percent of elementary schools and 31 percent of middle/secondary schools offered only one bread/bread alternate. In some cases, this was complemented by a meat/meat alternate offering. In many other cases, however, this one offering was counted as two servings of a bread/bread alternate following program guidelines. This happened most frequently for muffins and doughnuts.

Meat and meat alternates were offered in only half of the breakfasts observed. Middle/secondary schools offered meat selections more frequently than elementary schools.

Foods Selected: Under the OVS option, students can refuse one of the four items indicated in a pattern meal. In this study, more than 80 percent of the students in schools with the OVS option selected a breakfast meal that included all four of the SBP meal pattern components. The meal component omitted most often by students selecting a three-item breakfast was the second bread/bread alternate or meat/meat alternate.

Fifteen meal component combinations were encountered. Five combinations accounted for 90 percent of all breakfasts. The most common breakfast in both school types, representing over

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1/Schools can offer two meat/meat alternates or one bread and one meat instead of two bread/bread alternates; however, only about half of all schools offered meat or meat alternates.

half of all SBP meals, consisted of milk, fruit juice, and a bread/bread alternate. Considering the foods most commonly offered and selected, an example of an elementary school meal represented by this combination would be flavored milk, orange juice, and either toast or cold cereal. In middle/secondary schools, the meal would be similar: flavored milk and orange juice with either cold cereal or a doughnut.

A la carte items were generally not available at the breakfast meal in the schools included in this study. None of the elementary schools offered a la carte breakfast items, and less than one-third of middle/secondary schools did so.

Foods Consumed: Elementary school students consumed, on average, 69 percent of the foods they selected. Middle/secondary school students consumed over 80 percent of the foods they selected. Milk and fruit had the highest plate waste.

PART 1:

STUDY BACKGROUND

I. INTRODUCTION

This report presents findings from the second year (Year Two) of the Child Nutrition Program Operations Study. This multi-year study is being conducted by Abt Associates Inc. (AAI) of Cambridge, Massachusetts under contract to the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA).

The report consists of five major parts. Part 1 is comprised of this introductory chapter which provides background information on the Child Nutrition Program Operations Study. The purpose and objectives of the study are reviewed as well as the overall design of the study, its component surveys and the major research issues addressed in Year Two. Data collection strategies are also described. The chapter concludes with a discussion of the approach utilized in analyzing and reporting data. Additional details on study methodology as well as discussions specific to Year One of the study are contained in the Year One report.1/

Part 2 presents major findings from the Year Two SFA Manager Survey. Chapter II presents findings related to program participation; Chapter III focuses on meal prices and meal costs; Chapter IV presents information on issues related to the Food Donation Program; Chapter V presents findings related to Child Nutrition Labeling; and, finally, technical assistance issues are discussed in Chapter VI.

Part 3 focuses on findings from on-site observations of meals in a cross-section of SFAs. Chapter VII presents findings related to the food and nutrient composition of meals in the National School Lunch Program (NSLP) as offered to, selected by and consumed by participating students. Chapter VIII presents comparable data for meals in the School Breakfast Program (SBP).

Part 4 presents detailed tables that support some of the discussions presented in Part 3 of the report. Finally, Part 5 contains a variety of appendices, including copies of survey and observation instruments, analysis of non-response bias, and the methodology used in weighting data to produce national estimates.

1/St.Pierre, R.G., M.K. Fox, M. Puma, F. Glantz, and M. Moss. Child Nutrition Program Operations Study: First Year Report. Cambridge, MA: Abt Associates Inc., 1991.

PURPOSE AND OBJECTIVES OF THE STUDY

Administered by FNS, the school-based Child Nutrition Programs operate in every state in the nation, and represent an annual investment of over $4 billion of public funds to establish, maintain, and operate non-profit school lunch and breakfast programs for the benefit of the Nation's school children.1/ To manage these programs effectively, FNS collects and analyzes information from State-level management reports. However, because these State-level reports vary considerably in both format and content, FNS is unable to rely on this data source for all of its information needs.

Consequently, FNS contracted with AAI to conduct a series of three annual surveys of approximately 1,700 SFAs to obtain information on issues that are of interest to FNS. Compared with the alternative of conducting several special-purpose studies, the implementation of an ongoing survey capability reduces FNS' information collection costs, lessens overall respondent burden, and reduces the length of time necessary to obtain required data.

The study has three overall objectives:

1) provide general descriptive information on the characteristics of the school-based Child Nutrition Programs required either for the preparation of program budgets (e.g., the forecasting of program participation and program costs), or to answer commonly asked questions related to issues such as meal costs, student participation, and SFA food service practices;

2) provide data on various aspects of program administration to inform the preparation of program regulations and reporting requirements; and

3) provide data that will support the training and technical assistance needs of SFAs.

In some cases the data required to meet these three objectives requires that information be collected from SFAs or States on an ongoing basis in order to observe changes over time. In other instances, the desire for information is a one-time need where

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1/The school-based Child Nutrition Programs include the National School Lunch Program (NSLP), the School Breakfast Program (SBP), the Food Donation Program (FDP), the Special Milk Program (SMP), and the Nutrition Education and Training Program (NET). State Administrative Expense (SAE) funding is provided for the NSLP, SBP and SMP as well as for the Child and Adult Care Food Program (CACFP).

the interest is in describing or assessing a specific aspect of the Child Nutrition Programs. In either case, the primary goal is to provide FNS with information for specific functions such as budget projections, analysis of legislative options, design of regulations, or the development of technical assistance materials.

STUDY DESIGN

The Child Nutrition Program Operations Study is designed to collect data from States and participating SFAs on issues that are currently, or are likely to be, the focus of FNS' policy making process. Data collection for the study spans three school years (SY 1988-89, 1989-90, and 1990-91), with specific information needs for each annual survey defined by FNS staff. The surveys provide a "snapshot" of administrative structure and procedures in a particular year and, for selected research items that are included in each annual survey, an assessment of year-to-year changes in program operations.

Study Components

Three distinct data collection components comprise the Child Nutrition Program Operations Study: (1) State Agency Survey, (2) SFA Manager Surveys, and (3) On-Site Meal Observations. Each of these components is described below. Exhibit I.1 summarizes the data collection schedule.

State Agency Survey. The research issues identified for Year One of the study required that data be collected from every State regarding a variety of issues including commodity processing and distribution, monitoring of commodity inventories, SFA utilization of Food Service Management Companies (FSMCs) and vended meals, and technical assistance and training. To collect this information, Directors of Child Nutrition Programs and State Distributing Agencies in all 50 States were contacted and asked to complete a brief telephone interview. All of these data were collected during Year One of the study; no State Agency questions are included in Years Two or Three of the study.

SFA Manager Surveys. The SFA Manager Surveys represent the largest component of the Child Nutrition Program Operations Study. Three annual surveys of a stratified sample of 1,740 SFAs are being conducted, in the spring of each year, to gather data on a wide variety of program operations issues.1/ During Year One of the study, both telephone and mail instruments were utilized in surveying SFA managers because of the amount of historical program data that was requested (e.g., meal prices for previous five school years; meal counts, enrollment, etc.

1/A detailed description of the stratification and sampling plans used in selecting SFAs is provided in the Year One Report.

Exhibit I.1

Child Nutrition Program Operations Study:
Study Components and Data Collection Schedule

Study Component	Spring 1989 (Year One)	Spring 1990 (Year Two)	Spring 1991 (Year Three)
State Agency Survey	X		
SFA Manager Survey[1]			
- Telephone Survey	X	X	X
- Mail Survey	X		
On-Site Meal Observations		X	

[1]During Year One of the study, both telephone and mail survey instruments were utilized to collect data from SFA Managers. SFA Manager Surveys for Years Two and Three of the study include only telephone surveys.

for two school years). Data collection from SFA Managers in Years Two and Three of the study is limited to telephone surveys. Specific research issues addressed in the Year Two survey are described later in this chapter.

On-Site Meal Observations. The objective of the on-site meal observations is to provide FNS with timely information on the food and nutrient content of meals offered to, selected by, and consumed by students participating in the NSLP and SBP. A representative sample of participating students was observed in 20 purposively-selected SFAs during Year Two (SY 1989-90).

Ten of the SFAs were selected because they were considered to have exemplary food service programs in that they had initiated steps to reduce the levels of fat, cholesterol and/or sodium in school meals.1/ Ten additional (non-exemplary or typical) SFAs were selected to roughly match (matched pairs) the exemplary SFAs in terms of percentage of NSLP meals served free or at a reduced price, total enrollment, region and kitchen configuration. Five of these typical SFAs are participating as grantees in FNS' menu modification demonstration grants program. The remaining five typical SFAs were selected from SFAs participating in the Child Nutrition Program Operations Study. Exhibit I.2 summarizes characteristics of the SFAs included in the On-Site Meal Observations. On average, the exemplary SFAs are larger and serve fewer free and reduced-price meals. This degree of mis-match is not unexpected because of the constraints on selecting the typical SFAs (i.e., five were included because they were recipients of menu modification demonstration grants). Given that the on-site meal observations are an exploratory part of this study, the observed degree of mismatch should not cause undue concern.

A total of 60 schools, 3 schools within each of the 20 SFAs (two elementary schools and one middle/secondary school), were included in the meal observations. Field staff observed meal service in these 60 schools for 5 consecutive days and collected detailed data on meals offered (meals that were made available to children on the day of observation), meals selected (actual food selections were observed for approximately 60 children at each meal), and meals consumed (at each meal, plate waste was observed for 12 of the 60 selected children).

Year Two Research Issues

Each research issue in the Child Nutrition Program Operations Study is categorized as being either longitudinal or cross-sectional in nature. Longitudinal data are being collected during each year of the study, in order to assess year-to-year changes in program operations. Cross-sectional issues, on the

1/The 10 exemplary SFAs were selected from a pool of approximately 70 SFAs that were nominated as exemplary by FNS headquarters and Regional Office staff, the American School Food Service Association, and State Child Nutrition Directors.

Exhibit I.2

Characteristics of SFAs Included in
On-Site Meal Observations
(SY 1989-90)

Exemplary SFAs	Percent of Total NSLP Meals Served Free or at a Reduced Price (SY 1988-89)	SFA Enrollment	FNS Region
1	9%	9,819	Midwest
2	58	108,719	Southeast
3	12	91,650	MidAtlantic
4	25	72,217	Southeast
5	19	11,056	Western
6	3	3,300	Northeast
7	25	72,994	Southwest
8	16	36,999	Southwest
9	32	50,813	Western
10	6	24,652	Mtn. Plain
(Mean)	21%	48,222	

Typical SFAs	Percent of Total NSLP Meals Served Free or at a Reduced Price (SY 1988-89)	SFA Enrollment	FNS Region
1	11%	11,331	Midwest
2	47	21,561	Southwest
3	25	3,569	Midwest
4	42	44,319	Southeast
5	14	13,367	Western
6	2	2,806	Northeast
7	40	43,616	Midwest
8	70	3,758	Southwest
9	70	37,000	Western
10	34	58,626	Mtn. Plain
(Mean)	35%	23,995	

other hand, are defined on an annual basis and collected only in the associated annual SFA Manager Survey. The annual SFA Manager Surveys are, therefore, constructed in a modular fashion, with a common set of questions to be asked in each year of the study (the longitudinal research issues) and separate modules added in individual years to address identified research priorities (the cross-sectional issues).

Research issues for Year Two of the study were identified by FNS. Research priorities and associated survey instruments were also reviewed and approved by members of the Education Information Advisory Committee (EIAC), Food and Nutrition Subcommittee of the Council of Chief State School Officers. Research issues for Year Two of the Child Nutrition Program Operations Study are summarized in Exhibit I.3.

DATA COLLECTION: YEAR TWO

Data collection for Year Two of the Child Nutrition Program Operations Study involved two separate activities: the Year Two SFA Manager Survey and On-Site Meal Observations.

Year Two SFA Manager Survey

A telephone survey was used to collect data on the research issues identified for Year Two of the study (see Exhibit I.3). A copy of the survey instrument is included in Appendix A.

A mailing was prepared for each of the 1,740 SFAs selected for the three-year survey effort. (Each of these SFAs had previously been contacted during the Year One data collection). The mailing included a personalized letter that reintroduced the study and solicited SFA participation. It also included a summary of the specific types of historical data to be collected, so that respondents could assemble and organize this material ahead of time. The mailing was sent out about three weeks before telephone interviews were scheduled to begin.

Telephone interviews began in Spring 1990 and continued over a period of two months. At the conclusion of this two-month period, the response rate was not as high as desired, so a strategy was utilized to collect selected data elements for non-responding SFAs from State Agency directors. An abbreviated survey instrument was prepared by eliminating questions on SFA income and expenses, child nutrition labeling, technical assistance and Food Donation Program operations. State Agency directors were contacted by mail and asked to supply the data included in the abbreviated survey for each of the non-responding SFAs in their respective States. AAI staff made numerous follow-up telephone calls to State Agencies to encourage participation.

Exhibit I.3

Year Two Research Issues

YEAR TWO SFA MANAGER SURVEY -- LONGITUDINAL RESEARCH ISSUES[1]

Participation

-- Overall, free, reduced and paid NSLP participation rates (separately for elementary and middle/secondary schools) in SY 1988-89

-- Overall, free, reduced and paid SBP participation rates (separately for elementary and middle/secondary schools) in SY 1988-89

-- Change in participation rates over time (between SY 1987-88 and SY 1988-89) for the NSLP, SBP

Meal Prices

-- Average prices charged for full, reduced and adult lunches in SY 1989-90
-- Average prices charged for full, reduced and adult breakfasts in SY 1989-90

-- Change in meal prices over time: SY 1988-89 to SY 1989-90

Annual Revenues (SY 1988-89)

Annual Expenditures (SY 1988-89)

YEAR TWO SFA MANAGER SURVEY -- CROSS-SECTIONAL RESEARCH ISSUES[2]

Food Donation Program

Buy American

-- SFA awareness of "Buy American" provision
-- Methods/procedures used by SFAs to implement this requirement

Commodity Inventory and Redonation

-- Presence of 6 month-supply commodity inventories over past summer, by product
-- Reasons for surplus commodities
-- Prevalence of SFAs "transferring out" commodities to other agencies, by product and agency
-- Prevalence of SFAs "transferring in" commodities from other agencies, by product and agency

Processing

-- Use of commercial distributors to purchase processed end-products
-- SFA knowledge/tracking of value of discounts/rebates due them

Delivery Systems

-- Methods used by SFAs to deliver commodities to school districts
-- Point of receipt for commodity delivery at local school district level
-- Extent of SFA knowledge re: commodity availability or delivery schedule
-- Extent of SFA knowledge re: types and quantities of commodities to be received or picked up
-- Extent of SFA advance notification re: changes in delivery/distribution schedules
-- SFA managers' rating of overall communication between SFAs and State Distributing Agents (SDA); assessment of change in communication over past few years
-- Extent of correct/appropriate paperwork from State Distributing Agents re: commodity deliveries
-- SFA Managers' rating of overall performance of commodity distribution system in SY 1989-90, and compared to previous years

- continued -

[1]Longitudinal research issues were included in the Year One SFA Manager Mail Survey and are also included in the Year Two and Year Three SFA Manager Surveys.

[2]Year Two cross-sectional research issues are included only in the Year Two SFA Manager Survey.

Exhibit I.3
(continued)

YEAR TWO SFA MANAGER SURVEY -- CROSS-SECTIONAL RESEARCH ISSUES (cont'd)[1]

Technical Assistance

"Commodity Foods" Newsletter

-- SFA receipt of newsletter
-- Suggestions for improvement

Other Technical Assistance Materials[2]

-- SFA receipt of material
-- SFA managers' rating of usefulness

Child Nutrition (CN) Labeling

-- SFA manager awareness
-- Extent to which SFAs require CN labels for meat or poultry, seafood, meat alternates and juice drinks
-- Use of competitive bids for foods that could have CN labels; requirements re: CN labeling in bid specifications
-- Percentage of commercially-purchased entree items with CN labels in SY 1989-90

Child Nutrition (CN) Labeling (cont'd.)

-- SFA managers' opinions on whether CN labeling ensures standard portions, ensures high quality foods, allows SFAs to purchase foods at reduced prices, ensures that products meet USDA meal pattern requirements, allows increased numbers of vendors to bid for SFA business, ensures nutritionally-superior products
-- Factors influencing SFA managers' opinions on CN labeling
-- SFA managers' perceptions re: advantages/disadvantages of CN labeling
-- SFA managers' assessment of importance of CN labeling

ON-SITE MEAL OBSERVATIONS

NSLP and SBP Meals Offered

-- Nutrient content
-- Proportion of RDA provided
-- Comparison to USDA/DHHS Dietary Guidelines for Americans
-- Availability of choices within major meal component categories
-- Specific foods being offered
-- Differences between elementary and middle/secondary schools
-- Differences between exemplary and typical SFAs

NSLP and SBP Meals Selected

-- Nutrient content
-- Proportion of RDA provided
-- Comparison to USDA/DHHS Dietary Guidelines for Americans
-- Number and type of meal components included in meals selected by students under the offer-versus-serve (OVS) option[3]
-- Specific foods most often selected by students
-- Availability of a la carte food items in lines serving NSLP or SBP meals
-- A la carte items most frequently available
-- Differences between elementary and middle/secondary schools
-- Differences between exemplary and typical SFAs
-- Differences between meals offered and meals selected

- continued -

[1]Year Two cross-sectional research issues are included only in the Year Two SFA Manager Survey.

[2]Specific materials: FNS-251: "Facts About USDA Commodities"; FNS-255: "Nutritive Value of USDA-Donated Commodities"; PA-1371: "Quantity Recipes for School Food Service."

[3]The offer-versus-serve (OVS) option stipulates that schools must offer meals planned in accordance with program meal pattern guidelines, but that students may decline up to two of the five required food items. The OVS option is required at the secondary school level and may be extended to elementary schools, at the discretion of the local school district.

Exhibit I.3
(continued)

ON-SITE MEAL OBSERVATIONS (cont'd.)

NSLP and SBP Meals Consumed

-- Nutrient content
-- Proportion of RDA provided
-- Comparison to USDA/DHHS Dietary Guidelines for Americans
-- Type and amount of plate waste
-- Differences between exemplary and typical SFAs
-- Differences between meals selected and meals consumed

All cross-sectional data elements were gathered with reference to SY 1989-90, the school year during which the survey took place. SFA managers were able to answer these questions with respect to SFA operations in place for that school year. Some of the longitudinal data elements (e.g., meal prices, number of children approved for free or reduced-price meals) were also asked with reference to the current school year. However, some longitudinal data elements (e.g., meal counts, income and expenses, number of operating days) require that end-of-year figures be available, and so these items were gathered with reference to the preceding school year (SY 1988-89).

On-Site Meal Observations

The meal observations were designed to capture data on a full week's worth of school meals in each of 60 selected schools. In schools that participated in only the NSLP, lunch was observed for five days. In SFAs that offered both breakfast and lunch, lunch was observed for five days and breakfast was observed for four days. Because of the preparatory work involved in the meal observation protocol, it was not possible to observe breakfast on the first day.

For each of the five days on-site, data were collected on meals offered to children, meals selected by children (what children actually took/purchased from the available foods), and meals consumed (what the children actually ate.) Data collection procedures are briefly described below; additional details of the meal observation protocol are summarized in Appendix B. The analytic approaches used in aggregating the data to describe the average USDA meal as offered, selected and consumed are outlined in Chapter VII.

Meals Offered. Field staff collected detailed information on foods offered to children on each day of observation. When several options were available, i.e., different fruit, vegetable or entree choices, data were collected for all possible choices. This information included the type of food item, brand name and, when appropriate, preparation method. For foods prepared "from scratch," detailed recipes were collected. Data collectors were trained to carefully probe for details that could affect the fat or sodium content of foods, because these characteristics are of particular interest to FNS.

Average serving sizes for each food were determined by actually weighing, or measuring in the case of beverages, five portions of each food item served on a particular day. For self-serve items, observers established a reference portion for visual estimation after observing a number of children serve themselves with the available serving utensil. (See Appendix B for more information on the visual estimation methodology.)

The data collection instruments used in collecting these data are the Menu Record, the Recipe Form, and the Serving Size Computation Forms. Samples of all forms are provided in Appendix C.

Meals Selected. The focus of this portion of the observation was the reimbursable NSLP meal. To obtain data on which foods children select for inclusion in an NSLP meal, field staff observed and recorded the foods selected by approximately 60 children each day. Only reimbursable meals were included in the observations. The definition of a reimbursable meal depended on whether or not the school utilized the offer-vs-serve (OVS) option.1/ Thus, children in OVS schools who selected a meal that included fewer than 3 of the 5 required items were not included in the observations.

