

FEB 17 1999

0074-A-01

A 98.2: SCH 6/7/FINAL



United States
Department of
Agriculture

Food and
Nutrition
Service

Office of
Analysis and
Evaluation

School Food Purchase Study: Final Report

October 1998

99-026476

e



United States
Department of
Agriculture

Food and
Nutrition
Service

Office of
Analysis and
Evaluation

School Food Purchase Study: Final Report

September 1998

Authors:
Lynn Daft
Alyssa Arcos
Ann Hallawell
Cherie Root
Donald W. Westfall

Submitted by:

POMAR International
1625 Prince Street, Suite 200
Alexandria, VA 22314

Project Director: Lynn Daft

Submitted to:

Office of Analysis and Evaluation
USDA Food and Nutrition Service
3101 Park Center Drive, Room 208
Alexandria, VA 22302

Project Officer: John R. Endahl

**This study was conducted under Contract No. 53-3198-5-024 with the Food and Nutrition Service,
United States Department of Agriculture.**

BEST COPY AVAILABLE

CONTENTS

	<u>Page</u>
List of Tables	v
Acknowledgments	x
Executive Summary	xiii
I. Introduction and Purpose of The Study	I-1
A. School Food Programs	I-1
B. Purpose and Objectives of the Study	I-2
C. Report Outline	I-3
II. Methodology	II-1
A. Sample Design and Selection	II-1
1. Sample Design	II-1
2. Sampling Procedure	II-4
3. Derivation of Final Weights	II-5
B. Recruitment and Training	II-6
1. Recruitment	II-6
2. Training	II-7
C. Data Collection and Processing	II-7
1. Food Purchases and Donations	II-7
1.1 Valuing Donated Commodities	II-8
1.2 Food Procurement Variables	II-9
1.3 Transcription and Processing of Raw Data	II-11
2. District Characteristics and Procurement Practices	II-12
2.1 Survey Collection Procedures	II-12
2.2 District Characteristics and Procurement Practices Variables	II-13
2.3 Edit Checks	II-16
D. Standard Errors	II-17
III. Characteristics of Public Unified NSLP School Districts	III-1
A. Overall School District Characteristics	III-1

1. Number of Districts and Student Enrollment	III-1
2. Year-Round Operations	III-7
B. Characteristics of School Feeding Programs	III-10
1. Participation in NSLP and SBP	III-10
2. Number of Lunches and Breakfasts Served	III-11
3. Meal Prices	III-13
4. The Role of a la Carte Food Sales	III-15
5. Programs Served other than NSLP and SBP	III-22
6. Food Service Management Companies	III-24
7. Menu Planning Systems	III-27
8. Meal Preparation Facilities	III-30
9. Miscellaneous Program Features	III-32
10. Participation in Reimbursable Lunch Programs	III-34
 IV. Market and Policy Setting	 IV-1
A. Market Conditions	IV-2
1. The Supply/Demand Situation in SY 1996/97	IV-2
2. Comparison to the Supply/Demand Situation in SY 1984/85	IV-2
B. The Policy Setting	IV-4
1. The Commodity Donation Program, SY 1996/97	IV-4
2. Comparison of Commodity Donations, SYs 1984/85 and 1996/97	IV-7
3. Implementation of the School Meals Initiative	IV-12
4. Other Policy Changes Since 1984/85	IV-13
 V. Food Acquisitions by Public Unified School Districts	 V-1
A. Introduction	V-1
B. Methodological Considerations	V-1
C. School Food Acquisitions, SY 1996/97	V-2
1. Diversity of Foods	V-10
2. Universal Appeal of Selected Foods	V-10
3. Importance of Donated Commodities	V-13
D. Comparison of Acquisitions in SY 1984/85 and SY 1996/97	V-16
1. Overall Changes in the Composition of the School Food Market Basket ..	V-17
2. Price Effect on Acquisitions	V-20
3. Changes in Beverage Use	V-24

4. Increased Acquisition of Fresh Fruits and Vegetables	V-25
5. Changing Role of Donated Commodities	V-27
E. Comparison of the Mean Number of Food Items Acquired in SY 1984/85 And SY 1996/97	V-28
VI. School Food Procurement Practices	VI-1
A. Food Service Decision Making	VI-1
1. Vendor Selection	VI-1
1.1 Responsibility for Decision	VI-1
1.2 Selection Criteria	VI-3
2. Food Selection	VI-4
2.1 Responsibility for Decision	VI-4
2.2 Use of Product Specifications	VI-5
B. Use of Branded Foods	VI-6
C. Food Delivery Practices	VI-9
1. Receiving Locations	VI-9
D. School Food Vendors	VI-13
1. Number of Vendors Used	VI-13
2. Services Provided by Vendors	VI-15
E. Procurement and Pricing Methods	VI-18
1. Procurement Methods	VI-18
2. Pricing Methods	VI-21
F. Cooperative Buying	VI-24
VII. The Relationship Between School District Characteristics, Procurement Practices, and Food Acquisitions	VII-1
A. Effect of School District Characteristics on Food Costs	VII-1
1. Size of Enrollment	VII-1
2. Degree of Procurement Centralization	VII-6
B. The Effect of Procurement Practices on Food Costs	VII-8
1. The Relationship Between Food Cost and Responsibility for Vendor Selection	VII-8
2. The Relationship Between Cost Per Pound and Decision-Maker Responsible for Food Selection	VII-11
3. The Relationship Between Cost Per Pound and Procurement Method ...	VII-13

4. The Relationship Between Cost Per Pound and Pricing Method	VII-16
5. The Relationship Between Cost Per Pound and Participation in Cooperative Buying and Use of Food Service Management Company ..	VII-20
6. The Relationship of Number of Food Items Procured and Food Costs Per 1,000 Students	VII-23

Appendixes

Appendix A	Methodology	A-1
Appendix B	Procurement Practices Survey	B-1
Appendix C	Table C-1: Top Fifty Foods by Volume and Value	C-1
Appendix D	Table D-1: Classification System Used in Coding	D-1
Appendix E	Table E-1: Top Fifty Foods by Assigned Product Category	E-1

List of Tables

	<u>Page</u>
Table I-1 Federal Government Reimbursement Rates for the National School Lunch Program and the School Breakfast Program, SY 1996/97	I-3
Table II-1 Number of School Districts in the Sample by Region and by State	II-3
Table II-2 Allocation of Sample by Region and by Quarter	II-6
Table II-3 Standard Error of Estimate for Selected Variables	II-18
Table III-1 Total Student Enrollment and Number of Public Unified NSLP School Districts by Size of District, SY 1996/97	III-2
Table III-2 Number of Schools in Public Unified NSLP School Districts by Size of District and by Grade Category, SY 1996/97	III-3
Table III-3 Student Enrollment of Public Unified NSLP School Districts by Size of District and Grade Category, SY 1996/97	III-4
Table III-4 Student Enrollment, Average Daily Attendance, and Average Number of Attendees With Access to the Lunch Program in Public Unified NSLP School Districts by Size of District and Grade Category, SY 1996/97	III-5
Table III-5 Estimated Enrollment in Public Unified NSLP School Districts by Size of District Enrollment and by Grade Category, SYs 1983/84 and 1996/97	III-6
Table III-6 Number of Public Unified NSLP School Districts Operating Partial-Year and Year-Round by Size of School District, SY 1996/97	III-8
Table III-7 Number of Schools in Public Unified NSLP School Districts Operating Year-Round Programs, by Grade Category and by School District Enrollment, SY 1996/97	III-9
Table III-8 Number of Schools in Public Unified NSLP School Districts, by Grade Category and by Participation in School Meals Programs, SY 1996/97	III-10
Table III-9 Number of NSLP Lunches Served in Public Unified NSLP School Districts by Type of Meal and Size of School District, SY 1996/97	III-11
Table III-10 Number of SBP Breakfasts Served in Public Unified NSLP School Districts by Type of Meal and Size of School District, SY 1996/97	III-12
Table III-11 Mean, Median, and Range of Student Lunch Prices, Full-Price and Reduced-Price, by Size of Public Unified School District, SY 1996/97	III-14
Table III-12 Mean, Median, and Range of Student Breakfast Prices, Full-Price and Reduced-Price, by Size of Public Unified School District, SY 1996/97	III-15
Table III-13 Use of A La Carte Sales Among Public Unified NSLP School Districts by Size of District, SY 1996/97	III-17

✓/1

**SCHOOL FOOD PURCHASE STUDY
FINAL REPORT**

Table III-14	Percent of Public Unified NSLP Schools Offering A La Carte Foods at Lunch and Breakfast, by Size of District and Grade Category, SY 1996/97	III-17
Table III-15	Number of Students in Public Unified NSLP School Districts With Access to A La Carte Sales, by Size of School District, SY 1996/97	III-18
Table III-16	Comparison of Sources of District Revenue in Public Unified NSLP School Districts by Size of District, SY 1996/97	III-20
Table III-17	Number of Public Unified NSLP School Districts Identifying Specified Foods as One of Ten Top Selling A La Carte Food Items, by Elementary and Middle/Secondary, SY 1996/97	III-22
Table III-18	Share of Public Unified NSLP School Districts Serving Other Programs, by Size of District and Type of Program, SY 1996/97	III-24
Table III-19	Food Service Management Companies Serving Public Unified NSLP School Districts, by Size of District, SY 1996/97	III-25
Table III-20	Comparison of Public Unified NSLP School Districts Under FSMC Operation and Not Under FSMC Operation, by District Income and Urbanicity, SY 1996/97	III-26
Table III-21	Number of Public Unified NSLP School Districts by Type of Menu Planning System, SY 1996/97	III-28
Table III-22	Number of Schools in Public Unified NSLP School Districts by Type of Menu Planning System and Grade Category, SY 1996/97	III-29
Table III-23	Number of Public Unified NSLP School District Kitchens by Type of Kitchen and Size of School District, SY 1996/97	III-31
Table III-24	Food Service Options Offered by Public Unified NSLP Schools by Size of District, SY 1996/97	III-33
Table III-25	Food Service Options Offered by Public Unified NSLP School Districts, by Grade Category, SY 1996/97	III-33
Table III-26	Mean Rates of Participation in the Reimbursable Lunch Programs of Public Unified NSLP School Districts, by Meal Type and Size of School District, SY 1996/97	III-34
Table IV-1	Comparison of Changes in Selected Components of the Producer Price Index, SYs 1984/85 and 1996/97	IV-3
Table IV-2	Commodity Donations Through School Food Programs, FY 1980 – FY 1997	IV-5
Table IV-3	Comparison of Donated Commodities Delivered to Child Nutrition Programs, SY 1984/85 and SY 1996/97	IV-8