Observers positioned themselves at the cash register, or other strategic locations, and utilized the Food Selection and Plate Waste Record (see Appendix C) to record the foods actually taken by each child. All menu items eligible for inclusion in a reimbursable meal were recorded on these forms. Observers then recorded the number of servings (or fraction thereof) of each of the food items selected by each child chosen for observation.

Meals Consumed. During each meal observation period, observers tagged the tray of every fifth child they observed, for a total of 12 trays, in order to observe plate waste. Children whose trays were tagged were instructed to deposit their trays (including trash) in a designated area after they finished eating.

Upon completion of all meal observations, data collectors retrieved the tagged trays and visually estimated the amount of plate waste (see Appendix B for a description of the visual estimation methodology). These data were recorded in the appropriate columns on the Food Selection and Plate Waste Record (Appendix C). Waste was recorded as fractions of an average serving, i.e., 3/4 serving, 1/2 serving or 1/4 serving. For beverages, plate waste was actually measured, because the opaque nature of the typical serving containers made visual estimation impossible.

1/A reimbursable meal is defined as one which includes five specific food items (milk, two fruit and/or vegetable choices, meat or meat alternate and bread or bread alternate) as specified in program regulations. The offer-versus-serve (OVS) option stipulates that schools must offer meals planned in accordance with these guidelines, but that students may decline up to two of the five required items. All secondary schools must offer the OVS option to students. The option may also be implemented in middle and elementary schools, at the discretion of the local school district.

Response Rates

Year Two SFA Manager Survey. The initial round of telephone interviews with SFA Managers yielded 1,120 completed interviews for a response rate of 64 percent. An additional 239 partially-complete interviews were obtained from State Agency directors and include key variables such as meal counts, enrollment, and numbers of children approved for free- and reduced-price meals, for a total of 1,359 surveys (a 78 percent overall response rate).

As previously described, the SFA Manager Survey includes both longitudinal and cross-sectional data elements. Because of differential item response, the number of cases available for longitudinal and cross-sectional analyses differs as described below.

- Longitudinal Data: During data review and cleaning, a total of 137 cases were excluded from the longitudinal data set because of missing or poor quality data for essential variables. Thus, the final number of SFAs included in the longitudinal data set is 1,222. The non-response analysis presented in Appendix D shows that non-responding SFAs tend to be smaller and to serve a higher percentage of free and reduced-price meals than responding SFAs. The weighting methodology described in Appendix E works to counteract this possible bias.

- Cross-Sectional Data: A total of 1,109 SFAs are included in the cross-sectional data set. The 239 surveys completed by State Agencies were automatically excluded, because State Agencies were asked only to supply responses to an abbreviated version of the survey instrument (see previous discussion regarding Year Two data collection.) Of the 1,120 fully completed telephone surveys, only 11 cases were excluded, bringing the total number of SFAs included in the cross-sectional data set to 1,109. The non-response analysis presented in Appendix D shows the same potential bias as the analysis for the longitudinal data set. Again, however, the weighting methodology works to counteract this potential bias.

On-Site Meal Observations. Observations were successfully completed in all 60 selected schools. However, the actual number of observations of meals offered, selected or consumed for which complete data were available for analysis varied slightly from planned estimates, as described below:

- NSLP meals: During the data editing process, three complete days of observation (one lunch meal in each of three schools) were excluded because of missing or inadequate data. Additional observations were excluded from both the meals selected data set (1 day--60 observations in 1 school) and the meals consumed data set (2 days--12 observations in each of 2 schools).

In addition, observations of food selection for some meals included fewer than 60 students. This occurred most often when students were being observed at a salad bar or other self-serve line. Because observers had to follow an individual child all the way through the line in order to record all food selections (and to determine if a reimbursable meal was in fact selected), the time involved in obtaining one complete observation was considerable. It was therefore impossible to obtain 60 complete observations in these situations.

Exhibit I.4 summarizes sample sizes for the analysis of NSLP meals as offered, selected and consumed.

- SBP meals: Planned samples for SBP observations are smaller because some of the selected SFAs and schools did not offer breakfast, particularly at the middle/secondary school level. In addition, the breakfast meal was only observed for four days. Exhibit I.5 summarizes sample sizes for SBP meals.

DATA ANALYSIS AND REPORTING: YEAR TWO

The following section briefly describes the methodology used to weight the survey sample data to the national level and the general approach used in analyzing data from the Year Two SFA Manager Survey. Details on the approach used in examining the meal observation data are provided in Chapter VII.

Weighting Methodology

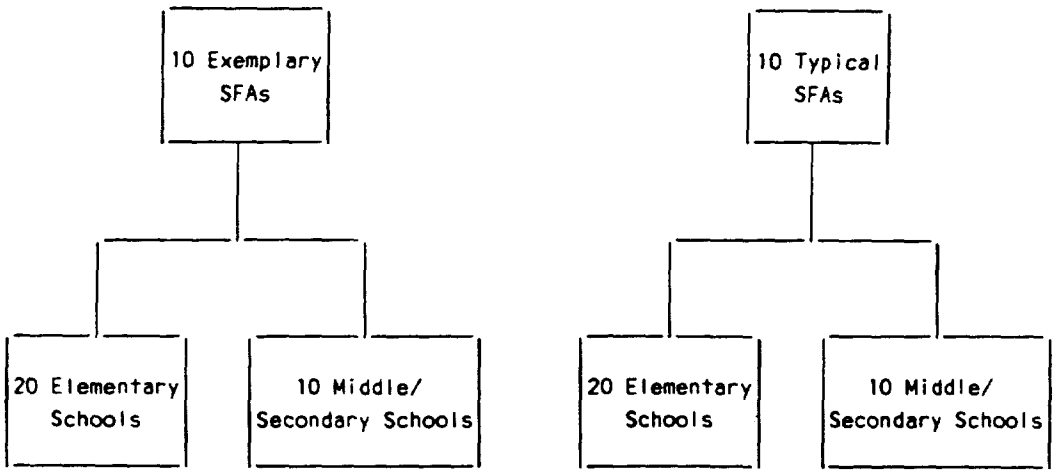
The Year Two SFA sample was weighted so that inferences could be drawn regarding the universe of all participating SFAs in the U.S. As previously described, the Year Two sample has two major components (longitudinal data elements and cross-sectional data elements) and each was weighted separately. The first component consists of the 1,222 SFAs that provided answers to the longitudinal questions. Longitudinal questions are those included in both the Year One and Year Two surveys. The second component consists of the 1,109 SFAs that provided answers to the cross-sectional questions. Cross-sectional questions are those that are only included in the Year Two survey. The number of SFAs providing longitudinal data is greater than the number that provided cross-sectional data, because selected longitudinal data elements were retrieved from State records for some of the SFAs that did not respond to the survey.

The weighting methodology involved adjustments to the reciprocal of the selection probability of each responding SFA. These adjustments compensate for SFA non-response. Additional adjustments were made to bring the weighted meal counts in the sample into agreement with FNS universe counts. Exhibits I.6 and I.7 summarize weighted and unweighted sample sizes for the Year One and Year Two longitudinal data set as well as the Year

Exhibit I.4

NSLP Meal Observation Sample

Schools:



Meals: After 5 days of observation:

	Planned[1]	Actual
Offered:	300	297
Selected:	18,000	16,571
Consumed:	3,600	3,470

[1]Planned meal observations:

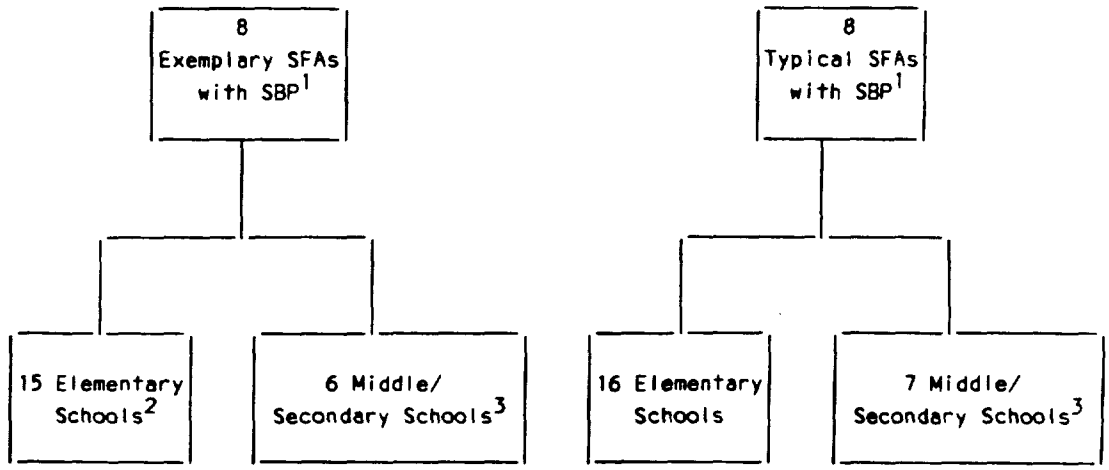
-- Offered : 60 schools * 5 days

-- Selected: 60 schools * 5 days * 60 students

-- Consumed: 60 schools * 5 days * 12 students

Exhibit I.5

SBP Meal Observation Sample



Meals: After 4 days of observation:

	Planned[4]	Actual
Offered:	176	176
Selected:	10,560	8,539
Consumed:	2,112	2,024

[1]Two exemplary and two typical SFAs did not offer the SBP.

[2]In one exemplary SFA, the SBP was offered in one of the elementary schools but not the other.

[3]In two exemplary SFAs and one typical SFA, the SBP was not offered in the selected middle/secondary school.

[4]Planned meal observations:

-- Offered: 44 schools * 4 days

-- Selected: 44 schools * 4 days * 60 students

-- Consumed: 44 schools * 4 days * 12 students

Exhibit I.6

Unweighted and Weighted Sample Sizes for Longitudinal Data Elements[1]
(SY 1988-89 and SY 1989-90)

	Year One (SY 1988-89)			Year Two (SY 1989-90)		
	Unweighted N	Weighted N[2]	Percent (of Weighted N)	Unweighted N	Weighted N[2]	Percent (of Weighted N)
TOTAL SAMPLE	1,113	14,375	100%	1,222	12,834	100%
Type of SFA						
Public	977	11,284	78.5	1,110	10,161	79.2
Private	136	3,091	21.5	112	2,673	20.8
Participation in SBP						
NSLP and SBP	427	3,867	26.9	553	4,274	33.3
NSLP only	686	10,508	73.1	669	8,559	66.7
SFA Size						
Small (1-999)	294	7,067	49.1	274	5,897	46.0
Medium (1,000-4,999)	475	5,464	38.0	529	5,103	39.8
Large (5,000+)	344	1,844	12.9	419	1,834	14.3
SFA Poverty Level						
60% or more F&R	258	2,267	15.8	288	2,472	19.3
0-59% F&R	855	12,108	84.2	934	10,362	80.7

[1]Longitudinal data include student participation rates for SY 1987-88 and SY 1988-89 (Chapter II) and meal prices (SY 1989-90) and meal costs (SY 1988-89) (Chapter III).

[2]The weighted number of SFAs is unequal in the two years because the sample was weighted to bring total lunch counts into agreement with FNS' known population totals.

Data Source: Year One SFA Manager Mail Survey and Year Two SFA Manager Survey.

Exhibit I.7

Unweighted and Weighted Sample Sizes for Year Two Cross-Sectional Data Elements[1] (SY 1989-90)

	Unweighted N	Weighted N	Percent (of Weighted N)
TOTAL SAMPLE	1,108	14,065	100%
Type of SFA			
Public	982	11,115	79.0
Private	126	2,950	21.0
Participation in SBP			
NSLP and SBP	497	4,398	31.3
NSLP only	611	9,667	68.7
SFA Size			
Small (1-999)	274	6,456	45.9
Medium (1,000-4,999)	478	5,832	41.5
Large (5,000+)	356	1,777	12.6
SFA Poverty Level[2]			
60% or more F&R	244	1,880	14.2
0-59% F&R	791	11,373	85.8

[1]Cross-sectional data include issues relating to the Food Donation Program (Chapter IV), Child Nutrition Labeling (Chapter V) and Technical Assistance (Chapter VI).

[2]Sample sizes for SFA poverty level subgroups vary from other subgroups because data on meal counts, needed to determine SFA poverty level, were missing for 73 cases (812 weighted cases).

Data Source: Year Two SFA Manager Survey.

Two cross-sectional data set. Details of the weighting methodology are presented in Appendix E.

Examining Exhibit I.6 shows that the weighted number of SFAs differs from Year One to Year Two. This is attributable to the fact that each year's weights were adjusted so that the weighted total lunch counts from this project agree with FNS' universe counts derived from State reports. Making this adjustment means that it is not possible for other weighted totals to agree with known population values (i.e., the number of SFAs in the country). This is the correct approach for the present study, since the key issue for FNS is to have the data weighted by meal counts rather than by number of SFAs.

General Analytic Approach

Analysis of the data collected from the SFA Manager Survey consists of straightforward crosstabulations of responses to the survey questions with accompanying descriptive statistics.1/

Cross-Sectional Data. The cross-sectional data elements included in the SFA Manager Survey represent one-time information needs identified by FNS. These data cover some aspect of program operations or a particular area of technical assistance. Analysis of the cross-sectional data is, therefore, descriptive in nature, providing FNS with a "snapshot" of the operational issues examined in the survey. Responses for each survey item are tabulated and appropriate descriptive statistics are presented. When appropriate, verbatim quotations from the open-ended responses are used (without attribution) to illustrate trends and patterns in the data.

T-tests have been performed for selected variables to assess the statistical significance of differences between subgroups of SFAs. Rather than assuming that the study sample is a simple random sample of SFAs, the t-statistics have been adjusted to reflect the design effects associated with the use of a complex, stratified cluster sample.

Longitudinal Data. The longitudinal data elements represent FNS' ongoing information needs for purposes of budget forecasting and policy analysis. The longitudinal data set includes meal prices, information on meal counts, enrollment and attendance data and other key variables that define important aspects of program participation.

A key analytic issue for Year Two was which SFAs to include in the longitudinal data set. For Year One, all SFAs with valid data were accepted into the longitudinal data set (1,117 SFAs). To be included in the longitudinal data set an SFA had

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1/Methods used to derive more complex variables, such as participation rates and meal costs, are described in the appropriate chapters of Part 2 of this report.

to have valid data for at least the following variables which were necessary to compute student participation rates and lunch equivalents (LEQ), a central variable in the meal cost analysis:

- count of free lunches
- count of reduced-price lunches
- count of paid lunches
- count of total lunches
- count of children approved for free lunches
- count of children approved for reduced-price lunches
- count of enrolled children

The same decision rules have been used for the Year Two data set, yielding 1,222 cases with valid longitudinal data for Year Two. However, because 1,117 valid cases were obtained in Year One, an issue arose regarding how to make comparisons between the results of the Year One and Year Two surveys. Three approaches were possible:

- Approach 1: Use only those cases that have valid data for both years. This is the most restrictive option in that it would result in the smallest number of cases in the data set. It would only include cases which are in the overlap between the 1,117 cases with valid Year One data and the 1,222 cases with valid Year Two data. A total of about 900 cases (with valid data for both years) meet the criterion for inclusion in such a longitudinal data set.

  The advantages of this approach are: (a) it allows computation and use of a single set of weights for the two-year longitudinal analysis; and (b) it allows an examination of temporal changes for individual SFAs because data are available on the same SFAs for each year.

  The disadvantages are: (a) it involves disregarding a substantial number of cases (approximately 20 percent of the Year One SFAs and 26 percent of the Year Two SFAs) that have data in one year but not in the other; and (b) it may result in substantial changes to the findings presented in the Year One report because of the use of different sampling weights and the exclusion of a relatively large number of sampled SFAs.

- Approach 2: Use all valid SFAs obtained in each annual survey. In effect, this approach views the two surveys as independent samples from the same population, and would yield 1,117 SFAs for Year One and 1,222 SFAs for Year Two.

  The main advantage of this approach is that all of the available data are used for each year. This is a substantial advantage because there are relatively large numbers of SFAs that responded in one year but not in the other.

The main disadvantage of this approach is that while it allows comparisons of group means from year to year, it does not allow evaluation of changes experienced by individual SFAs, because the data files will contain different cases.

- Approach 3: Impute data so that the same SFAs are available in each year. Using this approach would involve imputation of data for any SFA that exists in at least one year of the survey but not in another. This solution is used in many different types of longitudinal surveys, and it would yield the largest number of SFAs for this study. However, it would be very time-consuming to impute the data, given the large number of SFAs involved.

Considering the advantages and disadvantages of the available alternatives, the second approach was selected for the analyses presented in this report. It makes maximum use of the available data and will not result in changes to the Year One findings. While the inability to look at year-to-year changes on a case-by-case basis is a disadvantage, it is unlikely that there will be large (statistically significant and substantively important in absolute terms) year-to-year changes in the key measures being examined for this study: participation rates, meal prices, and meal costs. Therefore, examining year-to-year changes on a case-by-case basis is unlikely to be of great concern.

The analysis of the longitudinal data consists of tabulation and presentation of descriptive statistics for each variable for each of the two years. Crosstabulations similar to those described for the cross-sectional data have been prepared. Two sets of t-tests were performed: (1) t-tests to assess the significance of the differences between subgroups for Year One, e.g., to compare public SFAs with private SFAs, and (2) t-tests to assess the significance of the differences from subgroup to subgroup across years, e.g., to compare public SFAs in Year One with public SFAs in Year Two. To simplify the findings, no significance tests were done to assess the differences between subgroups for Year Two.

Tabular Presentations

In presenting the data, simple tabular displays are employed. Overall national estimates are included as well as subgroup estimates for each of the specific domains of the population considered in selecting the SFA sample:

- Public SFAs
- Private SFAs
- SFAs that participate in both the NSLP and SBP
- SFAs that participate in the NSLP only

- SFAs that serve 60 percent or more free or reduced-price lunches

- SFAs that serve 59 percent or fewer free or reduced-price lunches.

In addition, to allow examination of variation associated with the size of an SFA, a categorical variable has been created to define small, medium and large SFAs, based on the following ranges of total student enrollment for SY 1987-88 (Year One) or SY 1988-89 (Year Two):

- Small : 1 to 999 students

- Medium: 1,000 to 4,999 students

- Large : 5,000 or more students

For the most part, summary exhibits for each research issue include descriptive statistics for each of these SFA subgroups. For some variables, however, where little difference was noted among the various SFA subgroups, summary exhibits present data only for the full, combined sample.

Key exhibits present results of t-tests which compare subgroups of SFAs, i.e., public vs. private, NSLP-only vs. NSLP and SBP, SFAs that serve 60 percent or more free or reduced-price lunches vs. SFAs that serve 59 percent or fewer free or reduced-price lunches, and large vs. small and medium SFAs. Exhibits summarizing longitudinal data also report the results of t-tests between years, i.e., between values for SY 1987-88 and SY 1988-89. Because of the large number of t-tests calculated for this report, discussions are limited to variables that exhibit a difference between subgroups of SFAs or between years that is statistically significant at the .01 rather than at the more liberal .05 level. This approach compensates for the possibility of finding large numbers of comparisons significant by chance alone.

The reader will notice that some differences (either between subgroups of SFAs in the same year or year-to-year differences for the same subgroup of SFAs) appear to be "large" but are not statistically significant. This can occur because (1) there is a large amount of variation in the measure, (2) there is a relatively small sample size (e.g., this happens for private SFAs), and (3) as described above, the study is using a relatively conservative significance level.

The weighted sample sizes included in any given exhibit may vary for two reasons:

- Sample sizes for cross-sectional and longitudinal data sets are different, as described earlier in this chapter, so the total number of cases available for inclusion in a given

analysis will vary depending on the source of the data (see Exhibits I.6 and I.7).

- The data required to compute SFA poverty level (annual free and reduced meal counts) were missing for 73 cases included in the cross-sectional data set (812 weighted cases). Thus, in exhibits presenting cross-sectional data, sample sizes for SFA poverty level subgroups vary from other subgroups.

Two sets of exhibits are presented in this report. Each chapter contains selected exhibits which present key statistics supporting the major findings. These exhibits are numbered consecutively from 1 to n within each chapter (e.g., Exhibit V.1 is the first exhibit in Chapter V). In addition, some chapters reference "extended tables" which contain additional statistics related to the discussion at hand. These extended tables are continued in Part 4 of the report so that they do not clutter the main presentation. They, too, are numbered consecutively within each chapter from 1 to n (e.g., Exhibit ET-VII.1 is the first extended table for Chapter VII).