**SCHOOL FOOD PURCHASE STUDY
FINAL REPORT**

Table V-1	Summary of Dollar Value of Food Acquisitions by Public Unified NSLP School Districts, SY 1996/97	V-4
Table V-2	Summary of Volume of Food Acquisitions by Public Unified NSLP School Districts, SY 1996/97	V-7
Table V-3	Share of the Total Value of Acquisitions for the Ten Leading Food Categories Acquired by Public Unified NSLP School Districts, SY 1996/97 ..	V-10
Table V-4	Individual Food Items by Frequency of Acquisition by Public Unified NSLP School Districts, SY 1996/97	V-13
Table V-5	Share of the Total Value of Acquisitions by Public Unified NSLP School Districts that is Accounted for by USDA Donated Commodities and Processed Foods Containing Donated Commodities, SY 1996/97	V-14
Table V-6	Share of School Districts Acquiring Food Item that Received It as a Donated Commodity, Selected Food Items, SY 1996/97	V-15
Table V-7	Comparison of Summary Volume of Food Acquisitions by Public Unified NSLP School Districts, SYs 1984/85 and 1996/97	V-21
Table V-8	Comparison of the Volume of Acquisitions for Major Beverage Categories in Public Unified NSLP School Districts, SYs 1984/85 and 1996/97	V-24
Table V-9	Comparison of Fresh Fruit and Vegetable Acquisitions in SY 1984/85 and SY 1996/97	V-25
Table V-10	Comparison of the Mean Number of Individual Food Items Acquired by Public Unified NSLP School Districts, SYs 1984/85 and 1996/97, by School District Enrollment	V-29
Table VI-1	Number of Public Unified NSLP School Districts by Decision-Maker with Primary Responsibility for Vendor Selection, by Size of School District, SY 1996/97	VI-2
Table VI-2	Criteria Considered by Public Unified NSLP School Districts in Selecting Vendors, SY 1996/97, by Size of School District	VI-3
Table VI-3	Number of Public Unified NSLP School Districts by Decisionmaker with Primary Responsibility for Food Selection, by Size of School District, SY 1996/97	VI-4
Table VI-4	Comparison of Public Unified NSLP School District Decisionmaker Responsible for Selecting Food Items, SYs 1983/84 and 1996/97	VI-5
Table VI-5	Product Specifications Used by Public Unified NSLP School Districts in the Procurement of Food, SY 1996/97	VI-6

**SCHOOL FOOD PURCHASE STUDY
FINAL REPORT**

Table VI-6	Share of Public Unified NSLP Schools that Feature Branded Product, by Size of District and Grade Category, SY 1996/97	VI-8
Table VI-7	Share of Public Unified NSLP School Districts by Form in Which They Receive Branded Products and Size of District, SY 1996/97	VI-8
Table VI-8	Share of Public Unified NSLP School Districts that Feature Individual Branded Foods, by Size of District, SY 1996/97	VI-9
Table VI-9	Delivery Points for Food Shipments to Public Unified NSLP School Districts, by Food Group, SY 1996/97	VI-11
Table VI-10	Comparison of Receiving Locations of Public Unified NSLP School Districts, SYs 1983/84 and 1996/97, by Food Group	VI-12
Table VI-11	Mean Number of Vendors Used by Public Unified NSLP School Districts, in SY 1996/97, by Food Group and by Size of School District	VI-14
Table VI-12	Comparison of the Mean and Total Number of Vendors Used by Public Unified NSLP School Districts, SYs 1983/84 and 1996/97, by Food Group ..	VI-15
Table VI-13	Services Provided by Vendors to Public Unified NSLP School Districts, SY 1996/97	VI-16
Table VI-14	Comparison of Types of Service Provided by Food Vendors to Public Unified NSLP School Districts in SYs 1983/84 and 1996/97	VI-17
Table VI-15	Food Procurement Methods Used by Public Unified NSLP School Districts in SY 1996/97, by Food Group	VI-19
Table VI-16	Comparison of Percent of Public Unified NSLP School Districts Using Alternative Food Procurement Methods, SYs 1983/84 and 1996/97, by Food Group	VI-20
Table VI-17	Pricing Methods Used by Public Unified NSLP School Districts in Food Procurement, SY 1996/97, by Food Group	VI-22
Table VI-18	Comparison of Percent of Public Unified NSLP School Districts Using Alternative Methods of Product Pricing, SYs 1983/84 and 1996/97, by Food Group	VI-23
Table VI-19	Participation in Cooperative Buying by Public Unified NSLP School Districts by Size of District, SY 1996/97	VI-25
Table VI-20	Comparison of Public Unified NSLP School District Participation in Purchasing Cooperatives, SYs 1983/84 and 1996/97, by Food Group	VI-25
Table VII-1	Mean Cost Per Pound Paid by Public Unified NSLP School Districts for Purchased Foods by Food Subgroups and by Size of School District, SY 1996/97	VII-2

Table VII-2	Mean Cost Per Pound of the Top Fifty Items Purchased by Public Unified NSLP School Districts, by Size of District, SY 1996/97	VII-5
Table VII-3	Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts, SY 1996/97, by Extent to which Procurement is Centralized	VII-7
Table VII-4	Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts, SY 1996/97, by Decisionmaker Responsible for Vendor Selection	VII-10
Table VII-5	Cost Per pound for Foods Frequently Purchased by Public Unified NSLP School Districts, SY 1996/97, by Decisionmaker Responsible for Food Selection	VII-12
Table VII-6	Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts, SY 1996/97, by Procurement Method Used	VII-15
Table VII-7	Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts, by Product Pricing Method Used, SY 1996/97	VII-18
Table VII-8	Percentage of Selected List of Food Items that Averaged Lowest Price and Highest Price, by Method of Product Pricing, Sys 1984/85 and 1996/97 ...	VII-20
Table VII-9	Cost Per Pound of Foods Frequently Acquired by Public Unified NSLP School Districts, by Participation in Cooperative Buying and Involvement of Food Service Management Company, SY 1996/97	VII-22
Table VII-10	Mean Cost Per Thousand Enrolled Students in Public Unified NSLP School Districts by Number of Individual Food items Procured and by Size of School District, SY 1996/97	VII-24

Appendices Tables

Table A-1	Response Rates by Source of Data and by Quarter	A-8
Table C-1	Top Fifty Foods Purchased by Public Unified NSLP School Districts in SY 1996/97, Estimated Value and Volume of National Purchases	C-1
Table D-1	Classification System Used in Coding A La Carte Food Items	D-1
Table E-1	Top Fifty Foods Purchased by Public Unified NSLP School Districts in SY 1996/97, by Assigned Product Category	E-1

X

ACKNOWLEDGMENTS

The success of any study of this scope is critically dependent on the voluntary cooperation of study participants. The requirements of this study made this dependence all the greater and the cooperation of participants all the more crucial. Special thanks are therefor due the Directors and staff of the participating School Food Authorities, the State Child Nutrition Agencies, and the State Distributing Agencies.

Members of the Food and Nutrition Service Subcommittee of the Education Information Advisory Committee (EIAC) of the Council of Chief State School Officers reviewed the study instruments and methodology and made useful suggestions. This included John Perkins of the Texas Education Agency, Betty Marcelynas of the Washington Office of Public Instruction, Kathy Kuser of the New Jersey Department of Education, and Daniel McMillian of the Colorado Department of Education.

The Board of Directors of the American School Food Service Association (ASFSa) provided important support early in the study in the form of a letter of endorsement addressed to prospective participants.

The Project Officer was John Endahl of the Office of Analysis and Evaluation of the Food and Nutrition Service. He provided his customary insightful advice and professional direction throughout the project. As Contract Administrator, Tonia Bloss made complying with the administrative requirements a pleasure. At several points in the study, FNS Regional Office staff offered helpful advice and support.

The collection, transcription, and processing of the tens of thousands of school food acquisition records required by the study was expertly managed by Ann Hallowell and Cherie Root of Ender York, Inc. They were ably assisted by Maryann Carr and by a dedicated staff of data transcribers that included Patricia Avery, Madeline C. Bednar, Tim Comfort, Mary E. Fisher, Melissa A. Fisher, Sheiby Jean Frisby, Rebecca McDonald, Patricia R. Milton, Mary F. Monk, Edith Ness, Betty A. Rotenberger, and Lucille M. Turman.

Janet McCown, an experienced food service professional, led the recruitment of study participants. Asa M. Janney, III of Applied Statistical Associates, Inc. provided valued assistance in development of the sample and other statistical tasks.

Staff members of PROMAR *International* who made key contributions to the conduct of this study were Lynn M. Daft, Alyssa Arcos, Donald W. Westfall, Donna Plamondon, and Polly A. Rowe.

EXECUTIVE SUMMARY

This study provides national estimates of the food acquisitions of public unified school districts participating in the National School Lunch Program (NSLP) and School Breakfast Program (SBP). It describes the type, quantity, and value of foods purchased by public school districts and the relative importance of foods donated to these school districts by the US Department of Agriculture (USDA). The study also examines procurement practices and operating characteristics of these school districts and the relationship of these characteristics to food costs. Data were collected from a nationally representative sample of 324 unified public school districts during School Year (SY) 1996/97. Findings are compared to the results of a similar study conducted in SY 1984/85.