PART 2:

FINDINGS FROM THE YEAR TWO SFA MANAGER SURVEY

II. STUDENT PARTICIPATION IN THE NSLP AND SBP

This chapter presents estimates of participation in the NSLP and SBP for two school years: SY 1987-88 and SY 1988-89. Participation is examined at two levels: (1) total annual participation (number of meals served annually), and (2) student participation rates (the proportion of potential participants, overall and for each meal reimbursement category, that actually consume a school meal on an average school day).

BACKGROUND

FNS has an ongoing interest in measuring and understanding participation in the school-based Child Nutrition Programs because Federal subsidies are tied to the number of meals actually served. While FNS collects data on the number of meals served as part of the normal reporting requirements imposed on SFAs, the data available to FNS are aggregated at the State level. Alternatively, this survey offers disaggregated data to allow FNS to examine meal counts for subgroups of SFAs. Of additional interest is this study's ability to help FNS understand the factors that affect average student participation at the SFA level, and how school meal service activity responds to changes in Federal subsidies and meal prices. This information is of critical importance to the Agency's budgetary and regulatory responsibilities.

FNS has devoted substantial resources to collecting data on student participation in the Child Nutrition Programs as part of two National Evaluations of School Nutrition Programs.1/ In addition, sophisticated prediction models have been developed that allow FNS to estimate the effect of changes in Federal subsidies and meal prices on student participation. The primary difficulty with these models, however, has been their dependence on individual student data. Because FNS does not regularly collect such information, the Agency cannot readily update or refine these models over time without continually mounting very expensive data collection efforts. The data from the present study can help FNS develop a participation model based on infor-

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1/Wellisch, J.B., S.D. Hanes, L.A. Jordan, K.M. Maurer, and J.A. Vermeersch, The National Evaluation of School Nutrition Programs: Final Report. Santa Monica, CA: Systems Development Corporation, 1983 (referred to as NESNP-I).

Characteristics of the National School Lunch and School Breakfast Program Participants. USDA, Food and Nutrition Service, 1988 (referred to as NESNP-II).

mation that can be obtained on a regular basis from SFAs.1/ Collecting institutional-level data is far less expensive and, if properly combined with the student-level models, can be used to produce accurate predictions of responses to changes in the nature of the programs.

KEY RESEARCH ISSUES

To meet these data needs, this study provides for the collection of annual data on the number of NSLP and SBP meals served by eligibility category, and the number of students potentially able to participate in the NSLP and SBP. These data are used to address the following research questions:

- What is the level of participation in the NSLP and SBP?
- Does the pattern of participation (e.g., the percentage distribution of free, reduced, and paid meals served) and the rate of student participation vary by type of SFA?
- How do student participation rates vary for elementary and secondary schools?

Data on total annual participation and student participation rates for SY 1987-88 were presented in the Year One report from this study.2/ The current report includes data from both the first and second years of the study, and assesses the extent to which participation has changed over time. Results related to the total number of NSLP and SBP meals served (total annual participation) are presented first, followed by data on the average daily rate of student participation.

DATA AND VARIABLES

Data used to calculate total NSLP and SBP participation as well as student participation rates were collected as part of the Year One and Year Two SFA Manager Surveys. Data included annual meal counts of breakfasts and lunches served in SY 1987-88 (Year One Survey) and SY 1988-89 (Year Two Survey), by meal reimbursement category. The majority of SFA managers, and State Agencies where necessary, were able to provide this information. In a few instances, reported meal counts were for one month (typically October), rather than complete annual counts. These monthly counts were adjusted to reflect estimated annual

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1/ Existing FNS management information systems collect data only at the State level.

2/St.Pierre, R.G., M.K. Fox, M. Puma, F. Glantz, M. Moss, Child Nutrition Program Operations Study: First Year Report. Cambridge, MA: Abt Associates Inc., 1991.

totals by multiplying by a factor of 9. Responses from individual SFAs were then weighted and aggregated to produce national estimates of the number of meals served in the NSLP and SBP, the percentage of meals served in several different subgroups of SFAs, and the percentage distribution of free, reduced-price and paid meals.

Where possible, the weighted survey data were compared to results from prior research studies and FNS administrative data. Because the survey weights were ratio-adjusted to known population totals, based on FNS' administrative data, the resulting estimates for total NSLP and SBP meals compare closely to estimates derived from this source. (See Appendix E for details on the weighting methodology used in this study.)

Additional data collected in both surveys for the purposes of calculating student participation rates included total enrollment, the number of students approved for free and reduced-price meals, average daily attendance rates, and annual number of operating days. The reference year for these data, with the exception of annual number of operating days, was the year the surveys took place--SY 1988-89 for Year One and SY 1989-90 for Year Two. For the most part, these data were readily available from SFA records.

TOTAL ANNUAL PARTICIPATION

Estimated NSLP Participation

Data from the SFA Manager Survey indicate that nearly 4.0 billion lunches were served to school children in both SY 1987-88 and SY 1988-89 (Exhibit II.1). In each of these years, almost all lunches (about 98 percent) were served in public schools. In each year, most school lunches were served in SFAs that also offered the SBP (about 60-67 percent), in large SFAs (about 62 percent), and in SFAs that serve 59 percent or fewer free or reduced-price lunches (67 percent).

The only year-to-year change that is statistically significant is that the proportion of lunches served in schools that offer the SBP rose from 59.2 percent in SY 1987-88 to 67.4 percent in SY 1988-89. This is consistent with the trend indicated by FNS statistics which shows that the SBP has been made available to increasingly larger numbers of children over the past four years. In SY 1984-85, the SBP was available to 32.8 percent of all U.S. school children; in SY 1985-86, 34.7 percent; in 1986-87, 35.8 percent; in 1987-88, 38.3 percent; and in 1988-89, 40.8 percent.1/

1/Annual Historical Review of FNS Programs: Fiscal Year 1989, USDA, Food and Nutrition Service, 1990.

Exhibit II.1

Annual NSLP Participation by Type of SFA:
Total Lunches
(SY 1987-88 and SY 1988-89)

	SY 1987-88 (n=4,002.1 million) Percent[1]	SY 1988-89 (n=3,970.2 million) Percent[1]	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	100.0%	100.0%	-0.0%
Type of SFA			
Public	97.9	97.9	0.0
Private	2.1	2.1	0.0
Participation in SBP			
NSLP and SBP	59.2	67.4	8.2*
NSLP only	40.8	32.6	-8.2*
SFA Size			
Small (1-999)	7.8	6.7	-1.1
Medium (1,000-4,999)	30.8	29.6	-1.2
Large (5,000+)	61.4	63.7	2.3
Poverty Level of SFA			
High (60% or more F&R)	33.1	33.3	0.2
Low (0-59% F&R)	66.9	66.7	-0.2

[1]Represents the percentage of total lunches.

*Year-to-year difference is statistically significant at the .01 level.

Note: Differences between subgroups of SFAs (e.g., public vs. private) were not tested for statistical significance since the number of meals served in a given type of SFA largely reflects the distribution of SFAs in the population.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibits II.2, II.3, and II.4 show the proportion of school lunches served nationally to children who receive free meals, children who receive reduced-price meals, and children who pay full price for their meals, respectively. In each year, about 40 percent of all lunches were served free of charge to children from low-income families, about 7 percent were served at a reduced price, and about 53 percent were served to children who paid full price for their lunch.

In SY 1987-88, the distribution of NSLP meals by eligibility category varies by type of SFA: public SFAs, SFAs that participate in both the NSLP and SBP, large SFAs, and SFAs with over 60 percent free or reduced-price lunches more likely to serve free meals. Conversely, private SFAs, SFAs that do not participate in the SBP, small and medium-sized SFAs and SFAs with less than 60 percent free or reduced-price lunches serve a higher proportion of paid meals--over 60 percent of the lunches served in these SFAs were paid meals.

The only year-to-year change that is statistically significant is that the relative proportion of free NSLP meals served in private SFAs increased while the proportion of paid NSLP meals decreased, by about 6 percent.1/

Estimated SBP Participation

Data from the SFA Manager Surveys show that about 604 million school breakfasts were served to school children in SY 1987-88 and about 623 million breakfasts were served in SY 1988-89 (Exhibit II.5). The difference between the two years is not statistically significant. The percentage of breakfasts served in public vs. private SFAs and in SFAs of varying sizes was quite consistent across the two years. In each year, over 98 percent of all breakfasts were served in public SFAs, and about 75 percent were served in large SFAs. The percentage of breakfasts served in SFAs with over 60 percent free or reduced-price lunches appears to have decreased by about 5 percent (from 54 to 49 percent), but this difference is not statistically significant.

Exhibits II.6, II.7, and II.8 show the number of school breakfasts served in SY 1987-88 and SY 1988-89 to children who qualify for free meals, children who qualify for reduced-price meals, and children who pay full price for their meals. Overall, more than 80 percent of all breakfasts were served free or at a reduced price in each of the two years. The pattern was similar in each type of SFA.

The only between-group difference that is statistically significant is that medium-size SFAs serve significantly more paid breakfasts and significantly fewer free breakfasts than large SFAs. None of the year-to-year differences is statistically significant.

1/It should be emphasized that private SFAs serve only about 2 percent of all NSLP meals.

Exhibit II.2

Annual NSLP Participation by Type of SFA:
Free Lunches
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Percent[1]	SY 1988-89 Percent[1]	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	39.7%	39.9%	0.2%
Type of SFA			
Public	40.1*	40.1	0.0
Private	22.7	29.0	6.3*
Participation in SBP			
NSLP and SBP	51.9*	48.2	-3.7
NSLP only	22.1	22.6	0.5
SFA Size			
Small (1-999)	26.6*	30.3	3.7
Medium (1,000-4,999)	29.2*	29.9	0.7
Large (5,000+)‡	46.7	45.5	-1.2
Poverty Level of SFA			
High (60% or more F&R)	69.1*	68.7	-0.4
Low (0-59% F&R)	25.2	25.5	0.3

[1]Represents the percentage of total lunches served free in a given subgroup. Sums to 100 percent across free, reduced-price (Exhibit II.3) and paid lunches (Exhibit II.4).

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibit II.3

Annual NSLP Participation by Type of SFA:
Reduced-Price Lunches
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Percent[1]	SY 1988-89 Percent[1]	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	6.6%	6.7%	0.1%
Type of SFA			
Public	6.5	6.7	0.2
Private	9.1	8.5	-0.6
Participation in SBP			
NSLP and SBP	7.1	7.2	0.1
NSLP only	5.7	5.8	0.1
SFA Size			
Small (1-999)	6.6	6.1	-0.5
Medium (1,000-4,999)	6.2	6.6	0.4
Large (5,000+)‡	6.7	6.9	0.2
Poverty Level of SFA			
High (60% or more F&R)	7.8	8.0	0.2
Low (0-59% F&R)	5.9	6.1	0.2

[1]Represents the percentage of total lunches served at reduced-price in a given subgroup. Sums to 100 percent across free (Exhibit II.2), reduced-price, and paid lunches (Exhibit II.4).

Note: None of the between-group or year-to-year differences is statistically significant. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibit II.4

Annual NSLP Participation by Type of SFA:
Paid Lunches
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Percent[1]	SY 1988-89 Percent[1]	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	53.7%	53.4%	-0.3%
Type of SFA			
Public	53.4*	53.2	-0.2
Private	68.2	62.5	-5.7*
Participation in SBP			
NSLP and SBP	41.0*	44.6	3.6
NSLP only	72.2	71.7	-0.5
SFA Size			
Small (1-999)	66.9*	63.6	-3.3
Medium (1,000-4,999)	64.6*	63.5	-1.1
Large (5,000+)‡	46.6	47.6	1.0
Poverty Level of SFA			
High (60% or more F&R)	23.0*	23.3	0.3
Low (0-59% F&R)	68.9	68.5	-0.4

[1]Represents the percentage of total lunches served paid in a given subgroup. Sums to 100 percent across free (Exhibit II.2), reduced-price (Exhibit II.3), and paid lunches.

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibit II.5

Annual SBP Participation by Type of SFA:
Total Breakfasts
(SY 1987-88 and SY 1988-89)

	SY 1987-88 (n=603.8 million) Percent[1]	SY 1988-89 (n=623.3 million) Percent[1]	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	100.0%	100.0%	0.0%
Type of SFA			
Public	99.1	98.3	-0.8
Private	0.9	1.7	0.8
SFA Size			
Small (1-999)	5.8	4.0	-1.8
Medium (1,000-4,999)	18.3	19.3	1.0
Large (5,000+)	75.9	76.7	0.8
Poverty Level of SFA			
High (60% or more F&R)	54.4	49.1	-5.3
Low (0-59% F&R)	45.6	50.9	5.3

[1]Represents the percentage of total breakfasts.

Notes: Differences between subgroups of SFAs (e.g. public vs. private) were not tested for statistical significance since the number of meals served in a given types of SFA largely reflects the distribution of SFAs in the population.

None of the year-to-year differences is statistically significant.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibit II.6

Annual SBP Participation by Type of SFA:
Free Breakfasts
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Percent[1]	SY 1988-89 Percent[1]	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	83.3%	78.9%	-4.4%
Type of SFA			
Public	83.4	79.0	-4.4
Private	71.4	73.1	1.7
SFA Size			
Small (1-999)	75.5	76.3	0.8
Medium (1,000-4,999)	73.6*	73.3	-0.3
Large (5,000+)‡	86.3	80.4	-5.9
Poverty Level of SFA			
High (60% or more F&R)	88.3	86.6	-1.7
Low (0-59% F&R)	77.4	71.4	-6.0

[1]Represents the percentage of total breakfasts served free in a given subgroup. Sums to 100 percent across free, reduced-price (Exhibit II.7), and paid breakfasts (Exhibit II.8).

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibit II.7

Annual SBP Participation by Type of SFA:
Reduced-Price Breakfasts
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Percent[1]	SY 1988-89 Percent[1]	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	5.2%	5.8%	0.6%
Type of SFA			
Public	5.1	5.7	0.6
Private	8.9	9.3	0.4
SFA Size			
Small (1-999)	7.1	6.4	-0.7
Medium (1,000-4,999)	6.4	7.3	0.9
Large (5,000+)‡	4.7	5.4	0.7
Poverty Level of SFA			
High (60% or more F&R)	4.7	5.2	0.5
Low (0-59% F&R)	5.6	6.3	0.7

[1]Represents the percentage of total breakfasts served at a reduced-price in a given subgroup. Sums to 100 percent across free (Exhibit II.6), reduced-price, and paid breakfasts (Exhibit II.8).

Note: None of the between-group or year-to-year differences is statistically significant. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibit II.8

Annual SBP Participation by Type of SFA:
Paid Breakfasts
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Percent[1]	SY 1988-89 Percent[1]	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	11.5%	15.4%	3.9%
Type of SFA			
Public	11.5	15.3	3.8
Private	19.6	17.6	-2.0
SFA Size			
Small (1-999)	17.4	17.3	-0.1
Medium (1,000-4,999)	20.0*	19.5	-0.5
Large (5,000+)‡	9.0	14.2	5.2
Poverty Level of SFA			
High (60% or more F&R)	6.9	8.2	1.3
Low (0-59% F&R)	17.0	22.2	5.2

[1]Represents the percentage of total breakfasts served paid in a given subgroup. Sums to 100 percent across free (Exhibit II.6), reduced-price (Exhibit II.7) and paid breakfasts.

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

There are several indicators which show that the SBP has grown over the past few years. Data presented in Exhibit I.6 showed that the estimated number of SFAs offering the SBP increased from 3,867 in SY 1987-88 (26.9 percent of all SFAs) to 4,274 in SY 1988-89 (33.3 percent of all SFAs). This increase in the number of SFAs offering the SBP has been accompanied by an increase in the number of schools offering the SBP within the average SFA: 6.9 schools per SFA offered the SBP in SY 1987-88, and 7.0 schools per SFA offered the SBP in SY 1988-89. Data presented in Exhibit II.1 show that the proportion of lunches served in schools that participate in the SBP increased from 59.2 percent in SY 1987-88 to 67.4 percent in SY 1988-89. Finally, data from FNS indicate that the SBP was made available to an increasing proportion of school children in each of the school years from 1984-85 (32.8 percent of all school children had the SBP available) through 1988-89 (40.8 percent).

Clearly, the SBP is growing. However, with only two years worth of data from the present study, it is not possible to draw definitive conclusions about the pattern of SBP growth for subgroups of SFAs. Hence, this issue will be addressed in more detail in the third report from this study.

Comparison with FNS Administrative Data

Exhibit II.9 summarizes annual NSLP participation for SY 1987-88 and SY 1988-89 as estimated in this study (see the column titled CNOPS Data) and as reported in FNS program data. Because of the way in which the survey weights were constructed, the estimates of the total number of meals served in each year agree quite well.

Exhibit II.10 provides a similar comparison of CNOPS and FNS administrative data for the SBP. The estimates of the total number of breakfasts served in each year agree quite well. The distribution of breakfasts by free, reduced-price, and paid meal categories also matches very well except for paid breakfasts, where CNOPS data show 2 percentage points fewer breakfasts served than FNS data in SY 1987-88 and 2 percentage points more breakfasts in SY 1988-89. These differences are not statistically significant, nor do they seem to be substantively meaningful.

STUDENT PARTICIPATION RATES

Student participation rates are defined as the ratio of the number of meals served during the year to the number of meals that could have been provided to eligible students. This section begins with a discussion of overall student participation rates. The overall participation rate computed for the full sample is then compared to estimates derived from FNS administrative data for the same time period. Next, participation rates for elementary and middle/secondary schools are discussed, and finally, separate participation rates for free, reduced-price and paid meals are presented.

Exhibit II.9

Annual NSLP Participation:
Comparison of CNOPS and FNS Administrative Data:
(SY 1987-88 and SY 1988-89)

	SY 1987-88		SY 1988-89	
	CNOPS Data (n=4,002.1 million)	FNS Data[2,3] (n=4,000.4 million)	CNOPS Data (n=3,970.2 million)	FNS Data[2,3] (n=3,971.9 million)
	Percent[1]	Percent[1]	Percent[1]	Percent[1]
TOTAL	100.0%	100.0%	100.0%	100.0%
Free	39.7	40.5	39.9	40.2
Reduced-Price	6.6	6.5	6.7	6.6
Paid	53.7	53.0	53.4	53.2

[1]Represents the percentage of total lunches.

[2]Data Source: FNS/PID/Monthly Program Report Summaries. National School Lunch Program, FY 1988 and FY 1989. USDA, Food and Nutrition Service, 1989 and 1990.

[3]CNOPS data are based on School Year (September-June) totals; FNS data are based on Fiscal Year (July-June) totals.

Exhibit II.10

Annual SBP Participation:
Comparison of CNOPS and FNS Administrative Data:
(SY 1987-88 and SY 1988-89)

	SY 1987-88		SY 1988-89	
	CNOPS Data (n=603.8 million)	FNS Data[2,3] (n=604.9 million)	CNOPS Data (n=623.3 million)	FNS Data[2,3] (n=623.3 million)
	Percent[1]	Percent[1]	Percent[1]	Percent[1]
TOTAL	100.0%	100.0%	100.0%	100.0%
Free	83.3	81.7	78.9	80.9
Reduced-Price	5.2	5.0	5.8	5.3
Paid	11.5	13.3	15.4	13.8

[1]Represents the percentage of total lunches.

[2]Data Source: FNS/PID/Monthly Report Summaries. National School Lunch Program, FY 1988 and FY 1989. USDA, Food and Nutrition Service, 1989 and 1990.

[3]CNOPS data are based on School Year (September-June) totals. FNS data are based on Fiscal Year (July-June) totals.

NSLP Student Participation Rates

Overall Student Participation Rates. Exhibit II.11 presents estimated student participation rates for the NSLP, summing across free, reduced-price, and paid meals. The national estimate for overall NSLP student participation is 59.1 percent in SY 1987-88 and 60.2 percent in SY 1988-89. That is, on an average day in both SY 1987-88 and SY 1988-89, about 60 percent of students who had the NSLP available to them actually participated in the program.

In examining overall participation rates across types of SFAs, significantly higher rates of student participation are found in SFAs offering the SBP, small SFAs, and SFAs that serve 60 percent or more free or reduced-price lunches. None of the year-to-year differences in overall student participation is statistically significant.

Comparison with FNS Administrative Data and with Data from NESNP. The estimated overall participation rates based on data from this study (59.1 percent in SY 1987-88 and 60.2 percent in SY 1988-89) agree quite well with the estimates of 59.4 percent and 58.4 percent reported by FNS for those same years.1/

Comparing participation rates from the present study to the participation rates reported in the NESNP-I and NESNP-II studies is not so straightforward. There are several methodological difference between the two studies that affect participation rates:

- CNOPS estimates include both private and public schools while NESNP estimates are for public schools only.
- CNOPS estimates include data for kindergarten through grade 12, while NESNP estimates are for grades 1 through 12.
- CNOPS estimates are based on annual administrative data supplied by SFA managers while the main set of NESNP data are based on student reports of participation over the previous five days that the student was in school (NESNP also collected data from food service administrators).
- CNOPS estimates are based on data for the 1987-88 and 1988-89 school years, while NESNP estimates are based on data collected in 1980.

1/Annual Historical Review of FNS Programs: Fiscal Year 1989. USDA, Food and Nutrition Service, 1990. FNS' participation rates are calculated by determining the average number of meals served (nine month average [Oct.-May] plus September) and dividing by program enrollment, using unrounded data.

Exhibit II.11

NSLP Student Participation Rates by Type of SFA:
Total Lunches
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Mean	Total Number of Potential Participants[1] (Weighted)	SY 1988-89 Mean	Total Number of Potential Participants[1] (Weighted)	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	59.1%	41.1	60.2%	39.9	1.1%
Type of SFA					
Public	59.1	40.2	60.3	39.0	1.2
Private	57.9	0.8	56.1	0.9	-1.8
Participation in SBP					
NSLP and SBP	63.1*	22.7	62.6	25.8	-0.5
NSLP only	54.1	18.4	55.9	14.1	1.8
SFA Size					
Small (1-999)	68.8*	2.8	68.8	2.4	0.0
Medium (1,000-4,999)	60.4	12.4	60.8	11.7	0.4
Large (5,000+)‡	57.5	25.9	59.2	25.8	1.7
Poverty Level of SFA					
High (60% or more F&R)	66.5*	12.1	63.3	12.7	-3.2
Low (0-59% F&R)	56.0	29.0	58.8	27.1	2.8

[1]Millions of students.

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

- CNOPS estimates are based on data for entire school years, while NESNP estimates are based on data collected in October through December.

- CNOPS estimates are based on average daily attendance (absences are accounted for) while NESNP estimates are based on total school enrollment (absences are not accounted for).

Given these differences in methodology, it is not surprising that we find some differences in the participation rates reported by the two studies. A summary of the two sets of findings is shown in Exhibit II.12. The CNOPS data show a total participation rate of about 60 percent while the NESNP student report data show a total participation rate of about 66 percent. A difference of this magnitude can almost completely be explained if the NESNP data are adjusted by an attendance rate factor of 93.7 percent for all schools in the United States for school year 1980-81.1/ Multiplying the NESNP-I rate of 65.7 percent by .937 yields an adjusted rate of 61.6 percent, much closer to the CNOPS estimate. In addition, NESNP also collected a set of data from school administrators, which ought to be comparable to the CNOPS data. The total participation rate calculated from data taken from the NESNP administrator reports was 61.4 percent, which closely matches both the CNOPS estimate and the NESNP student estimate when adjusted for attendance.

Variation by Grade Level. Past research has demonstrated that participation rates differ for students of different ages, with younger children participating more frequently than older children.

Data from the present study support that finding, indicating that participation rates are significantly higher in elementary schools than in middle/secondary schools (Exhibit II.13). On an average school day in both years of the study, over 70 percent of elementary school students selected an NSLP meal, compared to 48 percent of middle/secondary school students. These estimates are lower than the figures available from NESNP-I, which showed that participation rates were 75.7 percent in grades 1-3, 74.5 percent in grades 4-6, 66.9 percent in grades 7-9, and 47.9 percent in grades 10-12.

Free Lunch Student Participation Rates. The estimated NSLP participation rate for children approved for free lunches is 89.7 percent in SY 1987-88 and 88.0 percent in SY 1988-89 (Exhibit II.14). This is consistent with findings from other studies, including NESNP-I (85.4 percent) and NESNP-II (91.8 percent).

1/U.S. Department of Education, National Center for Educational Statistics, Digest of Educational Statistics, 1989, p. 54.

Exhibit II.12

NSLP Student Participation Rates:
CNOPS and NESNP

	CNOPS		NESNP-I		NESNP-II
	SY 1987-88	SY 1988-89	Student Reports	Administrator Reports	Student Reports
TOTAL	59.1%	60.2%	65.7%	61.4%	65.9%
Free	89.7	88.0	85.4	---	91.8
Reduced-Price	73.0	71.3	81.5	---	83.4
Paid	45.6	48.0	57.6	---	54.7

Exhibit II.13

NSLP Student Participation Rates in Elementary and Middle/Secondary Schools: Total Lunches (SY 1987-88 and SY 1988-89)

	SY 1987-88[1] Mean	SY 1988-89[1] Mean	(SY1988-89)-(SY1987-88) Difference
Elementary Schools	71.6%*	71.4%	-0.2%
Middle Secondary Schools	48.7	48.4	-0.3

[1]Based on the subset of SFAs that provided enrollment and meal count data separately for elementary and middle/secondary schools.

*Difference between elementary and middle/secondary schools is statistically significant at the .01 level.

Note: Neither of the year-to-year differences is statistically significant.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibit II.14

NSLP Student Participation Rates by Type of SFA:
Free Lunches
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Mean	Total Number of Potential Participants[1] (Weighted)	SY 1988-89 Mean	Total Number of Potential Participants[1] (Weighted)	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	89.7%	10.6	88.0%	10.8	-1.7%
Type of SFA					
Public	89.8	10.5	88.1	10.6	-1.7
Private	83.6	0.1	84.2	0.2	0.6
Participation in SBP					
NSLP and SBP	90.2	8.1	88.5	8.7	-1.7
NSLP only	88.3	2.5	85.7	2.0	-2.6
SFA Size					
Small (1-999)	89.5	0.6	89.3	0.5	-0.2
Medium (1,000-4,999)	89.7	2.4	86.3	2.4	-3.4
Large (5,000+)‡	89.8	7.6	88.4	7.8	-1.4
Poverty Level of SFA					
High (60% or more F&R)	89.8	6.1	89.6	6.1	-0.2
Low (0-59% F&R)	89.7	4.5	86.0	4.7	-3.7*

[1]Millions of students.

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

A high level of participation (over 80 percent) is observed for free lunches in both years for each of the subgroups of SFAs assessed in this study. None of the between-group differences was found to be statistically significant.

The only year-to-year change that is statistically significant is that participation among students approved for free meals in low-poverty SFAs decreased, by about 4 percent, between SY 1987-88 and SY 1988-89.

Reduced-Price Student Participation Rates. NSLP participation among children approved for reduced-price lunches is consistently lower than participation rates for free lunches, but higher than participation rates for children who pay full price for their NSLP meals. The estimated NSLP participation rate for all students approved for reduced-price meals is 73.0 percent in SY 1987-88 and 71.3 percent in SY 1988-89 (Exhibit II.15). This is not a statistically significant change. These participation rates are lower than those reported by NESNP-I (81.5 percent) and NESNP-II (83.4 percent).

In general, reduced-price participation rates for both years were over 70 percent and were similar among different types of SFAs, with the exception of small SFAs. Reduced-price participation is higher in small SFAs than in large SFAs.

Paid Meal Student Participation Rates. Participation among children who must pay full price for an NSLP meal is markedly lower than participation for children who are approved for free or reduced-price meals. An estimated 45.6 percent of children who pay full price purchased a reimbursable school lunch on an average school day in SY 1987-1988 and an estimated 48.0 percent did so in SY 1988-89 (Exhibit II.16). This year-to-year difference is not statistically significant. These rates are lower than those reported by NESNP-I (57.6 percent) and NESNP-II (54.7 percent).

Paid NSLP participation rates did differ significantly among SFAs of varying sizes. Paying students in small and medium-sized SFAs participate more frequently than comparable students in large SFAs. This is most likely attributable to the fact that students in small- and medium-size SFAs are more likely to be elementary school children and that all children in these SFAs have fewer options available to them at meal time.

Paid NSLP participation was also significantly higher in SFAs that serve 59 percent or fewer free or reduced-price lunches than in SFAs that serve 60 percent or more free or reduced-price lunches. None of the year-to-year differences in the participation rates of children who pay full price for NSLP meals is statistically significant.

Exhibit II.15

NSLP Student Participation Rates by Type of SFA:
Reduced-Price Lunches
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Mean	Total Number of Potential Participants[1] (Weighted)	SY 1988-89 Mean	Total Number of Potential Participants[1] (Weighted)	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	73.0%	2.2	71.3%	2.3	-1.7%
Type of SFA					
Public	72.8	2.1	71.3	2.2	-1.5
Private	80.0	0.1	71.6	0.1	-8.4
Participation in SBP					
NSLP and SBP	72.3	1.4	70.8	1.6	-1.5
NSLP only	74.4	0.8	72.5	0.6	-1.9
SFA Size					
Small (1-999)	79.5*	0.2	77.0	0.1	-2.5
Medium (1,000-4,999)	74.2	0.6	72.7	0.6	-1.5
Large (5,000+)‡	71.8	1.4	70.2	1.5	-1.6
Poverty Level of SFA					
High (60% or more F&R)	69.2	0.9	68.3	0.9	0.9
Low (0-59% F&R)	75.7	1.3	73.4	1.3	-2.3

[1]Millions of students.

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

Exhibit II.16

NSLP Student Participation Rates by Type of SFA:
Paid Lunches
(SY 1987-88 and SY 1988-89)

	SY 1987-88 Mean	Total Number of Potential Participants[1] (Weighted)	SY 1988-89 Mean	Total Number of Potential Participants[1] (Weighted)	(SY1988-89)-(SY1987-88) Difference
TOTAL SAMPLE	45.6%	28.5	48.0%	26.6	2.4%
Type of SFA					
Public	45.9	27.6	48.0	26.0	2.1
Private	38.6	0.9	48.1	0.6	9.5
Participation in SBP					
NSLP and SBP	43.7	13.4	46.7	15.3	3.0
NSLP only	47.4	15.2	49.8	11.3	2.4
SFA Size					
Small (1-999)	61.8*	2.1	60.8	1.7	-1.0
Medium (1,000-4,999)	51.5*	9.4	53.1	8.5	1.6
Large (5,000+)‡	40.5	17.1	44.1	16.4	3.6
Poverty Level of SFA					
High (60% or more F&R)	35.9*	5.1	34.0	5.5	-1.9
Low (0-59% F&R)	47.8	23.4	51.7	21.1	3.9

[1]Millions of students.

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

SBP Participation Rates

Because of missing data, the overall student participation rate for the SBP could only be calculated for a subset of about three-quarters of the SFAs offering the program. Based on data for this reduced sample, it is estimated that 20.8 percent of students enrolled in schools offering the SBP participated on an average day in SY 1987-88, and 20.6 percent participated in SY 1988-89. (Exhibit II.17) This estimate is almost identical to the estimate of 20.7 percent derived from FNS' administrative data for SY 1987-88, and is quite close to FNS' estimate of 20.1 percent for SY 1988-89.1/ Further, it agrees with the NESNP-II estimate of 18.3 percent for the 1983-84 school year.

Data on differences in SBP participation rates by meal reimbursement category are also presented in Exhibit II.17. These data must, however, be viewed as very tentative because only about one-third of SFAs offering the SBP were able to provide information on the number of children eligible for breakfasts by eligibility category. The data are quite consistent across years, indicating that SBP participation rates are highest for free meals in each year (43.2 and 41.9 percent, respectively), lower for reduced-price meals (14.9 and 15.3 percent, respectively), and lowest for paid meals (4.3 and 5.0 percent, respectively). The year-to-year differences are not statistically significant. These participation rates are quite close to the NESNP-II rates of 44.3 percent for free breakfasts, 14.6 percent for reduced-price breakfasts, and 5.1 percent for paid breakfasts.

1/Annual Historical Review of FNS Programs: Fiscal Year 1989. USDA, Food and Nutrition Service, 1990.

Exhibit II.17

SBP Participation Rates by
Meal Reimbursement Category
(SY 1987-88 and SY 1988-89)

	SY 1987-88[1] Mean	SY 1988-89[1] Mean	(SY1988-89)-(SY1987-88) Difference
TOTAL	20.8%	20.6%	-0.2%
Free	43.2	41.9	-1.3
Reduced-Price	14.9	15.3	0.4
Paid	4.3	5.0	0.7

[1] In both years, the total participation rate was calculated for a subset (approximately 75 percent) of the SFAs offering the program. Free, reduced-price and paid participation rates were calculated for a subset comprised of about one-third of all SFAs offering the program.

Data Source: Year One and Year Two SFA Manager Surveys.

III. MEAL PRICES AND REPORTED MEAL COSTS

This chapter addresses issues related to meal prices and reported meal costs in SFAs participating in the NSLP and SBP. The chapter is organized into two sections. The first describes the prices charged for meals in the NSLP and SBP, including both student and adult meals. The second section of the chapter focuses on meal costs in the NSLP. The estimated average cost of producing an NSLP meal is reported, and variations in meal costs across SFAs are explored.

BACKGROUND

Previous research has shown that the price charged for an NSLP meal is a primary determinant of student participation decisions.1/ It is also known that payments collected from students represent a major source of revenue for school food service programs.

FNS' need for meal price information is largely related to its concern about program costs and participation. To determine the likely effects of, for example, a subsidy change in the NSLP or SBP, FNS needs to know whether such a change is likely to affect the prices charged to students, which could lead to a change in student participation and, ultimately, affect the total cost of the program. Those within FNS who are responsible for predicting participation five years in the future need to know the extent to which price changes occur independent of policy changes. Finally, the Agency needs to understand the relationship between meal pricing and SFA characteristics.

This study also examines the costs of producing NSLP lunches as reported by SFAs.2/ The cost elements included in the analysis are food costs (commercial purchases and USDA donated commodities), labor costs, and other miscellaneous costs.

1/Wellisch, J.B., Hanes, S.D., Jordan, L.A., Maurer, K.M., Vermeersch, J.: The National Evaluation of School Nutrition Programs: Final Report. Santa Monica, CA: Systems Development Corporation, 1983.

2/The production of NSLP lunches is financed through Federal cash subsidies and donated commodities, State and local subsidies, and revenues from the sales of NSLP lunches, a la carte items, and other food sales to children and teachers.

KEY RESEARCH ISSUES

To provide FNS with information on the prices charged for full-price, reduced-price, and adult lunches and breakfasts, this study addresses the following questions:

- What is the average price charged for full-price, reduced-price, and adult lunches in SY 1989-90?
- What is the average price charged for full-price, reduced-price, and adult breakfasts in SY 1989-90?
- How have prices changed from SY 1988-89 to SY 1989-90?

To provide information on the costs of producing an NSLP lunch, the chapter addresses three additional questions:

- What is the cost of producing an NSLP lunch and how are these costs distributed across the major cost components?
- How have the costs of providing an NSLP lunch changed from SY 1987-88 to SY 1988-89?
- How do total Federal subsidies compare to the cost of producing NSLP lunches?

DATA AND VARIABLES

Information on meal prices for SY 1988-89 was requested in the Year One SFA Manager Mail Survey. Respondents were asked to indicate the prices charged for paid and reduced-price student meals (lunches and breakfasts) as well as adult meals in elementary and middle/secondary schools at the start of SY 1988-89. Respondents were also asked to report any mid-year price changes that occurred. Similar questions on meal prices for SY 1989-90 were included in the Year Two SFA Manager Survey. The average (unweighted) of the prices from elementary and secondary schools was calculated and is presented in this report as "all schools."

The Year One and Year Two SFA Manager Surveys also requested information on income and expenses for SY 1987-88 and SY 1988-89, respectively. These data were utilized in the analysis of NSLP meal costs. The variables constructed from these data are described in the subsequent section of this chapter that focuses on NSLP meal costs.

MEAL PRICES

This section presents national estimates of the prices charged by SFAs participating in the NSLP and SBP during SY 1988-89 and SY 1989-90. Average prices charged in different types of SFAs

are compared and the statistical significance of differences among subgroups of SFAs and year-to-year changes are noted.1/ Prices for the NSLP and SBP are discussed separately, beginning with the NSLP.

NSLP Paid Lunches

The average price for a full-price NSLP meal, across all schools and SFAs, was 98 cents in SY 1988-89 and $1.00 in SY 1989-90 (Exhibit III.1). This difference is not statistically significant. Paid lunch prices do vary by grade level. The average price in elementary schools was 93 cents in SY 1988-89 and 95 cents in SY 1989-90; for middle/secondary schools the average price was about 10 cents higher at $1.03 in SY 1988-89 and $1.06 in SY 1989-90. The year-to-year differences are not significant.

There is also some variation in meal pricing in different types of SFAs. Specifically, prices charged in SFAs that participate in the SBP and in SFAs that serve 60 percent or more free or reduced-price lunches are significantly lower--in both elementary and middle/secondary schools--than prices in other SFAs. None of the year-to-year differences within SFA subgroups is statistically significant. The standard deviation of a full-price lunch, across all subgroups and for both years, is about 20 cents. This indicates that there is substantial amount of variation in the prices students pay for full-price NSLP meals.

Exhibit III.2 shows how the average price of an NSLP paid lunch in SY 1989-90 changes when the unit of analysis is the NSLP meal (each lunch has the same weight) instead of the SFA (each SFA has the same weight). Large SFAs charge higher prices and serve many more lunches than small SFAs, hence the mean lunch price calculated using the NSLP meal as the unit of analysis is marginally higher ($1.02) than the mean lunch price calculated using the SFA as the unit of analysis ($1.00).

NSLP Reduced-Price Lunches

The average price for a reduced-price lunch in both SY 1988-89 and SY 1989-90, across all schools and SFAs, was 38 cents (Exhibit III.3). There is little variation in this figure across different types of SFAs, with average prices ranging between 36 and 38 cents for a reduced-price lunch. There were no significant changes in the price of a reduced-price lunch from SY 1988-89 to SY 1989-90. Due to the Federally-set ceiling on the price of a reduced-price lunch, the standard deviation of the price for a reduced-price lunch is much smaller than for the price of a paid lunch--about 6 cents per reduced-price lunch compared to 20 cents for a paid lunch. This means that there is relatively little variation in the price of a reduced-price lunch within any of the subgroups examined in this study.

1/The unweighted sample sizes are quite small for some subgroups of SFAs, especially middle/secondary schools in private SFAs. Estimates are not provided when unweighted cell sizes fall below 30 SFAs.

Exhibit III.1

Average NSLP Meal Prices for Paid Lunches
In Elementary and Secondary Schools:
SY 1988-89 and SY 1989-90

	Elementary			Middle/ Secondary			All Schools		
	SY 1988-89 (a)	SY 1989-90 (b)	(b-a)	SY 1988-89 (c)	SY 1989-90 (d)	(d-c)	SY 1988-89 (e)	SY 1989-90 (f)	(f-e)
TOTAL SAMPLE	$0.93	$0.95	$.02	$1.03	$1.06	$.03	$0.98	$1.00	$.02
Type of SFA									
Public	0.93	0.95	.02	1.02	1.06	.04	0.97	1.01	.04
Private	0.93	0.93	.00	na	na	na	0.99	0.98	-.01
Participation in SBP									
NSLP and SBP	0.87*	0.91	.04	0.96*	1.01	.05	0.91*	0.96	.05
NSLP only	0.95	0.97	.02	1.06	1.09	.03	1.00	1.02	.02
SFA Size									
Small (1-999)	0.92	0.92	.00	1.01	1.01	.00	0.96	0.96	.00
Medium (1,000-4,999)	0.94	0.97	.03	1.03	1.09	.06	0.99	1.03	.04
Large (5,000+)†	0.94	0.96	.02	1.06	1.08	.02	1.00	1.03	.03
Poverty Level of SFA									
60% or more F&R	0.85*	0.89	.03	0.87*	0.93	.06	0.88*	0.92	.04
0-59% F&R	0.94	0.96	.02	1.06	1.10	.04	0.99	1.02	.03

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

†Reference group used in group comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

na: Unweighted sample size less than 30

Data Source: Year One and Year Two SFA Manager Survey.

Exhibit III.2

Average NSLP Meal Prices for Paid Lunches
Using Two Different Units of Analysis
(SY 1989-90)

	Unit of Analysis	
	SFA[1]	NSLP Meal[2]
Total Sample	$1.00	$1.02
Type of SFA		
Public	1.01	1.02
Private	0.98	1.04
Participation in SBP		
NSLP and SBP	0.96	1.01
NSLP only	1.02	1.04
SFA Size		
Small (1-999)	0.96	0.97
Medium (1,000-4,999)	1.03	1.04
Large (5,000+)	1.03	1.02
Poverty Level of SFA		
60% or more F&R	0.92	0.90
0-59% F&R	1.02	1.04

Data Source: Year Two SFA Manager Survey

[1]Average price across all SFAs in the nation. Equal weight is given to each SFA, regardless of size.