School Food Acquisitions

Food acquisitions by school districts participating in these programs were classified in one of three categories: commercial purchases, USDA-donated commodities, or processed products containing donated commodities. The type, volume, and frequency of USDA-donated commodities can have an important effect on what school districts purchase locally. In addition, variations in food purchasing behavior among public school districts can reflect many influences including differences in local food preferences, the availability of a breakfast program, the relative importance of *a la carte* foods, as well as operating characteristics such as district size, rates of participation, access to wholesale markets, availability of vendors, and food storage capacity. Key findings related to the acquisition of food by NSLP school districts in SY 1996/97 are as follows:

- Unified public school districts acquired food valued at more than \$4.6 billion in SY 1996/97. Of the total value of school food acquisitions, 83 percent were purchased commercially, 13 percent were donated by USDA, and 4 percent were processed foods containing donated commodities.
- Milk and other dairy products accounted for almost one-fourth of the total value of foods acquired. Bakery products, red meats, poultry, fruits and fruit juices, vegetables, and prepared foods each accounted for about 10 percent of the total value.
- School districts acquired a great diversity of food items as evidenced by the 842 different food items obtained by the sample districts. However, ten food categories representing less than 7 percent of the individual food items accounted for nearly half the value of all

school acquisitions. Fluid milk, pizza, ground beef, cheese, and potato products (frozen and chips) were the five leading food categories by share of total value.

- For certain foods, USDA donations are the primary source of supply. USDA donations accounted for at least half of the total value of all acquisitions of peanuts and peanut butter, turkey products, beef products, vegetable oils and shortening, cheese, flour, and eggs.

Comparison of SY 1984/85 and SY 1996/97 Food Acquisitions

The last study conducted by the Food and Nutrition Service to collect detailed information about school food purchases occurred during School Year 1984/85. Since then the Department has made a concerted effort to improve the nutritional content of school meals. Recent legislation requires that school meals meet the Dietary Guidelines for Americans that call for diets lower in fat and containing more fruits, vegetables, and grains. While it was not the intent of this study to make an assessment of the nutritional values of foods acquired by schools, the study did examine shifts in the type and mix of foods acquired since the previous study. A comparison of results of the two studies reveals the following:

- There have been striking changes in the composition of the school food market basket. Foods that experienced sharply higher rates of use include breakfast cereals, prepared foods, yogurt, fruit drinks, and margarine. There were significant reductions in the use of fluid milk, butter, salad dressing and mayonnaise, vegetable oils and shortening, and lard and other animal fats.
- There was a dramatic change in beverage use, with the reduction in fluid milk partially offset by large gains in the use of fruit juices, fruit drinks, carbonated beverages, and bottled water.
- The acquisition of fresh fruits and vegetables increased with the share of total volume rising from 5.6 percent to 7.2 percent. A much larger variety of fresh fruits and vegetables are now being made available through the donation program.
- The role of donated commodities has been substantially reduced over this period. While donated commodities accounted for about 30 percent of the total value of food acquisitions in SY 1984/85, in SY 1996/97 they accounted for less than 13 percent.

Food Procurement Practices

The analysis of school district food purchase practices provides an up-to-date profile on several dimensions of school food procurement. The purchase and acquisition of food is a complex process that is affected by many influences including the type of food acquired and the size of the school district. Purchasing practices that are effective in one set of circumstances might not be effective in a different set of circumstances. Study findings indicate the following with regard to school food procurement practices:

- On average, public unified school districts used eight vendors to satisfy their food purchase requirements. Large school districts with higher volume needs and access to more vendors used three times the number of vendors than smaller districts (17 vendors to 5 vendors). While price was the key consideration in vendor selection, vendor dependability and food quality were also very important.
- Methods of food procurement varied among school districts as well as by food type. With the exception of the purchase of fresh produce, fresh meats, and snack items, a majority of school districts used formal bidding procedures in buying their food in SY 1996/97. Of the two formal approaches, line item bids were used by more school districts than lump sum bids.
- The share of school districts participating in cooperative buying programs has grown dramatically since the earlier study. In SY 1996/97 over one-third of all public unified school districts participated in cooperative buying compared to less than 10 percent in SY 1984/85. Although small school districts are the most frequent participants in cooperative buying, almost one-fourth of the large districts took part as well. Participating districts reported buying over 60 percent of their food purchases through cooperatives.
- The number of food service management companies (FSMCs) operating school food programs continues to grow, accounting for almost 10 percent of all public unified school districts. FSMCs have concentrated their operations among mid-size school districts but are found in districts of all sizes.
- Branded foods were offered in almost 40 percent of all public school districts with national brands offered about twice as frequently as house brands (38 percent and 18 percent). Pizza and tacos/burritos were the most prominent national branded products while pizza and subs/sandwiches were the most prevalent house brands.

**Relationship of School District Characteristics
and Procurement Practices to Food Costs**

School feeding programs have been under continuing pressure in recent years to hold the line on the prices they charge students, while confronted with escalating labor and food costs. When attempting to identify purchasing practices that could possibly provide cost savings to school districts, it is necessary to examine these relationships with caution. Observed relationships between purchasing practices and food costs can be greatly influenced by district size or some other variables.

Large school districts tend to pay lower per unit prices for their food. However, it is unclear if this relationship reflects an economy of scale based on the volume of food they are purchasing, the use of highly centralized procurement systems or formal procurement and pricing methods typically found in large school districts, the accessibility to more vendors leading to a more competitive marketplace, or a combination of factors. No one method produced the best cost per pound for all food items. It is therefore not possible to say that adopting certain purchasing practices would necessarily lead to a reduction in food costs.

I. INTRODUCTION AND PURPOSE OF THE STUDY

A. School Food Programs

The Federal Government helps support the provision of meals to elementary and secondary school students through two programs: the National School Lunch Program (NSLP) and the School Breakfast Program (SBP). The NSLP, the larger of the two programs, reached an average of 26.3 million school children each day in FY 1997; an average of 6.9 million children were served each day by the SBP during the same period. Both programs operate through public and nonprofit private schools as well as residential child care institutions. Nearly all public schools (about 99 percent in FY 1995) and many private schools participate in the School Lunch Program. Fewer schools participate in the SBP than in the NSLP – 63,000 compared to 88,800 in FY 1997.

Federal support to the participating schools is made available in two forms: (1) cash assistance and (2) donated commodities. In FY 1997, cash assistance of \$6.1 billion and donated commodities valued at \$620 million were provided to the participating school systems. The level of assistance is based on the number of reimbursable meals served in the individual schools and on the eligibility status of children receiving meals. Any child at a participating school may purchase a meal through the National School Lunch Program or School Breakfast Program. Children from families with incomes at or below 130 percent of the poverty level are eligible for free meals. Those between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals, for which students can be charged no more than 40 cents for lunch and 30 cents for breakfast. Children from families with incomes over 185 percent of poverty pay full-price for the meal as set by the local school food authority (SFA),¹ though their meals are still subsidized to some extent. The Federal government reimbursement rates per meal in school year 1996/97 are shown in Table I-1 below.

1/ "School food authority" is the governing body responsible for the administration of schools within its jurisdiction that is granted legal authority to operate in the NSLP and the SBP. In this report, the term is used interchangeably with "school district."

Table I-1: Federal Government Reimbursement Rates for the National School Lunch Program and the School Breakfast Program, SY 1996/97

Type of meal	Lunch			Breakfast	
	Regular reimbursement rate ¹	Average commodity entitlement	Total subsidy	Regular reimbursement rate	Severe-need reimbursement ²
	dollars per meal			dollars per meal	
Free	1.8375	.1450	1.9825	1.0175	1.2125
Reduced-price	1.4375	.1450	1.5825	.7175	.9125
Full-price	.1775	.1450	.3225	.1975	.1975

¹Reimbursements are higher in Alaska and Hawaii. Also, districts that served more than 60 percent of their lunches free or at a reduced price in the second prior school year receive an additional \$.02 in reimbursement on each meal.

²Schools that served 40 percent or more of their lunches to children below 185 percent of the poverty level two years prior to the school year may request to receive severe-need reimbursements for free and reduced-price breakfasts.

Sources: USDA, FNS.

B. Purpose and Objectives of the Study

The central purpose of this study was to derive statistically valid national estimates of food acquisitions made in SY 1996/97 by public unified school districts participating in the NSLP¹. Food acquisitions include both purchases made from commercial sources and donations from the US Department of Agriculture. In addition, the study collected information on the procurement practices of these school districts and assessed the relationship of their procurement practices to school district characteristics.

A similar study was conducted under FNS sponsorship in SY 1984/85. Another purpose of this study, therefore, was to compare results for SY 1996/97 with those from the earlier study to determine what changes have occurred, both in the composition of school food acquisitions and in procurement practices.

^{1/} The school year is on a July/June basis. Unified school districts are those that include elementary, middle, and secondary grades. Most commonly the grades extend from kindergarten through twelfth grade.

More specifically, the study has been designed around achievement of the following five objectives:

- To develop national estimates of the types, volume, and dollar value of food acquired (commercially and through USDA donations) by unified public school districts participating in the NSLP.
- To compare the composition and value of foods acquired by school districts in SY 1984/85 and SY 1996/97 and describe changes in the extent to which acquired foods arrive at the district in a prepared or processed form.
- To describe current school food purchase practices and identify relationships between food purchase practices and school district characteristics and the cost of foods to schools.
- To compare school food purchase practices in SY 1984/85 and SY 1996/97 and describe changes in the relationships between these practices and SFA characteristics and food costs.
- To describe the extent to which *a la carte* foods are available to students enrolled in these schools and the types and volumes of *a la carte* foods that are acquired.

C. Report Outline

The remainder of this report details the approach taken in conducting this study and describes its major findings. It is divided into seven chapters, including the Introduction, which is Chapter I. Chapter II is devoted to a description of the methodology used in conducting the study. This includes a description of the sample design and sample selection and how the data were collected and processed. Chapter III is the first one to report on study findings. As in all of the findings chapters, it discusses methodological considerations unique to the topic and compares the results of this study to the one conducted in SY 1984/85, when such comparisons are relevant. In Chapter III, the principal characteristics of public unified school districts participating in the NSLP and the SBP in SY 1996/97 are described.

Chapter IV sets the stage for interpretation of the major food acquisition findings by briefly reviewing the economic and policy setting of the period within which the study was conducted. This description provides a general backdrop to understanding how both market factors and policy factors might have influenced study results. National estimates of food acquisitions by public unified NSLP school districts are described and interpreted in the following chapter,

Chapter V. Summary estimates of the volume and value of major food categories are examined. Major shifts in the composition of school food purchases since SY 1984/85 are also discussed. This is followed in Chapter VI by a description of the current procurement practices of public school districts and the changes that have occurred over the past dozen years. Finally, the relationships between and among school district characteristics and procurement practices and school food acquisitions are examined in Chapter VII.