[2]Average price across all lunches served in the nation. Equal weight is given to each lunch, hence the average price is dominated by the prices charged by large SFAs.

Exhibit III.3

Average NSLP Meal Prices for Reduced-Price Lunches In Elementary and Middle/Secondary Schools (SY 1988-89 and SY 1989-90)

	Elementary Schools			Middle/Secondary Schools			All Schools		
	SY 1988-89 (a)	SY 1989-90 (b)	(b-a)	SY 1988-89 (c)	SY 1989-90 (d)	(d-c)	SY 1988-89 (e)	SY 1989-90 (f)	(f-e)
TOTAL SAMPLE	$0.38	$0.38	$.00	$0.38	$0.38	$.00	$0.38	$0.38	.00
Type of SFA									
Public	0.38	0.38	.00	0.38	0.38	.00	0.38	0.38	.00
Private	0.38	0.38	.00	na	na	na	0.38	0.38	.00
Participation in SBP									
NSLP and SBP	0.36	0.37	.01	0.36	0.37	.01	0.36	0.37	.01
NSLP only	0.38	0.38	.00	0.38	0.39	.01	0.38	0.38	.00
SFA Size									
Small (1-999)	0.38	0.38	.00	0.38	0.39	.01	0.38	0.38	.00
Medium (1,000-4,999)	0.38	0.38	.00	0.38	0.38	.00	0.38	0.38	.00
Large (5,000+)‡	0.36	0.36	.00	0.37	0.36	-.01	0.37	0.36	-.01
Poverty Level of SFA									
High (60% or more F&R)	0.37	0.37	.00	0.38	0.38	.00	0.38	0.38	.00
Low (0-59% F&R)	0.38	0.38	.00	0.38	0.38	.00	0.38	0.38	.00

Note: None of the between-group or year-to-year differences is statistically significant. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

na: Unweighted sample size less than 25 SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

Adult Lunches

The average price for an adult lunch in SY 1988-89, across all SFAs, was $1.55 in elementary schools and $1.60 in middle/secondary schools (Exhibit III.4). Adult prices were $1.59 and $1.63 in elementary and middle/secondary schools, respectively, during SY 1989-90, however, the year-to-year changes are not statistically significant. Adults do pay significantly higher prices in elementary schools in public SFAs, and in middle/secondary schools in SFAs that do not participate in the SBP.

As might be expected, the variation in lunch prices charged to adults is greater than the variation in prices charged to children. The standard deviation of the price of an adult lunch is about 27 cents, compared to about 20 cents for a paid student lunch. This large degree of variation in the price of an adult lunch helps explain why some of the year-to-year differences noted in Exhibit III.4 are not statistically significant.

SBP Paid Breakfasts

The average price of an SBP paid breakfast is about 50 cents (Exhibit III.5), with little difference between prices in elementary and middle/secondary schools or between prices charged in SY 1988-89 and SY 1989-90. Both small SFAs and SFAs that serve 60 percent or more free or reduced-price lunches charge lower prices for full price breakfasts in middle/secondary schools than do large SFAs or SFAs that serve 59 percent or fewer free or reduced-price lunches.

SBP prices increased significantly from SY 1988-89 to SY 1989-90 for middle/secondary schools in small SFAs: from 39 cents to 47 cents. This serves to bring the prices paid in small SFAs more in line with prices paid in larger SFAs. None of the other year-to-year differences is statistically significant.

SBP Reduced-Prices Breakfasts

Data on prices charged for reduced-price breakfasts are displayed in Exhibit III.6. Prices are unvarying across SFA subgroups and from Year One to Year Two. On average, SFAs charge 26 cents for a reduced-price breakfast. Between SY 1988-89 and SY 1989-90, the average price in private elementary schools dropped significantly from 27 cents to 23 cents, but this change does not seem to be a particularly large or important change in absolute terms.

There is a relatively small amount of variation in the price of a reduced-price breakfast--the standard deviation is only about 6 cents per meal.

Adult Breakfasts

Adult breakfast prices for SY 1988-89 and SY 1989-90 are summarized in Exhibit III.7. The average adult breakfast in SY 1988-89 cost 74 cents in elementary schools and 76 cents in middle/secondary schools. In SY 1989-90, the average price of an adult breakfast was 81 cents and 83 cents in elementary and middle/secondary schools, respectively. These year-to-year changes were not statistically significant for the total sample.

Exhibit III.4

Average NSLP Meal Prices for Adult Lunches in Elementary and Middle/Secondary Schools: SY 1988-89 and SY 1989-90

	Elementary			Middle/Secondary			All Schools		
	SY 1988-89	SY 1989-90		SY 1988-89	SY 1989-90		SY 1988-89	SY 1989-90	
	(a)	(b)	(b-a)	(c)	(d)	(d-c)	(e)	(f)	(f-e)
TOTAL SAMPLE	$1.55	$1.59	$.04	$1.60	$1.63	$.03	$1.56	$1.60	$.04
Type of SFA									
Public	1.59*	1.65	.06	1.61	1.65	.04	1.59*	1.65	.06
Private	1.38	1.34	-.04	na	na	na	1.44	1.37	-.07
Participation in SBP									
NSLP and SBP	1.56	1.63	.07	1.54*	1.63	.09	1.56	1.63	.07
NSLP only	1.55	1.58	.03	1.63	1.64	.01	1.56	1.58	.02
SFA Size									
Small (1-999)	1.48	1.46	-.01	1.57	1.52	-.05	1.50	1.48	-.02
Medium (1,000-4,999)	1.61	1.68	.07	1.61	1.68	.07	1.61	1.69	.08
Large (5,000+)+	1.62	1.69	.07	1.64	1.71	.07	1.63	1.70	.07
Poverty Level of SFA									
60% or more F&R	1.61	1.66	.05	1.62	1.65	.05	1.61	1.67	.06
0-59% F&R	1.54	1.58	.04	1.60	1.62	.02	1.55	1.58	.04

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

+Reference group used in group comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

na: Unweighted sample size less then 30.

Data Source: Year One and Year Two SFA Manager Survey.

Exhibit III.5

Average SBP Meal Prices for Paid Breakfasts
in Elementary and Middle/Secondary Schools:
SY 1988-89 and SY 1989-90

	Elementary			Secondary			All Schools		
	SY 1988-89	SY 1989-90		SY 1988-89	SY 1989-90		SY 1988-89	SY 1989-90	
	(a)	(b)	(b-a)	(c)	(d)	(d-c)	(e)	(f)	(f-e)
TOTAL SAMPLE	$0.48	$0.50	$.02	$0.50	$0.52	$.02	$0.49	$0.51	$.02
Type of SFA									
Public	0.48	0.50	.02	0.50	0.52	.02	0.49	0.51	.02
Private	0.56	0.50	-.06	na	na	na	0.55	0.51	-.04
SFA Size									
Small (1-999)	0.44	0.46	.02	0.39*	0.48	.09*	0.44*	0.48	.04
Medium (1,000-4,999)	0.49	0.50	.01	0.51	0.52	.01	0.50	0.51	.01
Large (5,000+)[+]	0.51	0.53	.02	0.55	0.56	.01	0.53	0.54	.01
Poverty Level of SFA									
60% or more F&R	0.45	0.46	.01	0.43*	0.45	.02	0.45*	0.46	-.01
0-59% F&R	0.50	0.52	.02	0.53	0.56	.03	0.51	0.53	.02

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

[+]Reference group used in group comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

na: Unweighted sample size less than 30.

Data Source: Year One and Year Two SFA Manager Survey.

Exhibit III.6

Average SBP Meal Prices for Reduced-Price Breakfasts
in Elementary and Middle/Secondary Schools:
SY 1988-89 and SY 1989-90

	Elementary			Secondary			All Schools		
	SY 1988-89	SY 1989-90		SY 1988-89	SY 1989-90		SY 1988-89	SY 1989-90	
	(a)	(b)	(b-a)	(c)	(d)	(d-c)	(e)	(f)	(f-e)
TOTAL SAMPLE	$0.25	$0.26	$.01	$0.25	$0.26	$.00	$0.26	$0.26	$.00
Type of SFA									
Public	0.25	0.26	.01	0.25	0.26	.01	0.25	0.26	.01
Private	0.27	0.23	-.04	na	na	na	0.27	0.23	-.04
SFA Size									
Small (1-999)	0.25	0.26	.01	0.23	0.26	.03	0.25	0.26	.01
Medium (1,000-4,999)	0.26	0.26	.00	0.25	0.26	.01	0.26	0.26	.00
Large (5,000+)[+]	0.26	0.26	.00	0.26	0.26	.00	0.26	0.26	.00
Poverty Level of SFA									
60% or more F&R	0.25	0.25	.00	0.24	0.25	.01	0.25	0.25	.00
0-59% F&R	0.26	0.26	.00	0.26	0.27	.01	0.26	0.26	.00

*Group difference statistically significant at $p \leq .01$ level.

[+]Reference group used in group comparisons: small vs. large; medium vs. large.

na: Unweighted sample size less than 30.

Data Source: Year One and Year Two SFA Manager Survey.

Exhibit III.7

Average SBP Meal Prices for Adult Breakfasts in Elementary and Middle/Secondary Schools (SY 1988-89 and SY 1989-90)

	Elementary Schools			Middle/Secondary Schools			All Schools		
	SY 1988-89 (a)	SY 1989-90 (b)	(b-a)	SY 1988-89 (c)	SY 1989-90 (d)	(d-c)	SY 1988-89 (e)	SY 1989-90 (f)	(f-e)
TOTAL SAMPLE	$0.74	$0.81	$.07	$0.76	$0.83	$.07	$0.75	$0.82	$.07
Type of SFA									
Public	0.73	0.80	.07	0.75	0.83	.08*	0.74	0.82	.08*
Private	na	na	na	na	na	na	na	na	na
SFA Size									
Small (1-999)	0.72	0.82	.10*	0.67	0.80	.13	0.73	0.86	.13
Medium (1,000-4,999)	0.73	0.78	.05	0.76	0.83	.07*	0.74	0.79	.05
Large (5,000+)‡	0.78	0.83	.05	0.82	0.86	.04	0.79	0.84	.05
Poverty Level of SFA									
High (60% or more F&R)	0.76	0.83	.07*	0.76	0.82	.06*	0.78	0.83	.05*
Low (0-59% F&R)	0.73	0.80	.07	0.75	0.84	.09	0.74	0.82	.08

*Between-group or year-to-year is difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

na: Unweighted sample size less than 30 SFAs.

Data Source: Year One and Year Two SFA Manager Surveys.

There is little variation in adult breakfast prices across SFA subgroups. Prices charged in some of the SFA subgroups did, however, increase significantly between SY 1988-89 and SY 1989-90. The average price for an adult breakfast in elementary schools increased by 10 cents in small SFAs and 7 cents in SFAs that serve 60 percent or more free or reduced-price lunches. Middle/secondary school prices increased by 7 cents in medium-sized SFAs and 6 cent in SFAs that serve 60 percent or more free or reduced-price lunches. Given the magnitude and prevalence of the increases in adult breakfast prices, it seems clear that SFAs are more likely to raise the price of an adult breakfast than a student breakfast.

As might be expected, the variation in adult breakfast prices is greater than the variation in student prices. The standard deviation of the price of an adult breakfast is about 20 cents, compared to 14 cents for a paid student breakfast. This large degree of variability explains why some of the year-to-year differences noted in Exhibit III.7 are not statistically significant.

NSLP MEAL COSTS AND SUBSIDIES

Data and Variables

This analysis is based on the reported operating expenses of SFAs. The sample includes 991 SFAs that provided detail on their income and expenses for SY 1987-88 in the Year One SFA Manager Mail Survey and 1180 SFAs that provided similar detail for SY 1988-89 in the Year Two Survey. The reported costs reflect the actual expenditures (or cash outlays) made by SFAs plus the assigned value of USDA donated commodities received.

In addition to items that are charged to the SFA budget, SFAs often use resources for which they are not charged. Examples of resources that are often not charged to the SFA's account include cafeteria and kitchen space, the use of school district facilities to store food and supplies, the use of school district personnel and equipment to transport USDA donated commodities, and the time spent by school district administrative staff on food service administrative tasks. To the extent that SFAs use resources that are not charged to the SFA's account, reported costs will understate the full cost of SFA operations.

The following variables were constructed from the information provided in the Year One and Year Two Surveys:

Total SFA reported cost. Equal to the sum of total SFA expenditures and the assigned value of donated commodities.

Total food cost. Equal to the sum of commercial food purchases and the assigned value of donated commodities.

Total labor cost. Total salaries and fringe benefits charged to the SFA account.

Other SFA costs. Includes all other costs charged to the SFA account.

To determine the cost of producing an NSLP meal, it is necessary to separate the costs attributable to these reimbursable meals from the cost attributable to other food items produced by SFAs. The inherent problem in allocating meal production is the issue of joint production. School meal production involves the preparation and service of a range of meals and food items, including NSLP lunches, SBP breakfasts, a la carte items, adult meals, and so on. Clearly, these different types of meals require different amounts and kinds of food as well as different amounts of labor for preparation and serving. The problem is that the different meals are produced jointly. There is no separate accounting for the resources used in the production of the various meals and food items.

To address the issue of joint production, this study converted breakfasts, adult meals, and a la carte sales into NSLP lunch equivalents (LEQs). The algorithm used was based on an econometric model of the joint production process, and is described in detail in the report prepared for the first year of this study.1/ SFA-reported costs were divided by the estimate of the number of LEQs produced to obtain an estimate of the reported cost per NSLP lunch.

Cost of Producing an NSLP Lunch

Exhibit III.8 presents a summary of costs per LEQ for SY 1987-88 and SY 1988-89 using both SFAs and NSLP meals as the unit of analysis. Across all SFAs, the average SFA-reported cost of producing an NSLP lunch was $1.43 in SY 1987-88 and $1.46 in SY 1988-89.2/ The difference between the two years is not statistically significant. Similarly, there were no significant year-to-year differences in the average cost of producing an NSLP lunch among any of the different subgroups of SFAs examined in this study. However, average costs per LEQ are higher in large SFAs than in small or medium-size SFAs.

Reported costs ranged from less than $1.00 per LEQ to over $2.00 per LEQ, and the variation in reported costs was relatively large. In both SY 1987-88 and SY 1988-89 about one-third of all SFAs had reported costs that were below $1.30 per LEQ, another

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1/St.Pierre, R., M.K. Fox, M. Puma, F. Glantz, and M. Moss. Child Nutrition Program Operations Study: First Year Report. Cambridge, MA: Abt Associates, 1991.

2/Calculated as the average cost per LEQ across all SFAs in the nation, i.e., the SFA is the unit of analysis. This analysis gives equal weight to each SFA, regardless of size.

Exhibit III.8

Total Cost per LEQ
(SY 1987-88 and SY 1988-89)

	SFA is Unit of Analysis			NSLP Meal Unit of Analysis		
	SY 1987-88 (a)	SY 1988-89 (b)	Difference (b-a)	SY 1987-88 (c)	SY 1988-89 (d)	Difference (d-c)
TOTAL SAMPLE	$1.43	$1.46	$0.03	$1.62	$1.67	$0.05
Participation in SBP						
NSLP and SBP	1.18	1.25	0.07	1.62	1.67	0.05
NSLP only	1.53	1.57	0.04	1.63	1.67	0.04
SFA Size						
Small (1-999)	1.30*	1.28	-0.02	1.40	1.33	-0.07
Medium (1000-4999)	1.52*	1.60	0.08	1.52	1.57	0.05
Large (5000+)‡	1.65	1.65	0.00	1.71	1.76	0.05
Poverty Level of SFA						
60% or more F&R	1.33	1.41	0.08	1.71	1.85	0.14
0-59.9% F&R	1.45	1.47	0.02	1.59	1.58	-0.01

*Between-group or year-to-year difference is statistically significant at the .01 level.
Between group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Note: Means for public vs. private SFAs are not presented due to the large amount of missing data for private SFAs.

Data Source: Year One and Year Two SFA Manager Mail Surveys.

third had reported costs between $1.30 and $1.60, and the final third had reported costs of over $1.60 per LEQ (Exhibit III.9).

When the unit of analysis is NSLP meals, the average reported cost of producing an NSLP lunch is calculated as $1.62 in SY 1987-88 and $1.67 in SY 1988-89.1/ The two different methods of calculating the cost of producing a lunch thus yield different answers. This reflects the large number of meals served in the small number of large SFAs where reported costs are significantly higher. Over 60 percent of the lunches served in SY 1987-88 were served in large school districts with enrollments over 5,000.

As one would expect, food and labor costs account for the vast majority (about 88 percent) of reported costs in both years (Exhibit III.10). Based on costs incurred by the average SFA, food costs (including the assigned value of donated commodities) accounted for about one-half of reported costs in both SY 1987-88 and SY 1988-89 (averaging $0.68 per LEQ in SY 1987-88 and $0.73 per LEQ in SY 1988-89). Labor costs accounted for almost 40 percent of reported costs in both years ($0.57 per LEQ). Neither food costs nor labor costs changed significantly between Year One and Year Two, with the exception that food costs rose by 6 cents per LEQ in medium-sized SFAs.

All other costs, including supplies, contract services, capital expenditures, indirect charges by the school district, and storage and transportation, represented only about 12 percent of SFA reported costs (averaging $0.18 per LEQ in SY 1987-88 and $0.16 in SY 1988-89). This year-to-year difference is not statistically significant. In large SFAs, the total for other costs decreased from SY 1987-88 to SY 1988-89 by 5 cents per LEQ. Roughly the same distribution of costs is observed when the LEQ is the unit of analysis.

Federal Subsidies and Meal Costs

USDA subsidies include both cash reimbursements and donated commodities. The reimbursement rate for free lunches was $1.405 in SY 1987-88 and $1.4625 in SY 1988-89. In addition, SFAs were eligible to receive $0.12 per NSLP lunch in entitlement commodities during SY 1987-88 and $.1225 during SY 1988-89 and, subject to availability, all the bonus commodities that could be used without waste. The average value of bonus commodities received per meal during this period was about $0.08. Therefore, the total USDA subsidy for free lunches averaged $1.60 ($1.405 + $0.12 + $0.08) in SY 1987-88 and $1.66 in SY 1988-89 ($1.4625 + $0.1225 + $0.08).

1/Calculated as the average cost per LEQ across all LEQs served in the Nation, i.e., the LEQ is the unit of analysis. This analysis gives equal weight to each LEQ, and since most LEQs are produced in large SFAs, the results are dominated by the cost incurred in large SFAs.

Exhibit III.9

Distribution of SFAs by Reported Cost Per LEQ
(SY 1987-88 and SY 1988-89)

Reported Cost Per LEQ	Percent of SFAs (SY 1987-88)	Percent of SFAs (SY 1988-89)
$0.00 - < 1.00	12.1%	15.4%
$1.00 - < 1.10	6.3	6.5
$1.10 - < 1.20	7.6	6.2
$1.20 - < 1.30	8.4	8.2
$1.30 - < 1.40	7.3	8.0
$1.40 - < 1.50	11.0	10.1
$1.50 - < 1.60	13.5	12.0
$1.60 - < 1.70	11.2	10.3
$1.70 - < 2.00	17.6	13.7
$2.00 or More	4.9	9.5
Total All SFAs	100%	100%

Data Source: Year One and Year Two SFA Manager Mail Surveys.

Exhibit III.10

Meal Cost Components Per LEQ
(SY 1987-88 and SY 1988-89)

	Food Costs[1]			Labor Costs			Other Costs		
	SY 1987-88 (a)	SY 1988-89 (b)	(b-a)	SY 1987-88 (c)	SY 1988-89 (d)	(d-c)	SY 1987-88 (e)	SY1988-89 (f)	(f-e)
TOTAL SAMPLE	$0.68	$0.73	$0.05	$0.57	$0.57	$0.00	$0.18	$0.16	-$0.02
Participation in SBP									
NSLP & SBP	0.55	0.63	0.08	0.46	0.49	0.03	0.17	0.13	-0.04
NSLP only	0.73	0.78	0.05	0.61	0.62	0.01	0.18	0.17	-0.01
SFA Size									
Small (1-999)	0.63*	0.66	0.03	0.50*	0.48	-0.02	0.17*	0.14	-0.03
Medium (1000-4999)	0.72	0.78	0.06*	0.62*	0.65	0.03	0.17*	0.17	0.00
Large (5000+)‡	0.74	0.79	0.05	0.67	0.67	0.00	0.24	0.19	-0.05*
Poverty Level of SFA									
60% or more F&R	0.63	0.73	0.10	0.51	0.53	0.02	0.19	0.16	-0.03
0-59% F&R	0.69	0.73	0.04	0.58	0.59	0.01	0.18	0.16	-0.02

[1] Includes the assigned value of USDA donated commodities.

*Between-group or year-to-year difference is statistically significant at the .01 level. Between-group comparisons were done for Year One but not for Year Two.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Note: Means for public vs. private SFAs are not presented due to the large amount of missing data for private SFAs.

Data Source: Year One and Year Two SFA Manager Mail Surveys.

This is roughly equivalent to the average reported cost of producing a lunch ($1.62 for SY 1987-88 and $1.67 for SY 1988-89). It is, however, somewhat greater than the reported cost of producing a meal for the average SFA ($1.43 for SY 1987-88 and $1.46 for SY 1988-89).

IV. THE FOOD DONATION PROGRAM

This chapter presents findings on Food Donation Program (FDP) operations at the SFA level. Issues include knowledge of the "Buy American" provision, commodity inventories, commodity processing, and delivery systems.

BACKGROUND

The FDP involves the donation and distribution of surplus agricultural commodities to a variety of eligible agencies. Through the Child Nutrition Programs, schools receive the majority of donated commodities. Schools derive a substantial amount of financial assistance from commodities and, for the most part, support the need to provide an outlet for domestic agricultural products. However, over the years there have been frequent requests from local administrators to change and improve the program to better meet the needs of school food service programs. The Commodity Distribution Reform Act of 1987 (P.L. 100-237) enacted numerous procedural changes designed to improve program operations and service to SFAs. Key provisions of this legislation focused on 1) encouraging SFAs to purchase, whenever possible, only food products produced in the U.S.; and (2) improving State Distributing Agents' communication and overall performance.

In recent years, USDA has made a considerable effort to improve the FDP. Product changes have been made, delivery procedures improved, the use of commercial vendors to deliver donated foods has increased, and technical assistance has been provided to allow States and SFAs to make better use of donated foods and to lower the costs of storage. The need for program refinement continues, as does the need for appropriate data to inform decisionmaking in this area. Specific FDP-related issues identified as priorities for Year Two of the Child Nutrition Program Operations Study include the "Buy-American" provision, excess commodity inventories, procedures used to document the value of donated commodities used in the manufacture of processed end-products, and SFAs' satisfaction with several aspects of current commodity delivery systems.

Section 3(h) of the Commodity Distribution Reform Act requires that recipient agencies purchase, whenever possible, only food products produced in the United States. This provision went into effect on January 8, 1988, the date of enactment of the law. There is considerable interest from Congress and the General Accounting Office (GAO) on how this provision is currently being implemented. GAO, in a very limited survey, indicated that two of three States examined had implemented the

Buy American requirements; however, only limited monitoring to determine compliance had taken place. FNS currently has no data on the purchasing practices of local recipient agencies as they apply to foreign versus U.S.-produced products. Without such information FNS cannot be responsive to Congressional requests on this issue.

Regarding commodity inventories, FNS needs specific information on the types of commodities that SFAs are holding in excessive amounts (i.e., a 6-month inventory or more). This information will be used in making purchasing and allocation decisions. For example, if the study showed that frozen pitted tart cherries were consistently found in excess, FNS might use this information to reduce the amount of purchases of this commodity or allocate these purchases to some other outlet. There is no existing uniform reporting or data collection system available for this type of information.

The Food Security Act of 1985 allows school districts to transfer donated commodities to another public or private, non-profit organization, i.e., foodbanks, to provide nutrition assistance to individuals in low-income groups. School districts may not be notifying their State Distributing Agents of the transfer of donated commodities to local agencies servicing low-income groups. Thus, donated commodities may be being transferred to food banks, homeless shelters, or other eligible agencies without being reported to FNS. FNS need to know if excess commodities are normally transferred to other recipient agencies, the amount and type of food transferred, and the type of agencies receiving these commodity transfers.

Beginning in SY 1989-90, program regulations require that processors and distributors indicate, on the invoice, the value of USDA-donated commodities contained in processed end-products. The invoice can show that the end-product was sold at a discount equivalent to the value of the donated commodities or indicate that the recipient agency is eligible for a refund in that amount. FNS must determine the degree of compliance of processors and distributors with the new requirement. Data from the Year One SFA Manager Survey indicated that prior to the implementation of these new regulations the value of the commodities passed through to the SFAs was not apparent. Information collected in the Year Two Survey will assist the Agency in determining if the current requirements and monitoring activities are adequate to ensure that school districts know the value of the donated commodities found in processed end-products.

Finally, in regard to commodity delivery systems, FNS needs to know if recent initiatives to improve communication and overall performance of State Distributing Agents have been effective. In the past, recipient agencies registered a number of complaints about their inability to receive pertinent information in a timely manner. Specifically, they were

concerned about their failure to receive details on commodities, the availability of commodities, and the distribution and delivery schedules of commodities. USDA has attempted to improve communications between individuals at the Federal, State and local levels. A quarterly newsletter is now written by FNS and mailed directly to each SFA to keep them appraised of recent developments.

In addition, the voluntary standards for State Distributing Agents specify that they provide timely delivery schedules and purchase information to recipient agencies. USDA is required to provide not less than 60 days advance notice to recipient agencies and States of the types and quantities of commodities to be distributed. USDA needs to know how effective these implemented changes have been with regard to enhancing communications between the State Distributing Agents and the recipient agencies, and to determine if further modifications are warranted.

KEY RESEARCH ISSUES

The following research questions were developed to address FNS-identified priorities:

- Are SFAs implementing the "Buy American" provision?
- Do SFAs maintain excess inventories of USDA commodities? For which commodities? Why?
- Do SFAs transfer commodities to other eligible agencies? Do SFAs receive donated commodities from other recipient agencies? Which agencies? Which commodities? How much?
- Do SFAs receive appropriate notification of the value of USDA-donated commodities contained in processed end-products purchased through commercial distributors?
- How are commodities delivered to SFAs? Do SFAs receive appropriate notification about availability and distribution of commodities?
- How do SFA Managers feel about communication between local agencies and State Distributing Agents and the overall performance of the FDP? Have communications and/or overall performance improved over the past several years?

DATA AND VARIABLES

Information on SFA-level operations was gathered through the Year Two SFA Manager Telephone Survey. SFA managers were asked about their knowledge of the Buy American provision and procedures used to ensure compliance. They were also asked if

they currently maintain more than a six-month inventory of donated commodities. If so, they were asked to identify the commodities, indicate the reasons for the excess supplies and whether they made any attempt to transfer excess inventories to other eligible recipient agencies.

The survey also included questions about SFA use of commodity processing and how the value of commodities used was reported by the vendor. In addition, the survey included extensive questions about methods used to deliver USDA commodities to SFAs and SFA Managers' receipt of appropriate notification about availability and delivery of donated commodities. Finally, the survey asked SFA managers about their overall impressions of FDP operations in their respective State and their satisfaction with communications from their State Distributing Agent.

BUY AMERICAN PROVISION

The Commodity Distribution Reform Act of 1987 required that, whenever possible, school districts purchase food products that are produced or manufactured in the United States. Data from this study indicates, however, that this provision has not been well communicated to SFA managers (Exhibit IV.1). Nearly half of those queried were not aware of this requirement, with small and private SFAs particularly unlikely to know about this provision. Although this does not mean that SFAs are not purchasing food items made with American agricultural products, it indicates that more needs to be done to emphasize the importance of the "Buy American" provision and the Agency's commitment to this policy.

EXCESS COMMODITY INVENTORIES AND COMMODITY TRANSFERS

Excess Inventories

The extent to which SFAs are maintaining excessive inventories of USDA-donated commodities has been a long-term area of concern both for FNS and the recipient agencies. Storing large inventories can impose substantial costs on SFAs and other recipients of donated foods, and can increase the likelihood of spoilage and waste.

As shown in Exhibit IV.2, about one-fourth of all SFAs were carrying more than a six-month supply of at least one USDA-donated commodity during SY 1989-90. Such excessive supplies were more likely to be found in public SFAs, large SFAs, SFAs that serve 59 percent or fewer free or reduced-price lunches, and those participating in both the NSLP and the SBP.

Among those SFAs reporting donated commodity inventories in excess of a six-month supply, seven commodities accounted for two-thirds of the positive responses: flour (20 percent of the SFAs with over six-month inventories), peanut butter (11 percent), butter (11 percent), dates/raisins/figs (7 percent),

Exhibit IV.1

SFA Managers' Awareness of the
"Buy American" Provision
(SY 1989-90)

	Awareness of Buy American Provision		Total SFAs (Weighted)
	Yes	No	
TOTAL SAMPLE	55%	45%	14,065
Type of SFA			
Public	59*	41	11,115
Private	38	62	2,950
Participation in SBP			
NSLP and SBP	63*	37	4,398
NSLP only	51	49	9,667
SFA Size			
Small (1-999)	42*	58	6,456
Medium (1,000-4,999)	61*	39	5,832
Large (5,000+)‡	81	19	1,777
SFA Poverty Level			
60% or more F&R	53	47	1,880
0-59% F&R	55	45	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

Exhibit IV.2

Proportion of SFAs With More Than
Six-Month Supply of Donated Commodities
(SY 1989-90)

	More Than Six-Month Supply?			Total SFAs
	Yes	No	Don't Know	(Weighted)
TOTAL SAMPLE	26%	71%	3%	14,065
Type of SFA				
Public	29*	68	3	11,115
Private	15	80	5	2,950
Participation in SBP				
NSLP and SBP	33*	64	3	4,398
NSLP only	23	74	3	9,667
SFA Size				
Small (1-999)	25*	71	4	6,456
Medium (1,000-4,999)	26*	71	2	5,832
Large (5,000+)‡	32	65	3	1,777
SFA Poverty Level				
60% or more F&R	22*	75	2	1,880
0-59% F&R	28	69	3	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

honey (6 percent), oil (6 percent), and nuts (5 percent). Other frequently reported commodities were cornmeal, cheese, and shortening. The majority of excess inventories, then, are a combination of Group B, Section 416 entitlement commodities (flour, peanut butter, oils, peanut granules, roasted peanuts and cheese), and Group B bonus commodities (butter, cornmeal, flour).

When asked why they were storing such large inventories, almost four out of ten SFAs reported that the particular commodity either was unpopular with the children or was currently being "under-utilized" in the preparation of school meals. The commodities most often cited in these two categories were, in descending order, oats/oatmeal, canned pork, vegetables, dates/raisins/figs, prunes, rice, honey, beans, and cornmeal. Efforts by FNS and State Distributing Agents to assist SFA managers find creative ways to use these commodities might help reduce the incidence of excess supplies. Other reasons given for the excess inventories included: commodity was delivered too late (19 percent) -- most often associated with bread products, fish, and fruit juice; intentional decision by SFA manager (19 percent) -- most often associated with cheese, canned fruit, oil, beef, nuts, butter, and shortening; and, an error in ordering (6 percent) -- most often associated with dried eggs, poultry, peanut butter, cornmeal, shortening and flour.

Commodity Transfers

One way that SFAs can avoid excess inventories is by transferring commodities to eligible public or private, non-profit organizations providing food assistance to low-income groups and individuals (e.g., food banks, homeless shelters, soup kitchens, etc.). In addition, SFAs are eligible to receive excess commodities from these agencies. As shown in Exhibits IV.3 and IV.4, however, this transfer mechanism is rarely used, with only five percent of SFAs transferring donated commodities to another recipient agency, and about six percent receiving such transfers during SY 1989-90.1/ In most instances the amount of these transfers was generally small with about two-thirds being valued under $500.

With regard to the transfer of commodities from SFAs, managers were asked to identify recipient agencies, other than schools, to which they shipped excess inventories of donated commodities. The most frequently identified recipient agencies were prisons/jails, charitable organizations, camps for children, and programs for senior citizens (Exhibit IV.5). With

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1/Transfer of donated commodities may also occur between schools in a given school district, or between separate school districts. This series of questions asked SFA managers specifically about commodity transfers to and from non-school-related agencies.

Exhibit IV.3

Proportion of SFAs that Transfered Excess
Donated Commodities to Other Eligible Agencies
(SY 1989-90)

	Transferred Excess Donated Commodities?			Total SFAs
	Yes	No	Don't Know	(Weighted)
TOTAL SAMPLE	5%	94%	1%	14,065
Type of SFA				
Public	6*	93	1	11,115
Private	1	99	0	2,950
Participation in SBP				
NSLP and SBP	8*	92	0	4,398
NSLP only	4	95	1	9,667
SFA Size				
Small (1-999)	4*	95	1	6,456
Medium (1,000-4,999)	5	94	1	5,832
Large (5,000+)‡	8	92	0	1,777
SFA Poverty Level				
60% or more F&R	2*	97	1	1,880
0-59% F&R	6	94	1	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year SFA Manager Survey.

Exhibit IV.4

Proportion of SFAs that Received Excess
Donated Commodities from Other Eligible Agencies
(SY 1989-90)

	Received Excess Donated Commodities?			Total SFAs
	Yes	No	Don't Know	(Weighted)
TOTAL SAMPLE	6%	93%	1%	14,065
Type of SFA				
Public	7*	92	1	11,115
Private	2	98	0	2,950
Participation in SBP				
NSLP and SBP	5	94	1	4,398
NSLP only	6	93	1	9,667
SFA Size				
Small (1-999)	3*	96	1	6,456
Medium (1,000-4,999)	7	92	1	5,832
Large (5,000+)‡	9	89	2	1,777
SFA Poverty Level				
60% or more F&R	6	94	1	1,880
0-59% F&R	6	93	1	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

Exhibit IV.5

Recipients and Sources of Transferred Commodities
(SY 1989-90)

Type of Agency	Commodities Transferred To (Percent)[1]	Commodities Received From (Percent)[1]
Jails/Prisons	30.4%	6.7%
Charitable Organizations	27.2	46.8
Camps	14.4	11.9
Elderly/Senior Citizen Programs	13.1	4.1
Other Government Agencies	9.1	8.8
Day Care Centers	0.3	12.6
Other	4.4	1.0
Don't Know	1.0	8.2
Total SFAs (Weighted)	712	803

[1]Ns and percentages reflect those SFAs that either transferred or received excess donated commodities.

Data Source: Year Two SFA Manager Survey.

regard to the transfer of commodities to SFAs, charitable organizations, day care centers and camps for children are the most likely sources.

COMMODITY PROCESSING

As shown in Exhibit IV.6, nearly half of all SFAs purchased from a commercial distributor at least one processed end-product made with USDA-donated commodities during SY 1989-90. Large SFAs, public SFAs, SFAs that participate in both the NSLP and SBP, and low-poverty SFAs were more likely to make such purchases than other SFAs.

SFA use of processed end-products has raised some concern that SFAs may be subjected to fraudulent practices, particularly the improper crediting of the commodity value toward the price of the end-product. Beginning in SY 1989-90, program regulations require that processors indicate, on the invoice, the value of USDA-donated commodities contained in processed end-products. When SFA managers were asked, in the spring of 1990, how often vendors reported the value of donated commodities on the invoice, 45 percent of SFA managers reported receiving this information "all of the time." This appears to be a significant improvement from Year One of the study, when 99 percent of SFA managers were unable to answer questions related to the value of donated commodities in processed end-products.1/

Still, about one in four managers reported that they never received this information on their invoices. About 38 percent of these reported receiving information on discounts (or rebates) from their vendors through some other means, 17 percent from "rebate forms," and 11 percent received the information directly from their State Distributing Agent.

DELIVERY SYSTEMS

In recent years, FNS has made substantial efforts to develop new initiatives to both reduce the cost of commodity distribution and improve the quality of services received by SFAs. In particular, these efforts have focused on using commercial distributors for this purpose by combining the distribution of commodities with deliveries of wholesale food purchases.

As shown in Exhibit IV.7, SFAs have taken advantage of such delivery systems. Fifty-five percent of SFAs receive donated commodities from commercial distributors either alone or along

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1/St.Pierre, R., M.K. Fox, M. Puma, F. Glantz and M. Moss. Child Nutrition Program Operations Study: First Year Report. Cambridge, MA: Abt Associates, 1991.

Exhibit IV.6

Proportion of SFAs Purchasing Processed End Products Made With USDA Commodities (SY 1989-90)

	Purchase of Processed End Products			Total SFAs (Weighted)
	Yes	No	Don't Know	
TOTAL SAMPLE	46%	52%	2%	14,065
Type of SFA				
Public	53*	44	3	11,115
Private	18	81	1	2,950
Participation in SBP				
NSLP and SBP	55*	44	1	4,398
NSLP only	42	55	3	9,667
SFA Size				
Small (1-999)	26*	70	4	6,456
Medium (1,000-4,999)	59*	40	1	5,832
Large (5,000+)‡	74	25	0	1,777
SFA Poverty Level				
60% or more F&R	42*	55	4	1,880
0-59% F&R	46	52	2	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

Exhibit IV.7

Proportion of SFAs Using Different Methods
of Delivering USDA Donated Commodities
(SY 1989-90)

	Public SFAs	Private SFAs	All SFAs	Total SFAs (Weighted)
Commercial distribution where USDA commodities are delivered by a commercial distributor to school districts directly as part of a delivery of commercially purchased foods.	25%	27%	25%	3,560
Commercial distribution where USDA commodities are delivered by a commercial distributor to school districts but are not combined with the delivery of commercially purchased foods.	32	23	30	4,220
Commercial carrier arranged by the State where USDA commodities processed end products are delivered by a commercial trucking firm to school districts.	17	9	16	2,192
State-operated distribution where USDA commodities are delivered by a State-operated vehicle to school districts.	7	14	8	1,158
Direct delivery of USDA commodities to school districts from USDA suppliers arranged for by the State Distributing Agency.	14	9	13	1,836
Recipient Agency pick-up of USDA commodities from a State-owned or contracted central warehouse or regional distribution point.	28	25	28	3,881
Other type of distribution system.	3	10	5	651

Columns total more than 100 percent because of multiple responses.

Data Source: Year Two SFA Manager Survey.

with purchased food items. Another 37 percent receive donated commodities through a system arranged by their State Distributing Agency -- either using a State-owned vehicle or through a commercial carrier -- and 28 percent use their own vehicles to pick up commodities from State-owned or contracted warehouses. Public SFAs are more likely than private SFAs to use commercial distributors, while private SFAs are more likely than public SFAs to have commodities delivered to them by State-operated vehicles.

As Exhibit IV.8 illustrates, USDA commodities are most often delivered to individual schools or food preparation sites within an SFA (53 percent) as opposed to a central district warehouse (34 percent).

STATE AGENCY-LOCAL SFA INTERACTIONS

In previous years, some SFAs have expressed dissatisfaction with the level of services received from their respective State Distributing Agents, particularly with regard to advance notification about the types and quantities of commodities to be received by the SFA and the schedule of shipments or deliveries. As shown in Exhibit IV.9, such concerns seem to have reached a very modest level. In the vast majority of instances, SFAs are well informed about delivery schedules, and the amounts and types of commodities to be received. In fact, when asked about their opinion of the FDP in their respective States, most responded positively. Seventy-eight percent of SFA managers rated communications with State Distributing Agents as either excellent or very good, and 71 percent rated the overall performance of the commodity distribution system (in SY 1989-90) as excellent or very good (Exhibit IV.10). About one-third of SFAs believe the program has improved in recent years and that communications with their State Distributing Agent have also improved (Exhibit IV.11). Only three percent noted any worsening in recent years.

Exhibit IV.8

Commodity Delivery Sites within Local School Districts
(SY 1989-90)

	Percent of SFAs	Total SFAs (weighted)
Individual Schools/ Food Preparation Sites	53%	7,479
Central Warehouse	34	4,815
Both	8	1,075
Don't Know	3	370
Other	2	326

Data Source: Year Two SFA Manager Survey

Exhibit IV.9

SFA Manager Knowledge of Commodity
Delivery or Pick-Up
(SY 1989-90)

	Always	Most of the Time	Sometimes	Never	Don't Know or Not Applicable
Knowledge of when commodities are delivered or available for pick-up	75%	15%	4%	3%	4%
Knowledge of types and quantities of commodities to be received or picked up	74	18	4	2	3
Advance knowledge of changes in delivery or distribution schedules	57	22	6	5	10
Frequency with which bill of lading or invoice correctly reflects commodities received	65	29	0	0	5

Data Source: Year Two SFA Manager Survey.

Exhibit IV.10

SFA Managers' Opinions about FDP Operations in Their States (SY 1989-90)

	Excellent	Very Good	Satisfactory	Fair	Poor	Don't Know or Not Applicable
How would you rate the overall communications between you and your state Distributing Agent?	35%	43%	13%	2%	2%	4%
How would you rate the overall performance of the commodity distribution system this year?1/	27	44	16	7	1	4

1/Respondents were instructed to focus on the effectiveness of the distribution system rather than the availability of commodities when answering this question.