In addition to this report, a Statistical Report containing the detailed statistical tables that served as a basis for the findings reported here is available.

II. METHODOLOGY¹

A. Sample Design and Selection

1. Sample Design

The universe studied here consists of all public unified NSLP school districts in the continental United States. These districts are a subset of the total number of school districts in the nation since not all districts participate in the NSLP. They are also a subset within the universe of districts that participate in the NSLP since the program also serves private schools and nonunified school systems, both of which were excluded from the study. Private school enrollment accounts for approximately 3.5 percent of total NSLP enrollment and nonunified enrollment is estimated to account for about 4.2 percent of NSLP enrollment.² NSLP districts in Alaska, Hawaii, and the US possessions were excluded from the sample as well. In FY 1995, these jurisdictions accounted for 2.7 percent of NSLP participation. Given these exclusions, the estimates provided here will differ somewhat from other sources. For example, most FNS data series include nonunified schools and all 50 states and US possessions. Private schools are included in some series and not in others.

The sample frame used in the study was based on a database purchased from Quality Education Data, Inc. (QED). The database contained information for 13,222 public school districts in all 50 states and the District of Columbia and was current as of February 1996. Of the total number of school districts in the database, 11,177 were identified as unified school districts.

A national sample of 480 school districts was drawn from the universe of unified public school districts. The sample was stratified by the same ten farm production regions used by the US Department of Agriculture in publishing data on agricultural production. This particular set of regions was used for two reasons. First, it is the same set used in the 1984/85 study and therefore provided continuity with the methodology used in that study. Second, these regions are generally coterminous with regional systems of food production and distribution.

1/ A more detailed description of the methodology used in the study appears in Appendix A.

2/ The share of NSLP enrollment that is in private schools is from unpublished administrative data collected by the USDA. The share of enrollment attributable to nonunified public schools is based on two sources. One source is the QED Super 2000 database from which the sample was drawn. The nonunified school districts that were eliminated from the universe prior to drawing the sample accounted for 4.2 percent of total enrollment. The other source is the US Department of Education's Common Core of Data (CCD) for SY 1992/93 which indicated that districts other than "regular" districts accounted for 4.3 percent of total public school enrollment that year.

The boundaries of these regions correspond to state boundaries with each region including from two to ten states. The distribution of the sample school districts among the regions and states are displayed in Table II-1. The sample was stratified regionally to help ensure that sample districts were selected from throughout the country. It should be noted that these strata were not used as domains of study and that only national estimates have been developed.

There are about 350 school districts nationwide that participate in the NSLP but do not receive donated commodities. This includes all school districts in Kansas (over 300) as well as those districts that continue to receive cash or commodity letters of credit (CLOC) as a result of past demonstration studies of alternatives to commodity donation. These districts were kept in the database for purposes of drawing the sample. Of the 480 school districts in the sample, two were in Kansas and five were former demonstration sites that were receiving cash or letters of credit instead of donated commodities.

To derive a national estimate of school food procurement, it is necessary to collect data for an entire school year. There is a significant seasonal influence in the patterns of school food procurement and use. Since most school systems are not in session year-round, food procurement typically diminishes in the spring, ceases altogether through much of the summer, and begins again with the approach of the start of school in the early fall. In addition, there are seasonal influences associated with changes in the weather and the availability of foods as well as the traditional holidays.

To help lessen the burden of assembling and copying food procurement records for the participating school districts – which can be substantial, depending on the size of the district and the nature of their procurement records – each district was asked to provide records for a specified 3-month period during SY 1996/97. The quarterly periods were defined as follows:

- 1st quarter – July - September, 1996
- 2nd quarter – October - December, 1996
- 3rd quarter – January - March, 1997
- 4th quarter – April - June, 1997

The sample of 480 school districts was evenly divided among the four quarters.

Table II-1: Number of School Districts in the Sample by Region and by State

Region/state	Number of school districts	Region/state	Number of school districts
Northeast		Southeast	
Massachusetts	12	South Carolina	9
Maine	4	Georgia	16
Connecticut	6	Florida	16
New Jersey	14	Alabama	<u>13</u>
New York	29	Total	54
Maryland	1	Delta	
Delaware	1	Mississippi	7
Pennsylvania	23	Louisiana	11
Vermont	<u>1</u>	Arkansas	<u>3</u>
Total	91	Total	21
Lake States		Southern Plains	
Michigan	22	Oklahoma	7
Wisconsin	10	Texas	<u>42</u>
Minnesota	<u>6</u>	Total	49
Total	38	Mountain	
Midwest		Montana	1
Ohio	21	Colorado	9
Indiana	13	Wyoming	1
Iowa	6	Idaho	4
Illinois	16	Utah	5
Missouri	<u>10</u>	Arizona	9
Total	66	New Mexico	<u>3</u>
Northern Plains		Total	32
South Dakota	2	Pacific	
North Dakota	2	California	61
Kansas	2	Oregon	5
Nebraska	<u>5</u>	Washington	<u>5</u>
Total	11	Total	71
Appalachia		Grand Total	480
Virginia	13		
West Virginia	4		
North Carolina	13		
Tennessee	7		
Kentucky	<u>10</u>		
Total	47		

Source: School Food Purchase Study, 1998.

2. Sampling Procedure

The size distribution of public school districts is highly skewed. While 47.9 percent of all public school districts have an enrollment of less than 1,000, they account for only 5.9 percent of total enrollment. At the other extreme, districts with an enrollment of 25,000 or more account for only 1.6 percent of the total number of districts but 31.0 percent of total enrollment.¹ While the school district is the basic unit of observation that is to be represented in the sample, it is also important that student enrollment be given prominent consideration given that food procurement and utilization is the principal focus of the study.

To insure that larger school districts were appropriately represented, we used a variant of the probability proportional to size (PPS) technique in drawing the sample. As its name implies, use of PPS results in more of the larger districts (and therefore more students) being included in the sample. However, since standard PPS sampling can sometimes shift the sample "too far" toward the larger units and leave the smaller units under-represented, a variant of the standard technique was used.

Under the sampling technique used here, the sample was drawn with probability proportional to a power of enrollment rather than enrollment alone. The power was set at a level (slightly below one) that would yield a sampling probability for the largest district in each stratum sufficient to allow for non-responses.

The first step in the sampling procedure was to allocate the 480 sample districts to the ten geographic strata. Each stratum was assigned a fraction of the 480 districts equal to that stratum's share of total enrollment.

Within each stratum, an ordered, systematic selection procedure was used to select school districts for the sample. The steps followed for each stratum were as follows:

- An appropriate value for the power of enrollment for that stratum was developed.
- The measure of size for each school district was raised by the power of enrollment.

1/ Quality Education Data, The Education Market Guide and Mailing List Catalog, 1997-98, p. 10

8

- A skip interval was developed equal to the sum of all of the size measures of districts in the region divided by the sample size for the region.
- School districts within the region were ordered by their measure of size and a cumulative size distribution was established.
- A random start number was selected between zero and the skip interval.
- Using the cumulative size distribution of the ordered set of districts in the region, the first district in the sample was determined by the random start number.
- The remainder of the sample for the region was drawn by repeatedly adding the skip value to the random number and finding the district whose value falls within that range.

The remaining allocation was the assignment of sample districts to quarters. A fourth of the selected districts in each geographic stratum were allocated to each quarter so that the enrollment of the districts in each quarter was as close to equal as possible. In addition, the seven school districts included in the sample that did not receive donated commodities were allocated among quarters so as to keep their distribution as even as possible.

3. Derivation of Final Weights

Final sample weights were developed to produce national estimates for the universe of public unified school districts participating in the NSLP. Because response rates differed for the survey and for the submission of food acquisition data and because we were collecting a combination of *stock* measures (e.g. school district enrollment as of a specified time) and *flow* measures (e.g. quarterly purchases of individual food items), two sets of weights were derived. These weights consist of three parts: a basic sampling weight equal to the reciprocal of the districts initial selection probability, post-stratification adjustments to account for known population totals, and adjustments to compensate for nonresponse. Once derived, these weights were applied to the observations collected from the participating school districts to derive national estimates. A more detailed description of the weighting methodology appears in Appendix A.

B. Recruitment and Training

1. Recruitment

Recruitment began with the collection of basic information for each of the 480 school districts from the Child Nutrition (CN) Programs Directors in the 45 states with school districts in the sample. In collecting this information it was determined that five of the school districts in the sample were not participating in the NSLP in March 1996, leaving 475 prospective participants in the sample.

Table II-2: Allocation of Sample by Region and by Quarter

Region	Enrollment		School District Sample by Quarter				
	Number of students	Percent of total	1	2	3	4	Total
Northeast	7,677,407	19.1	22	23	23	23	91
Lake States	3,174,178	7.9	10	9	9	10	38
Midwest	5,577,520	13.8	16	17	17	16	66
Northern Plains	959,500	2.4	3	3	2	3	11
Appalachia	3,916,084	9.7	12	11	12	12	47
Southeast	4,537,866	11.3	13	14	14	13	54
Delta	1,723,619	4.3	6	5	5	5	21
Southern Plains	4,117,205	10.2	13	12	12	12	49
Mountain	2,686,580	6.7	8	8	8	8	32
Pacific	5,932,237	14.7	17	18	18	18	71
Total	40,302,196	100.0	120	120	120	120	480

Source: *School Food Purchase Study*, 1998.

The school food director of each school district in the sample was initially notified of the study by mail and told that they would be contacted by telephone and invited to participate. At the time

of the telephone call, details of the study and the role they were being asked to play were discussed.

School districts were recruited on a quarterly basis, beginning with those assigned to the first quarter. Recruiting got underway in May 1996 and was largely completed by the end of February 1997. Of the ~75 school districts recruited, 381 (80.2 percent) initially agreed to take part in the study.

2. Training

The collection of food procurement records, which are found in different forms and levels of detail among school districts, made it necessary to conduct brief training telephone calls with a representative of each participating district. In addition to the training call, each SFA was provided with a training document that reviewed major elements of their participation in the study. Most training calls were conducted within two weeks of the SFA agreeing to participate in the study.

C. Data Collection and Processing

Two types of data were collected, each using a different collection technique. Food purchase and donation records for a specified three month period were copied by SFA staff and mailed to the study data collection center. School district characteristics and procurement practices information were collected through a self-administered survey completed by the food service director. The procedures used in collecting and processing these data are described below.