Data Source: Year Two SFA Manager Survey.

Exhibit IV.11

SFA Managers' Rating of FDP
Operations in Their States
as Compared with Previous Years
(SY 1989-90)

	Much Better	Better	About the Same	Worse	Much Worse	Don't Know or Not Applicable
Have communications between you and your State Distributing Agenct changed in the past few years?	14%	24%	50%	1%	1%	10%
How would you rate the overall performance of the commodity distribution system this year as compared with previous years?1/	14	17	54	2	1	12

1/Respondents were instructed to focus on the effectiveness of the distribution system rather than the availability of commodities when answering this question.

Data Source: Year Two SFA Manager Survey.

V. CHILD NUTRITION LABELING

BACKGROUND

Child Nutrition (CN) Labeling is a voluntary technical assistance program that FNS has operated since the early 1970s. Formal regulations for the program were published in 1984.1/ The intent of these regulations was to establish product eligibility, establish a warranty against audit claims for products that are CN labeled, and to authorize the Secretary of Agriculture to issue guidance materials on the CN Labeling Program.

The CN Labeling Program allows manufacturers, with appropriate Federal inspection, to make claims about the contribution of their products to NSLP and SBP meal pattern requirements. The program is limited to three general types of products: juice drinks, juice drink products, and foods which contribute to the meat/meat alternate component of the meal pattern. Under the program, the manufacturer's recipe or product formulation is reviewed to determine the contribution a serving of commercially prepared product makes to meal pattern requirements, and the CN label statement is reviewed to ensure its accuracy. Exhibit V.1 illustrates what a typical CN label includes.

The CN Labeling Program is popular among SFA personnel and food industry representatives. FNS has several concerns, however, and requires data that will provide a better understanding of how the program currently operates in SFAs. Such data will facilitate FNS' administration of the program, provide insight into the impact of CN labels on food costs, food purchases and competition for SFA business, and allow Agency staff to respond to external inquiries regarding CN labels.

KEY RESEARCH ISSUES

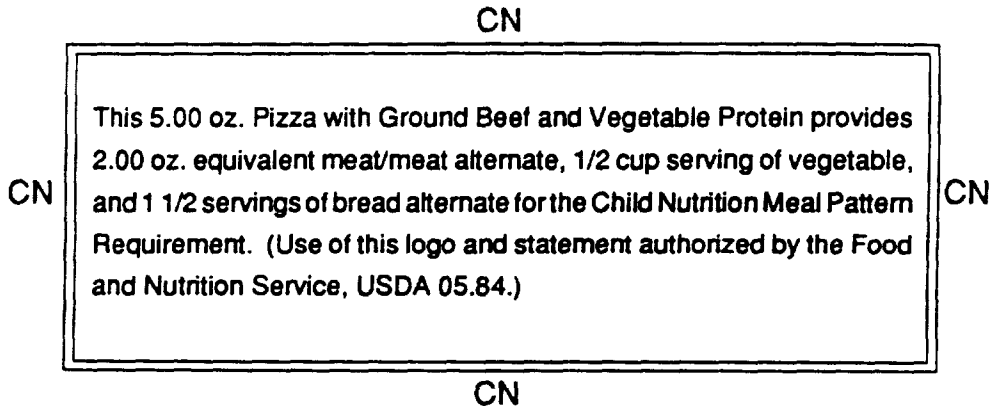
Specific research issues for this portion of the study included:

- What proportion of SFA managers are aware of the CN Labeling Program?
- Do SFAs require CN labels for eligible products? Does the requirement for CN labels vary for different types of products?

1/ 7 CFR Part 210, Appendix C.

Exhibit V.1

Sample CN Label[1]



[1]Source: "The USDA Child Nutrition Labeling Program." A brochure developed by the National Frozen Food Association and USDA, Food and Nutrition Service, Nutrition and Technical Services Division

- To what extent do SFAs include CN Labeling as a part of bid specifications for food purchasing?
- How do SFA managers feel about the CN Labeling Program--what are the perceived advantages and disadvantages?
- How important is the CN Labeling Program to SFA managers?

DATA AND VARIABLES

Data to address the research issues outlined above were collected in the Year Two SFA Manager Survey. Answers were tabulated and appropriate descriptive statistics summarizing the results are presented in the following section.

CN LABELING

SFA Managers' Awareness of CN Labeling

Although CN Labeling has been in existence since the early 1970s, and formal regulations were issued in 1984, it appears that more than one-third of SFA managers are not aware of the program (Exhibit V.2). Managers of public SFAs, SFAs offering both the NSLP and SBP, and large SFAs are most likely to be aware of the program. Managers of large SFAs appear to be the most familiar with CN Labeling (90 percent), while managers in private SFAs appear to be the least familiar with the program; only 37 percent of these managers were aware of CN Labeling.

Proportion of SFAs Requiring CN Labels

SFA managers familiar with CN Labeling were asked whether they required CN labels for any eligible products purchased in SY 1989-90. If CN labels were required, managers were asked specifically about requirements for different types of products: meat or poultry, seafood, non-meat products (e.g., eggs, cheese, beans, etc.), and juice drinks.

Approximately two-thirds of the the SFA managers familiar with the CN Labeling Program required CN labels for one or more eligible food products in SY 1989-90 (Exhibit V.3). There is, however, variation among subgroups of SFAs. For example, the proportion of public SFAs that require CN Labeling is significantly higher than for private SFAs (68 percent vs. 44 percent). Similarly, requirements for CN labels are significantly more common in SFAs that offer the breakfast program and in SFAs that serve 60 percent or more free or reduced-price lunches.

Among SFAs that do require CN labels, 94 percent require labels for meat or poultry products and 80 percent require CN labels for seafood products (Exhibit V.4). CN labels are required less frequently for non-meat products and juice drinks. Less than half of the SFAs that require CN labels require them for these products.

Exhibit V.2

SFA Managers' Awareness of CN Labeling
(SY 1989-90)

	SFA Manager Aware of CN Labeling?		Total SFAs (Weighted)
	Yes	No	
TOTAL SAMPLE	62%	38%	14,065
Type of SFA			
Public	68*	32	11,115
Private	37	63	2,950
Participation in SBP			
NSLP and SBP	79*	21	4,398
NSLP only	54	46	9,667
SFA Size			
Small (1-999)	45*	55	6,456
Medium (1,000-4,999)	71*	29	5,832
Large (5,000+)‡	90	10	1,777
SFA Poverty Level			
60% or more F&R	67	33	1,880
0-59% F&R	63	37	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

Exhibit V.3

Proportion of SFAs That Are Aware of CN Labeling and That Require CN Labeling for One or More Foods Products (SY 1989-90)

	Require CN Label?			
	Yes	No	Don't Know	Total SFAs (Weighted)
TOTAL SAMPLE	65%	33%	2%	8,669
Type of SFA				
Public	68*	30	2	7,578
Private	44	56	0	1,091
Participation in SBP				
NSLP and SBP	76*	24	0	3,467
NSLP	58	40	3	5,202
SFA Size				
Small (1-999)	68	27	5	2,927
Medium (1,000-4,999)	62	38	0	4,148
Large (5,000+)‡	66	34	0	1,594
Poverty Level of SFA				
60% or more F&R	76*	24	0	1,258
0-59% F&R	62	36	2	7,160

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Ns and percentages reflect SFA managers that had knowledge of CN Labeling.

Data Source: Year Two SFA Manager Survey.

Exhibit V.4

Proportion of SFAs Requiring CN Labels
for Various Food Items
(SY 1989-90)

	Proportion of SFAs Requiring CN Labels for:				
	Meat or Poultry	Seafood	Non-Meat Products	Juice Drinks	Total SFAs (Weighted)
TOTAL SAMPLE	94%	80%	42%	47%	5,627
Type of SFA					
Public	94	79	42	50	5,151
Private	99	92	44	23	476
Participation in SBP					
NSLP & SBP	98	86	33	53	2,622
NSLP	91	76	50	42	3,005
SFA Size					
Small (1-999)	90	87	60	49	2,001
Medium (1,000-4,999)	96	75	36	49	2,572
Large (5,000+)	97	82	24	38	1,054
SFA Poverty Level					
60% or more F&R	98	92	57	57	950
0-59% F&R	93	79	39	46	4,469

Ns and percentages reflect SFAs where manager had knowledge of CN Labeling and that required CN Labeling for at least one product during SY 1989-90.

Data Source: Year Two SFA Manager Survey.

SFA Managers' Opinions About CN Labeling

SFA managers' opinions about CN Labeling were assessed in several different ways. First, respondents were read a list of statements about potential positive effects of the CN Labeling Program, and were asked to indicate whether they felt the statement was true or false. Managers were also asked to list specific advantages (in addition to those identified in the preceding true/false statements) and disadvantages of using CN-labeled foods. Next, managers were asked to rate the overall importance of CN Labeling. Finally, SFA managers were asked to identify the specific events or individuals who most influenced their overall opinion about CN Labeling.

Exhibit V.5 summarizes SFA managers' opinions about potential benefits of CN Labeling. The most consistently held opinion about the benefits of CN Labeling is that it ensures that processed food products will meet USDA meal pattern requirements --90 percent of SFA managers agreed with this contention. SFA managers feel almost as confident about the ability of the CN Labeling Program to ensure standard food portions--81 percent of respondents agreed with this statement. Both of these opinions match the intent of the CN labeling program.

While most SFA managers agree that CN labels help ensure that processed food products meet program meal component and portion size requirements, many do not believe that the program has any direct impact on food quality. This is consistant with the intent of the program, which focuses strictly on compliance with NSLP meal guidelines, and does not address issues of quality or price. Given this background, it is surprising that half of the SFA managers agreed with the statement that CN labels ensure higher food quality and that 38 percent agreed that CN-labeled products are nutritionally superior to other products.

Fewer than half of SFA managers familiar with CN Labeling feel that the program has had a significant impact on food purchasing or food costs. Forty-two percent of SFA managers agreed that CN Labeling allows many vendors to bid for SFA business. However, only 22 percent of managers agreed that CN Labeling allowed them to purchase foods at lower prices. Once again, the program makes no claim that it will lead to changes in food prices.

SFA managers were asked to identify other specific benefits that they attribute to the CN Labeling Program mentioned (i.e., in addition to the potential benefits mentioned above), but none was identified. Managers were also given an opportunity to identify disadvantages to the use of CN labels. Thirty-five percent of the SFA managers who were aware of CN Labeling identified at least one disadvantage. The disadvantage identified by most SFA managers is that CN-labeled products are more expensive (42 percent of those citing any disadvantages--about 14 percent of all respondents) (Exhibit V.6). Moreover, 22 percent feel that the program limits (rather than expands) the choice of vendors available to them. Eleven percent of

Exhibit V.5

SFA Managers' Opinions About Potential
Benefits of CN Labeling
(SY 1989-90)

Potential Benefit	True	False	Don't Know	
Ensures that products meet meal pattern requirements	90%	9%	1%	
Ensures standard portions	81	15	4	
Ensures higher quality	50	47	3	
Allows many vendors to bid for SFA business	42	45	12	
CN-labeled products are nutritionally better than others	38	55	8	
Allows SFAs to purchase foods at lower prices	22	71	7	
Total SFAs (Weighted)				8,669

Ns and percentages reflect SFA managers that had knowledge of CN Labeling.

Data Source: Year Two SFA Manager Survey.

Exhibit V.6

Disadvantages of CN Labeling Identified by SFA Managers
(SY 1989-90)

Disadvantages	Proportion of SFA Managers
More Expensive	42%
Limits Choice of Vendors	22
No Assurance of Quality/Nutrition	11
Hard to Get/Not Available	9
Other	16
Total SFAs (Weighted)	3,410

Ns and percentages reflect SFA managers that had knowledge of CN Labeling and identified one or more disadvantage.

Totals to more than 100 percent because respondents could list more than one disadvantage.

Data Source: Year Two SFA Manager Survey.

those who identified specific disadvantages cited the fact that CN labels, in and of themselves, offer no guarantee of overall food or nutritional quality. A unique perspective on CN-labeled foods that emerged from this line of questioning is that some SFA managers (9 percent) feel that CN-labeled products are not readily available or are "hard to get."

After having the opportunity to discuss the advantages and disadvantages of CN Labeling, SFA managers were asked to evaluate the overall importance of the program to their SFA. Overall, almost two-thirds of SFA managers rated the program as very important or important (Exhibit V.7).

Within SFA subgroups, responses were quite variable. Among SFAs that require CN labels, public and private SFAs view the program quite differently. Almost one-quarter of private SFA managers feel that the program is not important to their district, compared to only 7 percent of public SFA managers. Similarly, while 42 percent of the SFAs that participate in both the NSLP and SBP rated the program as very important, less than one quarter of the managers of NSLP-only SFAs felt the same way. Fourteen percent of these (NSLP-only) managers rated the program as not important, compared to three percent of managers in SFAs that participate in the SBP. Managers of high-poverty SFAs, as a group, appear to have the most favorable opinion of the CN Labeling Program. Fifty-three percent of these managers rated the program as very important, and only three percent feel that it is unimportant.

Finally, in order to understand how SFA managers' opinions may have been affected by external forces, managers were asked to identify the single factor (or individual(s)) that most influenced their opinions about CN Labeling. As Exhibit V.8. illustrates, the two primary factors influencing SFA managers' opinions are personal experience (39 percent) and comments from their respective State Child Nutrition Directors (33 percent).

Exhibit V.7

SFA Managers' Opinions About the
Importance of CN Labeling
(SY 1989-90)

How important is the CN Labeling Program to your district?

	Very Important	Important	Somewhat Important	Not Important	Total SFAs (Weighted)
TOTAL SAMPLE	30%	32%	29%	9%	8,669
Type of SFA					
Public	32	31	29	7	7,578
Private	16	37	23	24	1,091
Participation in SBP					
NSLP and SBP	42	27	28	3	5,202
NSLP only	22	35	29	14	3,467
SFA Size					
Small (1-999)	34	32	20	14	2,927
Medium (1,000-4,999)	27	30	35	8	4,148
Large (5,000+)	30	37	27	6	1,594
Poverty Level of SFA					
60% or more F&R	53	16	28	3	1,258
0-59% F&R	26	34	29	11	7,160

Ns and percentages reflect SFA managers that had knowledge of CN Labeling.

Data Source: Year Two SFA Manager Survey.

Exhibit V.8

Factors Influencing SFA Managers' Opinions About CN Labeling (SY1989-90)

Factor	Proportion of SFA Managers
Direct personal experience	39%
Comments from State Child Nutrition Director	33
Comments by food manufacturers or distributors	11
Comments from other school personnel	10
Don't Know	2
Other	4
Total SFAs (Weighted)	8,669

Ns and percentages reflect SFA managers that had knowledge of CN Labeling.

Data Source: Year Two SFA Manager Survey.

VI. TECHNICAL ASSISTANCE

BACKGROUND

FNS provides technical materials to SFAs as a means of ensuring that programs operate effectively and efficiently, that they comply with Federal regulations and policies, and that nutritious, high-quality meals are served to school children. FNS develops technical assistance materials and, through it's Regional Offices (FNSROs), provides technical assistance to State Agencies. State Agencies are, in turn, charged with providing technical and managerial assistance to local SFAs.

Year One of the Child Nutrition Program Operations Study included a detailed survey of the training and technical assistance currently being provided to SFAs as well as the areas in which SFAs perceive technical assistance needs. This information will be used by FNS program operations personnel in determining how to deploy the limited resources available in this area.

In the Year Two Survey, a limited number of items were included specifically to obtain feedback from SFA Managers on recent commodity-related technical assistance materials.

KEY RESEARCH ISSUES

The specific Year Two research questions related to technical assistance include:

- Have SFAs received technical assistance materials from FNS?
- Have SFAs found these technical assistance materials to be useful?

SFA Managers were queried about four specific materials:

- the quarterly Commodity Foods newsletter;
- Facts About USDA Commodities (a set of fact sheets providing storage, handling, preparation and cooking information for each of the 70 commodity foods purchased by USDA);
- USDA Quantity Recipes for School Food Service; and

- Nutritive Value of USDA-Donated Commodities, a booklet providing detailed information on the nutrient composition of USDA Commodities.

DATA AND VARIABLES

Data were collected from SFA Managers through the Year Two SFA Manager Survey. Responses were weighted and tabulated. T-tests were performed when appropriate to assess differences among the various subgroups of SFAs.

COMMODITY FOODS NEWSLETTER

USDA recently began mailing the quarterly Commodity Foods newsletter to all participating SFAs to keep them appraised of developments in the Food Donation Program. SFA managers were asked whether anyone in their school district has been receiving the newsletter. Overall, two-thirds of SFA managers responded affirmatively (Exhibit VI.1). Approximately one-third of SFAs, however, may not be receiving the newsletter. Twenty-one percent of the respondents indicated that no one in their district received the newsletter, and 13 percent did not know whether anyone received it. This pattern was fairly consistent across the various SFA subgroups, however, SFAs that participate in both the NSLP and SBP were more likely to report not receiving the newsletter than SFAs that participate in only the NSLP.

SFAs managers were asked whether they had any specific suggestions to offer for improving the newsletter. Only 10 percent of those who receive the newsletter had any specific suggestions to offer. The suggestions mentioned most frequently included: (1) print the newsletter more frequently; respondents suggested a monthly newsletter, (2) include more recipes that show how to use commodity foods, particularly the more "unusual" or "obscure" foods like dried figs and dates, and (3) use a smaller, easier-to-read format (several managers suggested an 8 1/2" x 11" magazine-style format rather than the current newspaper layout).

OTHER TECHNICAL ASSISTANCE PUBLICATIONS

Facts About USDA Commodities

This publication, which includes fact sheets providing storage, handling, preparation and cooking information for each of the 70 commodities purchased by USDA, was produced by FNS and made available to SFAs through their respective State Agencies. Sixty-eight percent of SFA managers indicated that they, or someone in their district, had received this publication (Exhibit VI.2). Private SFAs were less likely to have received the publication than public SFAs (61 percent vs. 70 percent, respectively).

Exhibit VI.1

SFA's Receipt of Commodity Foods Newsletter
(SY 1989-90)

	SFA Received Commodity Foods Newsletter			Total SFAs (Weighted)
	Yes	No	Don't Know	
TOTAL SAMPLE	66%	21%	13%	14,065
Type of SFA				
Public	65	22	13	11,115
Private	67	19	14	2,950
Participation in SBP				
NSLP and SBP	61*	29	11	4,398
NSLP only	68	18	14	9,667
SFA Size				
Small (1-999)	67	17	16	6,456
Medium (1,000-4,999)	64	26	10	5,832
Large (5,000)‡	70	20	10	1,777
SFA Poverty Level				
60% or more F&R	63	28	8	1,880
0-59% F&R	65	21	14	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

Exhibit VI.2

SFA's Receipt of Facts About USDA Commodities
(SY 1989-90)

	SFA Received Facts About USDA Commodities			Total SFAs (Weighted)
	Yes	No	Don't Know	
TOTAL SAMPLE	68%	19%	13%	14,065
Type of SFA				
Public	70*	15	15	11,115
Private	61	31	8	2,950
Participation in SBP				
NSLP and SBP	67	18	15	4,398
NSLP only	69	19	12	9,667
SFA Size				
Small (1-999)	65	20	15	6,456
Medium (1,000-4,999)	70	17	12	5,832
Large (5,000)‡	70	20	10	1,777
SFA Poverty Level				
60% or more F&R	71	20	9	1,880
0-59% F&R	67	19	14	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

Managers who reported receiving Facts About USDA Commodities were asked their opinion about its usefulness; their responses are summarized in Exhibit VI.3. Ninety percent or more of managers in all types of SFAs felt that the material was either somewhat useful or very useful. The pattern of response was similar across the various SFA subgroups. It is worth noting, however, that a greater proportion of managers in large SFAs (the heaviest users of commodity foods) thought Facts About USDA Commodities was very useful (41 percent of large SFAs vs. 31-33 percent in small and medium-size SFAs).

USDA Quantity Recipes for School Food Service

This package of standardized, quantity recipes that make use of commodity foods was recently updated by FNS and sent directly to all SFAs. Approximately three-quarters or more of managers in all types of SFAs reported that the recipes had been received (Exhibit VI.4). However, managers in 22 percent of SFAs either did not receive the recipes or did not know whether they had been received. Managers of SFAs that participate in the SBP, and managers of large SFAs were more likely to have received the recipe packet then managers of other SFAs.

When asked about the usefulness of the quantity recipes, managers who had received them tended to respond favorably. Fifty-eight percent of these managers felt that the recipes were very useful (Exhibit VI.5), while 36 percent felt that they were somewhat useful. As Exhibit VI.5 shows, managers of SFAs that participate in the SBP and SFAs that serve 60 percent or more free or reduced-price lunches found these recipes to be particularly useful.