1. Food Purchases and Donations

Food acquisitions by school districts taking part in the study were assigned to one of three categories: (1) purchased foods not containing donated commodities, (2) purchased foods containing donated commodities, or (3) donated commodities. Foods were considered to have been acquired at the point in time when the school district assumed ownership. This generally coincides with the time of delivery to the district.

1.1 Valuing Donated Commodities

The valuation of donated commodities required special treatment. Foods that are commercially purchased and contain no donated commodities are assigned a value by the vendor. For these food items there is no ambiguity with regard to their market value. The valuation of donated commodities and processed foods containing donated commodities is less straightforward. Commodities donated by the USDA are assigned dollar values by the Department based on what they pay, plus transportation charges. However, this value excludes some cost elements associated with the procurement, storage, and delivery of these foods to school districts and therefore generally underestimates their delivered market value.

In addition, some donated commodities are used as ingredients in foods that are processed expressly for schools participating in the NSLP. This is the second category identified above. There are three major types of arrangements under which these products are processed. They are:

State Processing. Some State agencies negotiate processing agreements for their recipient agencies and have commodities shipped directly from the USDA supplier to these processors. These processors then sell the processed food directly to SFAs, discounted or rebated by an amount equal to the value of the donated commodities used. Around 39 states currently have state processing contracts.

SFA Processing. Larger SFAs often negotiate processing contracts on their own. When this is done, the donated commodities can be routed either directly to the processor from the USDA or through the SFA before moving to the processor and back again as a finished product.

SOC Processing. Some SFAs can also receive processed products in lieu of donated commodities as part of their commodity deliveries. These State Option Contract (SOC) products include such foods as chicken nuggets and patties, beef patties, and pork ribettes. The contracts for processing these products are negotiated by USDA. However, SOC products are processed using the manufacturer's ingredients unlike state processing and SFA processing which use USDA purchased ingredients. The States participating in these contracts reimburse USDA for the cost of the processing and added ingredients, usually by charging the recipient SFAs. The cost of the commodity component is charged

to the State's entitlement. Nine states are currently participating in the SOC program.

Recognition that a product is a donated commodity is not always straight-forward. Commodities that are delivered directly to SFAs from State warehouses are easily recognized, but those that are delivered by commercial vendors in combination with commercial purchases might not be recognized unless delivery slips make this clear. Similarly, processed products obtained through SOC contracts, and commodities converted into processed products by State processing or local processing agreements are sometimes difficult to identify. In addition to asking SFAs to identify these foods in the records they submitted, the State Distributing Agencies (SDAs) were asked to provide information on commodity deliveries to the SFAs in their states for the relevant quarter and on foods processed under state processing agreements. Most SDAs responded to this request, thereby providing a useful check against the information provided by the SFAs.

Given that neither USDA-assigned values nor processor prices for products containing commodity ingredients were considered reliable measures of market price, commercial prices of comparable foods were used in valuing these foods.

1.2 Food Procurement Variables

The following variables were used in developing national estimates of the types, volumes, and value of foods acquired by NSLP school districts in SY 1996/97 and in comparing these estimates to those for SY 1984/85:

- **Name of the individual food item.** This is the generic name of each food item for which quantity and value information was reported. It is the most detailed level at which information for individual foods is being analyzed in this study. A total of 842 unique food items were identified. This compares to approximately 1,150 separate food items identified in the study conducted in SY 1984/85. The system used in assigning 6-digit codes to individual food items is described in the Statistical Appendix Report.
- **Form in which the food is acquired.** Form refers to whether the food is in a fresh, frozen, canned, dried, or fluid form at the time of procurement. Categories representing more than one category (e.g., fresh or frozen) were used when the form could not be determined with certainty.

- **Volume of acquisition.** The net weight of acquisitions measured in pounds. Total volume was determined by multiplying per unit weight by the number of units acquired. To derive this weight when the unit of acquisition was another measure (e.g., cases of "number 10" cans), standard conversion factors for the individual food items were used.
- **Mean cost per pound of food item.** This is the mean delivered cost of a food item per pound (net weight) measured in dollars. For foods purchased commercially (and not containing USDA donated foods), this is the invoice cost. For donated commodities and processed foods containing donated commodities, it is the invoice cost of comparable foods purchased commercially. When the same food item was acquired at more than one price by a given SFA during the period of study, the mean cost was determined by weighting prices on the basis of volume. The many different units represented in the raw data (e.g. cases of #10 cans, dozens, gallons, etc.) were converted to pounds.
- **Total cost of food item acquisition.** As the term implies, this was derived by multiplying the mean per unit food item cost by the number of pounds of the item acquired. It represents the total acquisition cost of a given food item.
- **Cost per thousand students of food item acquisition.** This variable was derived by dividing the total dollar cost of the food item by the student enrollment with access to the food program of the school district they attended. An adjustment for those having access to the program is made necessary by the fact that some enrolled students (e.g. kindergarten students attending half-day sessions) are included in overall enrollment numbers but do not have access to the program. To the extent this adjustment is required, it is usually small.
- **USDA donated commodities.** These are food items donated by the USDA and received by SFAs in the same form in which they were purchased and shipped by the USDA (as distinguished from donated commodities that have been further processed following purchase by the USDA or processed foods obtained under SOC contracts). While these items frequently share the same generic name as commercially purchased food items, quantity and value measures for donated commodities are treated separately.

- **Purchased food item containing one or more USDA donated commodities.** These food items will also frequently share the same generic name as other purchased food items. Quantity and value measures for these items are treated separately, both from commercially purchased foods that contain no USDA donated commodities and from USDA donated commodities. The valuation of these items is as described above. This variable also includes products processed under SOC contracts.
- **Period of purchase.** Food items were considered to have been acquired on the date at which the SFA accepted delivery. The site of delivery varied and included individual schools sites, central kitchens, and central warehouses, among other locations. The period of study was divided into four quarterly periods of purchase: July-September, 1996; October-December, 1996; January-March, 1997; April-June, 1997. The date of delivery within the quarter was not recorded, except as required for internal record-keeping.
- **Food item used in a la carte offerings.** SFAs were asked to identify those foods in general terms (e.g. hamburgers, ice cream, cookies, etc.) that were used in a la carte offerings and to estimate the share of total volume of each food so identified that was used in a la carte offerings.
- **Change in volume of acquisition and share of total volume.** This variable was derived from national estimates for those individual food items for which information was available both in SY 1984/85 and SY 1996/97 and for aggregations of food items.

1.3 Transcription and Processing of Raw Data

On the basis of the telephone interviews with the principal contact for each participating SFA, the least burdensome, most cost-effective means of retrieving copies of existing procurement records from the archives of each school district were identified. The principal sources of this information were vendor summaries, copies of invoices, tally sheets prepared by district staff, and bid specifications.

Since data collection procedures were tailored to the particular situation of each school district, data arrived in a variety of forms. Data were transcribed, in most cases, by vendor, by month for a given SFA. Relevant data elements were copied from the SFA-provided document to a

standard transcription form. If necessary, telephone calls were made to the SFA contact or the vendor (with SFA approval) to capture missing data elements. As a further source of information, State Distributing Agencies (SDAs) provided records on deliveries of USDA donated commodities to the SFAs in their states that were participating in the study.

Given the large volume of highly detailed data, it was necessary to conduct several edit checks to help ensure the highest possible degree of accuracy. A description of these edit checks appears in Appendix A.

2. District Characteristics and Procurement Practices

2.1 Survey Collection Procedures

A pre-test of the initial draft of the survey instrument was conducted in January 1996. Five school districts took part: one each in Arkansas, Maryland, and Virginia and two in Pennsylvania. Student enrollment in the pre-test districts ranged from 1,248 to 116,859. Respondents were debriefed, two by telephone and three during on-site visits. The average length of time required to complete the instrument was 1 to 1½ hours. Results of the pre-test were helpful in identifying ambiguities in terminology and question structure. They also pointed toward potential difficulties in collecting detailed information on *a la carte* food sales.

Procurement practices surveys, accompanied by a cover letter and reimbursement check,¹ were mailed to participating school districts following receipt of their food procurement records for the quarter of their participation. Since some of the survey questions requested information for this quarter, (e.g., number of reimbursable meals served and food expenditures), it was necessary to delay sending the survey until the quarter was over and SFA personnel had an opportunity to tabulate their numbers. The first surveys were mailed in November 1996. Respondents were asked to return the completed survey by a specified date, generally within two to three weeks of receipt.

SFAs late in responding were contacted, first by letter and then by telephone, if necessary. Returned surveys were reviewed for completeness, consistency, and accuracy at time of receipt. Missing, incomplete, or incorrect information was handled by telephone with the SFA contact.

^{1/} A payment of between \$70 and \$270 was made to each participating school district to compensate for the time and out-of-pocket expense associated with assembling, copying and mailing of their food procurement records. The amount of the payment was based on the number of reimbursable lunches served in October 1995.

Follow-up telephone calls were required for nearly every SFA; repeat telephone calls were often necessary.

2.2 District Characteristics and Procurement Practices Variables

SFA characteristic variables were used both to document and describe key features of the public unified school food universe and to assess and interpret food purchase practices. Most of these variables are identical to those used in the earlier study, thereby facilitating comparison with the earlier results. In general, these are the dimensions of the school districts and their lunch/breakfast programs that most influence the types and amounts of foods purchased and/or their procurement practices. The following SFA characteristic variables were used:

- **School district enrollment.** School district enrollment as of October 31, 1996 is used as an indicator of district size. There is no entirely satisfactory measure of the patronage of a school feeding program. Reimbursable meal counts are partial in that they exclude students that choose their lunches from *a la carte* options or don't participate in the program at all. Enrollment numbers alone overstate the potential patronage by the extent of daily absences and by the number (if any) who do not have access to the program, (e.g., enrolled students attending half-day kindergarten.) Thus, student enrollment adjusted for absences and for those lacking access provides an upper limit on the average number of students who could participate in a school feeding program.
- **Number of schools and student enrollment by grade category.** Both the quantity and types of food utilized by a school food program are influenced by the age distribution of the student population. This is represented by using the following grade categories: elementary, middle/secondary, and others. Elementary schools were defined as a school that had a kindergarten or grade 1, 2, or 3 and no grade higher than grade 6. Middle/secondary schools were defined as schools with no grade lower than grade 6. All other schools were assigned to the "other" category. Thus, a school with grades K through 12, for example, fell in the "other" category.
- **Program participation by meal category.** This variable is expressed as the total number of meals served, both in SY 1995/96 and in the relevant quarter of SY 1996/97. In both periods, the numbers are disaggregated by meal category

(school lunch and school breakfast) and by category of participation (free, reduced-price, full-price.)

- **Meal prices.** This variable (expressed in dollars) is disaggregated by elementary and middle/secondary schools, by full and reduced-price meals, and by lunch and breakfast. If more than one price was charged for full-price meals, a weighted average price was calculated.
- **Number of approved free and reduced-price applications on file.** This is the total number of students as of October 31, 1996 approved to receive free meals and the number approved to receive reduced-price meals. These approvals set an upper boundary on the number of meals served in these categories. These totals are also disaggregated by elementary, middle/secondary, and other grade categories.
- **Receipts from other food program sales.** Some SFAs prepare and serve meals for purposes other than student and staff meals. This can include foods served through USDA food assistance programs (e.g., Child and Adult Care, Summer Food Service, and the Nutrition Program for the Elderly) or through locally sponsored programs. To the extent these programs utilize food that is included as part of a district's overall food procurement, this variable provides an approximation of the scale of these activities relative to the receipts from reimbursable meals and from a la carte sales.
- **Regional location of school district.** To some extent, the availability and cost of foods can be influenced by the district's proximity to sources of supply. This effect is most pronounced for perishable foods such as fresh fruits and vegetables but it applies to other foods as well. For this analysis, regional location serves as a proxy for this influence, using the USDA's ten agricultural production regions.
- **Urbanicity.** Urbanicity can influence the cost of food to a school district as a result of its proximity to central points of food distribution and/or to competitive vendor markets. A seven-category urbanicity measure included in the QED database was used. It ranges from metropolitan areas with a population of 400,000 or more to places of less than 2,500.
- **Income.** The income level of households within a school district directly influences eligibility for free and reduced-price meals and can indirectly

influence participation in school feeding programs. Income was represented by a variable included in the QED database that measures the share of students within a school district that come from households with incomes below the Federal poverty guidelines. QED derives its measure from data found in the National Center for Education Statistics' Common Core of Data which is based on the 1990 census.

Several different dimensions of SFA food procurement, preparation, and serving are represented by variables in the analysis that follows. They include:

- **Indicators of *a la carte* activity.** This includes an indication as to whether *a la carte* is used and if it is used, total *a la carte* receipts for SY 1995/96 and for the relevant quarter in SY 1996/97, its availability among schools in the district, and the identification of foods most prominently offered *a la carte*.
- **Indicators of vendor use and availability.** This includes the number of vendors serving school districts for each of eight product categories and the total number of vendors serving the market in which the school district is located for each product line.
- **Procurement methods.** This variable represents the following range of procurement options, disaggregated by major food category: formal line item bids, formal lump sum bids, telephone bids/quotes, salesman visits, and other methods.
- **Product pricing.** For the principal vendors for each of the major food categories, this variable indicates which of the several alternative methods of product pricing were used by the district.
- **Use of food service management company.** This variable indicates whether the school district was under the direction of a private food service management company in SY 1996/97 and, if so, the period of time this arrangement had been in effect (measured in years) and whether the management company is responsible for both vendor selection and food selection.
- **Cooperative buying.** This variable indicates school district participation in a cooperative food buying program in SY 1996/97. For participants in cooperative buying, the period of participation, involvement of other school districts, share

of total food purchases made cooperatively, and types of foods purchased were also reported.

- **Product specifications.** School districts' use of alternative means of product specifications such as quality/grade standards, brand name, fat content, use of Child Nutrition (CN) labels, etc. is represented by this variable.
- **Preparation facilities.** The number of kitchens by type, including base, central, receiving/satellite, combination, and on-site kitchens is indicated by this variable.
- **Storage and delivery of food.** For each of the major food categories, this variable indicates the principal point of receipt within the SFA and the frequency of vendor delivery. It also indicates whether deliveries initially go to a central warehouse, how frequently deliveries within the district are made to schools, whose vehicles are used, and the cost of transporting food within the district in SY 1995/96.
- **Menu planning.** This variable represents the number of schools using alternative menu planning methods in SY 1996/97, including NuMenu, Assisted NuMenu, food based, and traditional meal patterns.
- **School district decision-making.** This includes indicators of the level within the school district organization at which decisions are made regarding choice of vendors, identification of foods to be purchased, and food orders.
- **Branded food products.** This variable identifies the use of branded food products – in-house and national brands – in SY 1996/97. For those districts using branded products, this variable indicates the number of schools within the district that feature brands, principal types of products sold under brand, and principal forms in which the product (or its ingredients) are supplied.

2.3 Edit Checks

As the surveys were received, they were reviewed for completeness and legibility. Responses that were missing, unclear, or contradictory were resolved through telephone contact with the SFA. Once all questions were resolved, the survey was entered into the database. A standard verification process was used to verify, on a question-by-question basis the answers provided. SFA responses were verified in relation to other answers given on the survey and were compared to those given by other SFAs to test their reasonableness. For numeric entries, acceptable ranges

and relationships were incorporated into the edit check process. Survey responses were also checked against procurement data submitted by the SFA for consistency.

D. Standard Errors

The standard errors of population means and totals were estimated using a bootstrap or resampling technique that is commonly used in survey data analysis. The major steps in this estimation procedure are described in Appendix A.

Standard errors for a selected list of prominent food items and key SFA characteristic estimates appear in Table II-3. Confidence intervals calculated on the basis of a 90 percent confidence level (plus or minus the point estimate) are also shown.

Table II-3: Standard Error of Estimate for Selected Variables

Variable	Unit of measure	Estimate	Standard error	Confidence interval ¹¹	Confidence interval as % of estimate
All acquired foods	thousand dollars	4,642,667	166,996	274,708	5.9
Purchased ground beef	dollars	15,511,523	1,918,827	3,156,470	20.3
Donated ground beef	dollars	83,717,742	6,631,022	10,908,031	13.0
Purchased 2% fluid milk	dollars	97,286,128	8,576,973	14,109,120	14.5
Purchased 1 % flavored milk	pounds	770,347,867	18,844,210	30,998,725	4.0
Purchased formed frozen potatoes	pounds	67,830,866	2,135,367	3,512,679	5.2
Purchased formed frozen potatoes	dollars	29,530,001	1,981,542	3,259,637	11.0
Total enrollment, SY 1996/97	number	41,806,303	1,798,619	2,958,728	7.1
Number of lunches served, SY 1996/97	thousands	3,888,257	173,848	285,980	7.4
Number of free lunches served, SY 1996/97	thousands	1,965,208	133,816	220,127	11.2
School districts managed by food service management companies	number	975	164	270	27.7
Number of public unified NSLP schools	number	75,696	2,714	4,465	5.9

¹¹ 90 percent confidence level.

Source: *School Food Purchase Study*, 1998.

III. CHARACTERISTICS OF PUBLIC UNIFIED NSLP SCHOOL DISTRICTS

This chapter is devoted to a description of some of the more prominent characteristics of public unified school districts that participated in the NSLP in SY 1996/97. Since the universe for this study was restricted to those school districts that are both public and unified (kindergarten through twelfth grade), as described in Chapter II, the resulting estimates are not strictly comparable with those from other sources. The reasons for this and the expected magnitude of difference from other universes are also discussed in Chapter II.

This chapter is divided into two major sections. The first section describes overall characteristics of the districts, e.g. number and size of districts, number of schools, and attendance. The second section focuses more narrowly on characteristics of the feeding programs of these school districts. In this final section, we examine a variety of dimensions of these programs including eligibility and participation, meal prices, menu planning methods, the role of a la carte food sales, and the use of food service management companies.

A. Overall School District Characteristics

1. Number of Districts and Student Enrollment

An estimated 10,083 public unified school districts provided meals through the NSLP in SY 1996/97. These school districts were attended by an estimated 41.8 million students.¹ The distribution of school districts is skewed strongly in the direction of smaller school districts; the distribution of students is skewed almost as strongly in the opposite direction. Thus, the bottom one-third of all school districts in terms of enrollment accounted for only 5.0 percent of all students while the largest 2.5 percent of the districts accounted for one-third of all students.

1/ This compares to USDA's estimate of the total enrollment in NSLP public schools in FY 1997 of 44.4 million students. The USDA estimate includes unified and nonunified public school districts in all 50 states, the District of Columbia, and US possessions.

**Table III-1: Total Student Enrollment and Number of Public Unified NSLP
School Districts by Size of District, SY 1996/97**

School district enrollment	Total student enrollment		Number of school districts	
	Number of students	Percent of total	Number of school districts	Percent of total
Less than 1,000	2,094,593	5.0	3,411	33.8
1,000-4,999	12,024,975	28.8	5,009	49.7
5,000-24,999	13,292,858	31.8	1,410	14.0
25,000 or more	14,393,878	34.4	253	2.5
All districts	41,806,303	100.0	10,083	100.0

Note: Percentages might not add to 100.0 due to rounding.
Source: *School Food Purchase Study, 1998.*

These school districts included 75,696 schools within their systems in SY 1996/97 (Table III-2).¹ Of this number, 54.4 percent were elementary schools, 31.5 percent were middle/secondary, and the remaining 14.1 percent fell in the "other" category. Since larger school districts tend to operate schools with larger enrollments, the number of schools is not as highly skewed toward the larger systems as is the number of students. Not surprisingly, the number of "other" schools, many of which are kindergarten through twelfth grade, are found with greatest frequency among the smaller school districts.

^{1/} This compares to USDA's estimate of 82,437 NSLP public schools in FY 1997, including unified and nonunified public schools in all 50 states, the District of Columbia, and the US possessions.