Nutritive Values of USDA-Donated Commodities

This publication, which includes detailed nutrient composition information for all commodities, was sent to all State Agencies for distribution to local SFAs. Fewer SFA managers acknowledged receipt of this material than any of the three other technical assistance materials examined in this study (Exhibit VI.6). Overall, just over half (53 percent) of the SFA managers reported receiving Nutritive Values of USDA-Donated Commodities. Twenty-seven percent indicated that neither they nor anyone else in their district had received the material, and 20 percent did not know whether it had been received. There was little variation in this pattern across SFA subgroups; however, managers in SFAs that serve 60 percent or more free or reduced-price lunches were more likely to have received the recipes than managers in SFAs that serve 59 percent or fewer free or reduced-price lunches.

Again, the vast majority of managers who had received the material found it to be useful (Exhibit VI.7). Across all types of SFAs, 35 percent found the material to be very useful and 60 percent found it somewhat useful. There were some differences within SFA subgroups in terms of whether they found the information to be very useful or somewhat useful. In particular, managers of public SFAs, SFAs that participate in the SBP, large SFAs, and SFAs that serve 60 percent or more free or reduced-price lunches rated the material as "very useful" more often than managers of other types of SFAs.

Exhibit VI.3

SFA Managers' Opinions About Usefulness of
Facts About USDA Commodities
(SY 1989-90)

	Very Useful	Somewhat Useful	Not Useful	Don't Know	Total SFAs (Weighted)
TOTAL SAMPLE	33%	63%	2%	2%	9,578
Type of SFA					
Public	33	64	3	0	7,770
Private	32	59	1	8	1,808
Participation in SBP					
NSLP and SBP	36	63	2	0	2,937
NSLP only	32	63	3	2	6,641
SFA Size					
Small (1-999)	31	63	3	3	4,224
Medium (1,000-4,999)	33	65	2	0	4,111
Large (5,000)	41	56	3	0	1,243
SFA Poverty Level					
60% or more F&R	36	59	5	0	1,344
0-59% F&R	34	62	2	2	7,565

Ns and percentages reflect SFAs that reported receiving Facts About USDA Commodities.

Note: None of the between-group differences is statistically significant.

Data Source: Year Two SFA Manager Survey.

Exhibit VI.4

SFA's Receipt of USDA Quantity Recipes for School Food Service
(SY 1989-90)

	SFA Received USDA Quantity Recipes for School Food Service			Total SFAs (Weighted)
	Yes	No	Don't Know	
TOTAL SAMPLE	78%	11%	11%	14,065
Type of SFA				
Public	80	11	10	11,115
Private	72	13	14	2,950
Participation in SBP				
NSLP and SBP	85*	9	6	4,398
NSLP only	75	13	13	9,667
SFA Size				
Small (1-999)	76*	10	14	6,456
Medium (1,000-4,999)	77*	13	9	5,832
Large (5,000)‡	87	11	2	1,777
SFA Poverty Level				
60% or more F&R	80	10	10	1,180
0-59% F&R	77	12	11	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

Exhibit VI.5

SFA Managers' Opinions About Usefulness of USDA Quantity Recipes For School Food Service
(SY 1989-90)

	Very Useful	Somewhat Useful	Not Useful	Total SFAs (Weighted)
TOTAL SAMPLE	58%	36%	5%	10,961
Type of SFA				
Public	58	37	5	8,837
Private	61	33	5	2,125
Participation in SBP				
NSLP and SBP	64*	32	4	3,742
NSLP only	55	39	6	7,220
SFA Size				
Small (1-999)	60	34	6	4,914
Medium (1,000-4,999)	57	38	4	4,509
Large (5,000)‡	57	37	6	1,539
SFA Poverty Level				
60% or more F&R	64*	27	8	1,499
0-59% F&R	58	37	5	8,740

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Ns and percentages reflect SFAs that reported receiving USDA Quantity Recipes for School Food Service.

Data Source: Year Two SFA Manager Survey.

Exhibit VI.6

SFA's Receipt of Nutritive Values
of USDA-Donated Commodities
(SY 1989-90)

	SFA Received Nutritive Values of USDA-Donated Commodities			
	Yes	No	Don't Know	Total SFAs (Weighted)
TOTAL SAMPLE	53%	27%	20%	14,056
Type of SFA				
Public	53	27	20	11,115
Private	51	28	21	2,950
Participation in SBP				
NSLP and SBP	53	28	19	4,398
NSLP only	53	27	20	9,667
SFA Size				
Small (1-999)	51	25	24	6,456
Medium (1,000-4,999)	54	29	17	5,832
Large (5,000)‡	55	31	15	1,777
SFA Poverty Level				
60% or more F&R	58*	30	13	1,880
0-59% F&R	51	28	21	11,373

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Data Source: Year Two SFA Manager Survey.

Exhibit VI.7

SFA Managers' Opinions About Usefulness of
Nutritive Values of USDA-Donated Commodities
(SY 1989-90)

	Very Useful	Somewhat Useful	Not Useful	Total SFAs (Weighted)
TOTAL SAMPLE	35%	60%	4%	7,393
Type of SFA				
Public	38*	58	4	5,901
Private	24	69	7	1,492
Participation in SBP				
NSLP and SBP	46*	52	1	2,311
NSLP only	30	64	6	5,082
SFA Size				
Small (1-999)	29*	64	6	3,299
Medium (1,000-4,999)	36*	62	2	3,129
Large (5,000)‡	53	41	5	965
SFA Poverty Level				
60% or more F&R	50*	41	9	1,082
0-59% F&R	33	63	3	5,766

*Group difference is statistically significant at the .01 level.

‡Reference group used in comparisons: Large SFAs vs. Small SFAs; Large SFAs vs. Medium SFAs.

Ns and percentages reflect SFAs that reported receiving Nutritive Values of USDA-Donated Commodities.

Data Source: Year Two SFA Manager Survey.

PART 3:

FINDINGS FROM ON-SITE MEAL OBSERVATIONS

FOOD AND NUTRIENT COMPOSITION OF NSLP AND SBP MEALS

SUMMARY OF FINDINGS

BACKGROUND

This study examined the food and nutrient composition of NSLP and SBP meals at three levels: (1) as offered by participating schools, (2) as selected by participating students, and (3) as actually consumed by participating students. At each level, the total nutrient content was compared to the Recommended Dietary Allowances for essential nutrients. The nutrient density and fat, cholesterol and sodium content of meals was also examined.1/

Food-level analyses were also performed to answer specific research questions posed by FNS. These concerned the choices available to students participating in the NSLP and SBP (i.e., how often students have the option to choose between two or more food items within a major meal component category), the particular types of food offered to students, and the foods that students tend to select and waste most frequently. FNS was also interested in how many and which food items students select under the offer-versus-serve (OVS) option.2/ Finally, the prevalence and extent of a la carte food service was examined.

This section summarizes major findings related to the nutrient composition of NSLP and SBP meals. Chapters VII and VIII, which follow this summary, describe study procedures and findings, including the food-level analyses, in more detail. Chapter VII covers analyses of NSLP meals; SBP meals are discussed in Chapter VIII.

1/Data were collected in mid-March, 1990. Sample selection and data collection procedures are described in Chapter I and Appendix B. It should be recalled (see Chapter 1) that these data were collected in a sample of 20 SFAs which is not nationally representative. FNS is currently conducting the Special Nutrition Dietary Assessment Study which collectes similar information in a nationally representative sample of SFAs.

2/Regulations for both the NSLP and SBP stipulate a particular meal pattern that must be offered to students, including the types of food (meal components) and quantities of food. Under the OVS option, which is mandatory in middle/secondary schools and optional (at the discretion of the SFA) in elementary schools, students are permitted to refuse up to two of five NSLP meal components and one of four SBP meal components.

Nutrient Composition of NSLP Meals. Meals Offered: Program regulations state that NSLP meals should provide, on average, one-third of students' daily nutrient needs. The average lunch offered in elementary schools met this goal for 4-6 year olds and 7-10 year olds. It also met the goal for older students for all nutrients except calories (29 percent) and vitamin B_6 (28 percent) for 11-14 year old males, and iron (28 percent) for 11-14 year old females.

The average lunch offered in middle/secondary schools provided approximately one-third of the RDA for almost all nutrients for the appropriate age and sex groups. The only appreciable exceptions were calories (27 percent), vitamin B6 (27 percent), and magnesium (26 percent) for 15-18 year old males.

Program guidelines encourage schools to provide larger portions or additional servings to older students whose nutritional needs are greater. These findings reinforce the importance of that policy and suggest that schools need to be conscious of the differential needs of the students they serve. They must maintain adequate flexibility when serving meals so that older students can indeed receive the additional food they need to meet the program goal of approximately one-third of the RDA.

The average NSLP meals offered in both elementary and middle schools were high in nutritional quality and well-balanced across a number of key nutrients. The average lunch offered in elementary schools provided more calories than needed by the youngest students and fewer calories than needed by the oldest male students. The mix of foods, however, was well-selected and nutrient dense. The data suggest that the portions actually served to students could be adjusted slightly to meet their differing caloric needs, and both groups would still receive one-third of the RDA for most nutrients examined in this study. The only exceptions are vitamin B_6 for 7-10 year olds and 11-14 year old males, and iron for 11-14 year-old females. The low iron density of the average NSLP meal relative to the iron requirement for 11-14 year-old females was the most significant shortfall. The INQ score of 0.85 indicates that the target RDA for iron could not be met for this group of students with the average NSLP meal offered in elementary schools unless the RDA for calories was exceeded.

The average lunch offered in middle/secondary schools provided slightly less calories than needed by male students and more calories than needed by female students. The foods offered, however, were high enough in nutrient density that portions for each group of students could be adjusted slightly to better meet caloric needs without compromising total nutrient intake. The average lunch offered was somewhat low in nutrient density for vitamin B_6, magnesium and iron for some student groups. Again, the most significant shortfall was iron density for female students. The INQ scores of 0.86 indicate that the average NSLP

meal offered in middle/secondary schools met the RDA target for iron for these students only because it exceeded the RDA for calories.

The mean proportion of calories from fat was approximately 38 percent for the average meal offered in both elementary and middle/secondary of schools. The Dietary Guidelines recommend 30 percent or less of calories from fat.1/ The mean proportion of calories from saturated fat was approximately 15 percent for both schools; the recommended level is less than or equal to ten percent. NSLP meals were high in sodium when compared to recommendations from the National Research Council's Diet and Health report.

Meals Selected: The nutrient content of the average NSLP meals as selected did not differ significantly from the nutrient content of the average meals offered. This finding indicates that most students selected meals that included all of the components contained in the pattern NSLP meal.

In evaluating the proportion of the RDA contributed by the average NSLP meal as selected, a target range of intake was identified for each school type based on the RDAs for the groups of students included in the school population.2/ The average NSLP meal selected in both elementary and middle/secondary schools met or exceeded the target range for all nutrients examined. In some instances, the average meal contained less than one-third of the RDA for a particular nutrient for a

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1/Fat and saturated fat content are evaluated in light of the Dietary Guidelines for Americans, recommendations which are issued jointly by USDA and the U.S. Department of Health and Human Services. Cholesterol and sodium content are compared to standards from the National Research Council's publication, Diet and Health, because the Dietary Guidelines do not provide quantified goals for these nutrients. The NRC Guidelines are not endorsed by the USDA, and are included in this report solely as reference points to assist the reader in interpreting the data.

2/This approach was necessary because the average meal as selected (and consumed), as defined in this study, represents the nutrient content of the meals selected by the average student in each school averaged across five days in a selected week. The sample included children of different ages and sexes, both of which are important factors in judging nutritional adequacy. It is not possible, therefore, to identify with certainty specific groups of students who may be selecting (or consuming) meals that provide less than one-third of the RDA for a given nutrient. FNS is collecting age- and sex-specific data through the Special Nutrition Dietary Assessment Study. This issue is discussed in detail in Chapter VII.

particular group. If these students indeed consumed the "average" meal, then they would not receive one-third of the RDA for these nutrients. In the absence of actual data on how particular age- and sex-groups selected NSLP meals, however, it is not possible to determine how the meals selected by these students might differ from the "average" NSLP meal.

The nutrient density of meals as selected in both elementary and middle/secondary schools was very similar to the nutrient density of the average meals offered. This suggests that most students selected meals that included all of the NSLP meal components. Iron density for female students remained the only appreciable problem in both schools. INQ scores for iron for the average meal as selected were consistently higher than for the average meal offered (0.88 vs. 0.85 for elementary schools and 0.92 vs. 0.86 for middle/secondary schools.) This suggests that students who omitted one or more of the NSLP meal components in the meals they selected tended to include iron-rich foods and exclude other foods. Because age- and sex-specific data are not available, however, it is impossible to determine the iron density of the meals actually selected by the students with the greatest iron requirements (females 11 years old or older.)

The average meal selected in both elementary and middle/secondary schools, like the average meal offered, exceeded the Dietary Guidelines recommendations for total fat and saturated fat. The average meal selected was also high in sodium when compared to NRC recommendations, especially in middle/secondary schools. Cholesterol levels in the average meals selected compared favorably with NRC recommendations.

Meals Consumed. The mean nutrient content of the average meal consumed was consistently lower than the nutrient content of the average meal selected in both elementary and middle/secondary schools. This indicates that, in general, students did not consume all of the foods they selected. This was particularly true in elementary schools.

None of the nutritional differences between the average meal consumed and the average meal selected in middle/secondary schools reached statistical significance. In elementary schools, however, the average meal consumed was significantly lower in calories and all nutrients than the average meal selected. On average, elementary school students wasted about 23 percent of the nutrients contained in the meals they had selected. Middle/secondary school students wasted about 9 percent of the available nutrients.

The average lunch consumed by children in elementary schools exceeded the target range for protein, vitamin C, riboflavin and phosphorus (i.e., it provided more than one-third of the RDA for these nutrients for all age/sex groups). The levels of vitamin A, thiamin, niacin, calcium and magnesium were within the target

range, but older students would have to consume more than is included in the "average" NSLP meal in order to meet their needs for these nutrients. Calories, vitamin B_6 and iron levels were below the target range. Thus, the average meal as consumed did not provide one-third of the RDA for these nutrients for the majority of elementary school children. This finding is comparable to results of other studies which have indicated that levels of calories, vitamin B_6 and iron may be low in NSLP meals consumed by elementary school children.

The nutrient content of the average NSLP meal consumed in middle/secondary schools exceeded the target range for protein, vitamin C, thiamin, riboflavin, niacin, calcium and phosphorus. It was within the target range for magnesium and iron, although the previous caveat about greater needs of older students applies here also. The average NSLP meal consumed by middle/secondary students was below the target range for calories, vitamin A and vitamin B_6. The findings for calories and vitamin B_6 are consistent with those noted for NSLP meals consumed in elementary schools and with other studies of NSLP meals. The apparent shortfall of vitamin A in NSLP meals as consumed has also been noted in previous studies.

When viewed in concert, the results of the three analyses (i.e., NSLP meals as offered, selected and consumed) indicate that meals planned in accordance with program guidelines and offered to students are very successful in meeting the program goal of one-third of the RDA. Further, the nutrient content of meals selected by students, even under the OVS option, are, with few exceptions within the target range for calories and all nutrients. Significant nutritional shortfalls arise only in the meals actually consumed by students, particularly at the elementary school level. Thus, the key to ensuring that students receive approximately one-third of their daily nutritional needs from an NSLP meal is to increase the likelihood that students actually consume the meals they select. It is also important to ensure that the oldest students in each school have the ability to receive larger or additional portions of food.

While the average NSLP meals consumed by students may have been low in total calories, the mix of foods included was high in nutritional quality and well-balanced. Iron density for female students was the most notable potential problem. Food waste had little effect on levels of fat, cholesterol and sodium. The average lunch consumed in both schools exceeded Dietary Guidelines recommendations for total fat and saturated fat. The average meals were also high in sodium. The average elementary school lunch came very close to meeting the NRC recommendation for sodium, however, since this was primarily due to the fact that students wasted almost 25 percent of the foods they received, the finding is not entirely positive.

Nutrient Composition of SBP Meals. Meals Offered: The average breakfast offered in elementary schools supplied one-fourth or more of the RDA for all nutrients for 4-6 year olds, 7-10 year olds and 11-14 year olds.1/ The average elementary school breakfast also supplied 25 percent of daily calorie needs for 4-6 year old students, but fell short of this level for 7-10 year olds (23 percent), 11-14 year old females (21 percent) and 11-14 year old males (19 percent). The average breakfast offered in middle/secondary schools provided approximately one-fourth of students' calorie and nutrient needs as well, with three exceptions: calories (21 percent) for 11-14 year old males and calories (17 percent) and magnesium (18 percent) for 15-18 year old males.

Breakfasts offered in both elementary and middle/secondary schools were high in nutritional quality and balanced across a number of key nutrients. While the overall caloric value of SBP meals may have been somewhat low, the meals were very high in nutrient density, supplying in excess of 30 percent of the RDA for most nutrients examined.

The average breakfast offered in both elementary and middle/secondary schools provided approximately 30 percent of total calories from fat, the level recommended by the Dietary Guidelines. The level of saturated fat, however, exceeded the Dietary Guidelines recommendation of 10 percent of calories in both elementary (14 percent) and middle/secondary (13 percent) schools. The amount of cholesterol and sodium in average SBP meals were within acceptable ranges.

Meals Selected: The nutrient content of the average SBP meals selected did not differ significantly from the nutrient content of the average meals offered. This indicates that most students selected meals that included all of the SBP meal components.

In assessing the percent RDA contribution for average meals selected and consumed, the target level concept, described in the preceding discussion of NSLP meals, was used. The average breakfast selected in elementary schools met or exceeded the target range for all nutrients except calories. Students aged 4-6 would receive 25 percent of the RDA for calories from the "average" elementary school breakfast. All other elementary school students, however, would not. The level ranges from 18 percent of the RDA for 11-14 year old males to 22 percent of the RDA for 7-10 year olds. The available data do not indicate, however, how the meals selected by these students may differ from the average. Given USDA's policy of encouraging schools to serve larger portions or additional foods to older students, it

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1/Program regulations do not specify a target RDA level for SBP meals. Twenty-five percent of the RDA was used as a target in these analyses.

is possible that these students would in fact select meals that provide more calories than the average SBP meal, and thereby satisfy their increased caloric needs.

The average SBP meal selected in middle/secondary schools met or exceeded the target range for all nutrients except magnesium. The calorie level of the average breakfast was also below the target range in middle/secondary schools. Female middle/secondary school students selecting the average breakfast would receive almost one fourth of their daily caloric needs; male students would not.

The average breakfasts selected by both elementary and middle/secondary school students were well-balanced in terms of total calories and relative nutrient density. The nutrient density of the average meals selected varied little from the nutrient density of the average meals offered. The average meal selected in both elementary and middle/secondary schools contained approximately 30 percent of calories from total fat, in keeping with Dietary Guidelines recommendations, but exceeded the Dietary Guidelines recommendations for saturated fat. Cholesterol and sodium content were within acceptable ranges.

Meals Consumed: The nutrient content of SBP meals consumed in both elementary and middle/secondary schools was consistently lower than the nutrient content of the meals selected, indicating that, in general, students did not consume all of the foods they selected. The magnitude of the differences is consistently higher for elementary schools where, on average, students did not consume about 24 percent of the nutrients that were contained in the meal they had selected (compared to 9 percent for middle/secondary schools).

Despite the nutrient losses associated with food waste, the average breakfast consumed in elementary schools exceeded the target nutrient range for vitamin C, thiamin and riboflavin. It was within the target range for protein, vitamin A, niacin, vitamin B_6, calcium, phosphorus, magnesium and iron. However, older students (11-14 year olds) would need to consume a meal containing greater amounts of these nutrients than the "average" meal in order to satisfy one-fourth of their daily nutrient needs. The average SBP meal consumed in elementary schools failed to provide 25 percent of daily caloric needs for even the youngest students (4-6 year olds).

The average breakfast consumed in middle/secondary schools exceeded the target range for protein, vitamin A, vitamin C, thiamin, riboflavin, calcium, phosphorus and iron. It fell below the target range for calories and magnesium and just reached the lowest limit of the target range for niacin and vitamin B_6.

Plate waste had little effect on the nutrient density or fat, cholesterol and sodium content of SBP meals. While the average SBP meal consumed in both elementary and middle/secondary schools may have been somewhat low in calories, students received concentrated amounts of nutrients in every calorie they consumed. Further, the breakfasts contained appropriate levels of fat, cholesterol and sodium. They exceeded recommended levels of saturated fat.