**Table III-2: Number of Schools in Public Unified NSLP School Districts
by Size of District and by Grade Category, SY 1996/97**

School district enrollment	Elementary	Middle/ secondary	Other	Total
Less than 1,000	2,372	2,953	2,458	7,783
row percent	30.5	37.9	31.6	100.0
column percent	5.8	12.4	23.0	10.3
1,000 to 4,999	13,837	9,082	3,762	26,682
row percent	51.9	34.0	14.1	100.0
column percent	33.6	38.1	35.2	35.2
5,000 to 24,999	12,737	6,269	2,160	21,167
row percent	60.2	29.6	10.2	100.0
column percent	31.0	26.3	20.2	28.0
25,000 or more	12,205	5,562	2,298	20,065
row percent	60.8	27.7	11.5	100.0
column percent	29.7	23.3	21.5	26.5
All districts	41,152	23,866	10,676	75,696
row percent	54.4	31.5	14.1	100.0
column percent	100.0	100.0	100.0	100.0

Source: *School Food Purchase Study*, 1998.

Enrollment by grade category is more equally divided between elementary and middle/secondary than is the number of schools since elementary schools are generally smaller and in closer proximity to the neighborhoods they serve. Of the students enrolled in public unified NSLP school districts in SY 1996/97, an estimated 19.7 million (47.2 percent) were in elementary schools, 18.6 million (44.5 percent) in middle/secondary schools, and 3.5 million (8.3 percent) in "other" schools (see Table III-3).

**Table III-3: Student Enrollment of Public Unified NSLP School Districts
by Size of District and Grade Category, SY 1996/97**

School district enrollment	Grade category			Total
	Elementary	Middle/Secondary	Other	
Less than 1,000	719,451	782,950	592,192	2,094,593
row percent	34.3	37.4	28.3	100.0
column percent	3.6	4.2	17.1	5.0
1,000- 4,999	5,183,315	5,650,823	1,190,836	12,024,975
row percent	43.1	47.0	9.9	100.0
column percent	26.3	30.3	34.3	28.8
5,000 - 24,999	6,412,234	5,887,464	993,160	13,292,858
row percent	48.2	44.3	7.5	100.0
column percent	32.5	31.6	28.6	31.8
25,000 or more	7,404,285	6,298,557	691,033	14,393,878
row percent	51.4	43.8	4.8	100.0
column percent	37.5	33.8	19.9	34.4
All districts	19,719,285	18,619,795	3,467,223	41,806,303
row percent	47.2	44.5	8.3	100.0
column percent	100.0	100.0	100.0	100.0

Source: *School Food Purchase Study*, 1998.

To more accurately determine the number of students who could potentially participate in the NSLP, survey respondents were asked to report average daily attendance as well as the number of students included in enrollment who did not have access to the lunch program for one reason or another. Some school districts have schools in their systems that do not participate in the NSLP. Likewise, students attending half-day kindergarten classes frequently do not have access to school meals.

National estimates of these measures appear in Table III-4. They indicate that, on average, 6.6 percent of the students enrolled in public unified NSLP school districts in SY 1996/97 were absent and another 1.5 percent of those enrolled students in attendance lacked access to the program. Rates of absence were found to rise with increasing size of district, going from 5.0 percent for the smallest districts to 8.1 percent for the largest. The share of enrollment that was in attendance but lacked access was highest among districts with less than 1,000 enrollment (3.0 percent) and smallest among districts with an enrollment of 25,000 or more (0.6 percent).

Despite this, the relationship with size is not very strong given that the next to the largest district size category has a rate of attendees lacking access that is nearly as large as the smallest size category.

Table III-4: Student Enrollment, Average Daily Attendance, and Average Number of Attendees With Access to the Lunch Program in Public Unified NSLP School Districts by Size of District and Grade Category, SY 1996/97

School district enrollment	Grade category			Total
	Elementary	Middle/secondary	Other	
	number of students			
<u>Less than 1,000</u>				
Enrollment	719,451	782,950	592,192	2,094,593
Daily attendance	683,691	743,531	562,828	1,990,050
Attendance with access	671,422	708,950	545,864	1,926,236
<u>1,000 to 4,999</u>				
Enrollment	5,183,315	5,650,823	1,190,836	12,024,975
Daily attendance	4,935,802	5,305,397	1,130,013	11,371,212
Attendance with access	4,813,775	5,304,614	1,119,495	11,237,884
<u>5,000 to 24,999</u>				
Enrollment	6,412,234	5,887,464	993,160	13,292,858
Daily attendance	5,961,824	5,531,097	951,674	12,464,595
Attendance with access	5,810,033	5,361,026	938,317	12,109,376
<u>25,000 or more</u>				
Enrollment	7,404,285	6,298,557	691,036	14,393,878
Daily attendance	6,844,674	5,752,230	624,538	13,221,442
Attendance with access	6,808,881	5,713,959	623,891	13,146,731
<u>All districts</u>				
Enrollment	19,719,285	18,619,795	3,467,223	41,806,303
Daily attendance	18,445,991	17,332,255	3,269,054	39,047,300
Attendance with access	18,104,112	17,088,548	3,227,567	38,420,227

Source: School Food Purchase Study, 1998.

Compared to results of the study conducted in SY 1984/85, there are now fewer districts and more students. The number of school districts fell 7.2 percent while the estimated number of students enrolled in these districts rose 20.9 percent over the 12-year period. The distribution of students continued to shift toward the larger districts. While districts of 25,000 or more accounted for 19.6 percent of total enrollment in SY 1983/84, by SY 1996/97, this share had risen to 34.4 percent. This growth in share is due to a combination of smaller districts growing into this size class and increased enrollment in districts that were already in this size class in SY 1983/84.

BLANK

PAGE

**Table III-5: Estimated Enrollment in Public Unified NSLP School Districts
by Size of District Enrollment and by Grade Category, SYs 1983/84 and 1996/97**

Grade category	School year	All districts		Less than 1,000		1,000 to 4,999		5,000 to 24,999		25,000 or more	
		Enrollment	Percent	Enrollment	Percent	Enrollment	Percent	Enrollment	Percent	Enrollment	Percent
Elementary	1983/84	17,217,203	100.0	807,431	4.7	6,245,298	38.3	6,646,796	38.6	3,517,678	20.4
	1996/97	19,719,285	100.0	719,451	3.6	5,183,315	26.3	6,412,234	32.5	7,404,285	37.5
Middle/secondary	1983/84	17,359,187	100.0	1,120,094	6.5	6,594,451	38.0	6,388,875	36.8	3,255,767	18.8
	1996/97	18,619,795	100.0	782,950	4.2	5,650,823	30.3	5,887,464	31.6	6,298,557	33.8
Other	1983/84	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	1996/97	3,467,223	100.0	592,192	17.1	1,190,836	34.3	993,160	28.6	691,036	19.9
Total	1983/84	34,576,390	100.0	1,927,525	5.6	12,839,749	37.1	13,035,671	37.7	6,773,445	19.6
	1996/97	41,806,303	100.0	2,094,593	5.0	12,024,975	28.8	13,292,858	31.8	14,393,878	34.4

Note: The 1987 and 1996 Studies define their enrollment categories differently. The 1987 Study used "junior high schools and high schools" instead of "middle/secondary" and it did not allow for an "other" category.

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1998*.

2. Year-Round Operations

Some school districts now operate at least a portion of their systems throughout the calendar year in lieu of the traditional 3-month summer break. Three different forms of year-round education are currently in use: single-track, multi-track, and extended year. Each of these forms results in a reconfiguration of the school year. As a result, year-round operations can affect the pattern of food acquisition and use as well as the utilization of physical facilities.

The single-track approach is used largely for the educational value of avoiding a three-month interruption in the instructional program. It does not result in more efficient use of the facility or the instructional staff; rather, it evens out the same 180 days of instruction across the school year. The multi-track approach, in contrast, makes it possible to extend the capacity of the school by about one-third if a four-track system is used. The extended year form, which is infrequently used, lengthens the school year up to 240 days of instruction.

The National Association for Year-Round Education reports that in SY 1996/97, some form of year-round education was used in 2,400 schools in 460 public school districts with an enrollment of 1.8 million students.¹ This level of enrollment reportedly represents a nearly 4-fold increase since SY 1986/87. According to Association records, more than half of all year-round program schools and 40 percent of the school districts are in California. Other leading states in terms of number of year-round schools are Texas, North Carolina, and Arizona.

Results of this study estimate that 431 public unified NSLP school districts, 4.3 percent of the total, were engaged in year-round education in SY 1996/97, as shown in Table III-6. It would appear from these findings that year-round instruction has substantially greater appeal for larger school districts. Nearly half (46.3 percent) of all districts with 25,000 or more enrollment were found to be applying the concept in some form in at least a portion of their schools.

1/ National Association for Year-Round Education, *Year-Round Education Fact Sheet*, December 5, 1997.

**Table III-6: Number of Public Unified NSLP School Districts Operating
Partial-Year and Year-Round by Size of School District, SY 1996/97**

School district enrollment	Partial-year	Year-round	All districts
Less than 1,000	3,411	0	3,411
	100.0	0.0	100.0
	30.8	0.0	30.8
1,000-4,999	4,926	83	5,009
	92.3	1.7	94.0
	14.5	0.2	14.7
5,000-24,999	1,180	231	1,410
	83.7	16.3	100.0
	3.3	1.6	4.9
25,000 or more	136	117	253
	53.7	46.3	100.0
	0.4	0.5	0.9
All districts	9,652	431	10,083
	96.7	4.3	100.0
	29.2	0.4	29.6

Note: Percentages might not add to 100.0 due to rounding.

Source: *School Food Purchase Study, 1998.*

Districts that are engaged in year-round operations account for 17.2 percent of all public unified NSLP schools and report that, on average, 19.1 percent of their schools are year-round. As can be seen in Table III-7, the smaller school districts that have year-round schools are operating on this basis in a large share of their schools. For those districts of 1,000 to 4,999, nearly half of their schools (46.1 percent) were being operated on a year-round basis in SY 1996/97. It would also appear from these findings that the year-round approach is being used somewhat more in elementary than in middle/secondary schools, at least among the larger districts.

Table III-7: Number of Schools in Public Unified NSLP School Districts Operating Year-Round Programs, by Grade Category and by School District Enrollment, SY 1996/97

School district enrollment	Grade category			Total
	Elementary	Middle/ secondary	Other	
<u>Less than 1,000</u>				
Total number of schools	0	0	0	0
Number of schools year-round	0	0	0	0
Percent year-round	n/a	n/a	n/a	na
<u>1,000 to 4,999</u>				
Total number of schools	503	261	85	849
Number of schools year-round	219	136	36	391
Percent year-round	43.5	52.2	42.6	46.1
<u>5,000 to 24,999</u>				
Total number of schools	2,034	1,056	505	3,596
Number of schools year-round	540	129	101	770
Percent year-round	26.5	12.2	20.0	21.4
<u>25,000 or more</u>				
Total number of schools	5,204	2,248	1,120	8,572
Number of schools year-round	1,100	201	18	1,319
Percent year-round	21.1	8.9	1.6	15.4
<u>All districts</u>				
Total number of schools	7,741	3,565	1,710	13,016
Number of schools year-round	1,859	466	155	2,480
Percent year-round	24.0	13.1	9.1	19.1

Source: School Food Purchase Study, 1998.

While the number of schools on a year-round schedule accounted for only 3.3 percent of all public unified NSLP schools in SY 1996/97, the fact that this approach is being tried in so many school districts, particularly larger districts, suggests the potential for considerable expansion in the future.

B. Characteristics of School Feeding Programs

1. Participation in NSLP and SBP

School district participation in the NSLP was a requirement for inclusion in the sample for this study. Thus, participation in NSLP, at least at the level of the school district, was assured. Participation in the SBP was not required for inclusion in the study. Nor was there a requirement that all schools within the district participate in the NSLP.

On the basis of study results, it is estimated that there were 75,696 schools operated by 10,083 public unified NSLP school districts in SY 1996/97. Of the total number of schools, over three-quarters (76.1 percent) participated in both the NSLP and the SBP. Another 22.0 percent participated exclusively in the NSLP. In a small number of school districts taking part in the study, a portion of the districts' schools did not participate in either program. Nationally, it is estimated that 1.9 percent of all schools in this universe did not participate in the NSLP or the SBP.

Participation in the SBP is somewhat higher in elementary schools (79.1 percent) than in either of the other two grade categories, 73.7 percent in middle/secondary and 70.4 percent in the other category. Of all schools participating in the SBP, 53.8 percent qualify as severe need schools.¹

Table III-8: Number of Schools in Public Unified NSLP School Districts, by Grade Category and by Participation in School Meals Programs, SY 1996/97

Participation in NSLP/SBP	Elementary		Middle/ Secondary		Other		Total	
	Total	%	Total	%	Total	%	Total	%
Participating in NSLP and SBP	32,542	79.1	17,578	73.7	7,515	70.4	57,635	76.1
Participating in NSLP only	8,528	20.7	5,954	24.9	2,143	20.1	16,625	22.0
Participating in SBP only	0	0.0	8	0.0	0	0.0	8	0.0
Not Participating in NSLP or SBP	82	0.2	326	1.4	1,020	9.6	1,428	1.9
SBP severe-need ^{1/}	19,181	43.6	8,226	34.5	3,602	33.8	31,009	41.0
All schools	41,152	100.0	23,866	100.0	10,678	100.0	75,696	100.0

^{1/}SBP severe-need is a subset of SBP.

Note: Percentages might not add to 100.0 due to rounding.

Source: School Food Purchase Study, 1998.

1/ Severe need schools receive larger cash reimbursements on free and reduced-price breakfasts. All other reimbursements are unaffected. To be a severe need school, a school must document that its meal preparation costs exceed the regular reimbursements and that it served more than 40 percent of its NSLP lunches free or at a reduced-price in the second prior school year.

2. Number of Lunches and Breakfasts Served

Public unified NSLP school districts served nearly 3.9 billion lunches in SY 1996/97, as indicated in Table III-9.¹ Just over half (50.5 percent) of these lunches were provided at no charge while another 8.1 percent were provided at a reduced-price. The remaining 41.3 percent were full-price meals.

A somewhat larger share of all lunches served in larger districts are free or reduced-price compared to smaller districts. Nearly three-quarters of all lunches served in districts with an enrollment of 25,000 or more were free or reduced-price in SY 1996/97 compared to slightly less than half in school districts with an enrollment of less than 1,000. In addition, of the number of free and reduced-price meals served, the share that are free increases with district size, rising from 77.8 percent in the smallest district size category to 89.0 percent in districts with 25,000 or more students.

Table III-9: Number of NSLP Lunches Served in Public Unified NSLP School Districts by Type of Meal and Size of School District, SY 1996/97

School district enrollment	Number of full-price lunches	Number of reduced-price lunches	Number of free lunches	Total number of NSLP lunches
Less than 1,000	122,292,144	24,033,360	83,851,077	230,176,581
row percent	53.1	10.4	36.4	100.0
column percent	7.8	7.8	4.3	5.9
1,000-4,999	597,267,479	89,898,369	448,271,913	1,135,437,762
row percent	52.6	7.9	39.5	100.0
column percent	37.2	28.4	22.8	29.2
5,000-24,999	547,304,769	92,081,746	539,914,874	1,179,301,390
row percent	46.4	7.8	45.8	100.0
column percent	34.1	29.1	27.5	30.3
25,000 or more	339,638,102	110,533,193	893,170,338	1,343,341,633
row percent	25.3	8.2	66.5	100.0
column percent	21.1	34.9	45.4	34.5
All districts	1,606,502,495	316,546,869	1,985,208,202	3,888,257,366
row percent	41.3	8.1	50.5	100.0
column percent	100.0	100.0	100.0	100.0

Note: Percentages might not add to 100.0 due to rounding.

Source: *School Food Purchase Study*, 1998.

1/ This compares to USDA's estimate of 4.4 billion lunches served in SY 1996/97 for all participating schools, public and private, unified and nonunified, in all 50 states, the District of Columbia, and US possessions.

Comparison of these results with those of the 1984/85 study reveals two major differences. First, compared to the earlier period, a larger share of NSLP meals are now served in the largest districts. Of course, some of this is due to the continuing consolidation of smaller school districts as well as to the "graduation" of districts to larger size categories due to growth in enrollment. The differences are greatest for the two middle-size districts (1,000 to 4,999 and 5,000 to 24,999) which in combination went from accounting for 73.9 percent of all NSLP lunches in SY 1983/84 to 59.5 percent in SY 1996/97 while districts with 25,000 or more students went from 19.7 percent to 34.5 percent.

A second difference is the increased share of all lunches that are free and reduced-price in the more recent period. The earlier study found that, overall, free and reduced-price meals accounted for 45.2 percent of all meals in SY 1983/84. That contrasts with an estimate in this study of 58.6 percent in SY 1996/97. This shift toward free and reduced-price meals and away from full-price meals is common to all size classes of districts.

Public unified districts participating in the SBP served more than 1.1 billion breakfasts in SY 1996/97. Over four out of five (81.1 percent) were provided at no charge to the student and another 6.0 percent were reduced-price. Nationally, only 12.8 percent were charged full-price.

Table III-10: Number of SBP Breakfasts Served in Public Unified NSLP School Districts by Type of Meal and Size of School District, SY 1996/97

School district enrollment	Number of full-price breakfasts	Number of reduced price breakfast	Number of free breakfasts	Total number of SBP breakfasts	Number of severe need breakfasts
Less than 1,000	14,640,965	5,206,513	34,841,390	54,688,867	25,875,126
row percent	30.8	9.5	63.7	100.0	47.3
column percent	10.1	7.7	3.8	4.9	3.8
1,000-4,999	48,183,207	22,282,735	211,589,187	282,055,129	144,318,197
row percent	17.1	7.9	75.0	100.0	51.2
column percent	33.4	32.8	23.2	25.1	21.5
5,000-24,999	47,747,542	21,084,592	223,062,240	291,894,374	153,302,141
row percent	16.4	7.2	76.4	100.0	52.5
column percent	33.1	31.0	24.5	26.0	22.8
25,000 or more	33,701,867	19,422,426	442,318,170	495,442,463	349,027,238
row percent	8.8	3.9	89.3	100.0	70.4
column percent	23.4	28.8	48.5	44.1	51.9
All districts	144,273,580	67,996,266	911,810,987	1,124,080,833	672,522,701
row percent	12.8	6.0	81.1	100.0	59.8
column percent	100.0	100.0	100.0	100.0	100.0

Note: Percentages might not add to 100.0 due to rounding.

Source: School Food Purchase Study, 1998.

As with school lunches, the share of breakfasts that are free or reduced-price increases as the enrollment size of the district increases. In districts with an enrollment of 25,000 or more, 93.2 percent of all breakfasts served were free or reduced-price while in the smallest districts (less than 1,000 enrollment), 73.2 percent were free or reduced-price. A similar relationship holds between district size and the share of all breakfasts reimbursed at severe need rates. Among the largest districts, 70.4 percent of breakfasts were estimated to be severe need while among the smallest districts, the severe need share was 47.3 percent. Nationally, the number of severe need breakfasts served in SY 1996/97 was the equivalent of 68.6 percent of the number served free and reduced-price.

The SBP has grown dramatically since the earlier study. The estimated number of breakfasts served in public unified school districts has nearly tripled. The distribution of breakfasts among free, reduced-price, and full-price has not changed much nationally although, interestingly, the full-price share of breakfasts served in the smallest districts increased rather sharply, offset by a drop in the share that was served at no charge.

3. Meal Prices

Lunch. The mean full-price elementary school lunch was \$1.21 in SY 1996/97 while the mean middle/secondary lunch was \$1.38. The median prices were \$1.25 and \$1.35, respectively. The mean reduced-price lunch was \$.36 for both elementary and middle/elementary students while the median level was \$.40 for both. As the zero entries in some price ranges in Table III-11 indicate, some school districts do not charge students who are eligible for reduced-price lunches. And, a smaller number of districts do not charge their students for lunch, even those students who are not eligible for free or reduced-price meals.

Differences in mean and median lunch prices among school districts of different sizes were found to be relatively small. School districts with enrollments of less than 1,000 charged the least for full-price lunches in both elementary and middle/secondary schools. The mean price of reduced-price lunches was lowest among school districts with the largest enrollment, though the magnitude of the difference was very small and median prices were uniform throughout all sizes. The uniformity of the upper bound on the range of reduced-price lunches is dictated by the Federal requirement that they not exceed \$.40.

Prices of school lunches have risen at a slightly faster rate than the Consumer Price Index (CPI) for food in the period since the earlier study was conducted in SY 1984/85. The mean price of full-price lunches rose 55.1 percent in elementary schools and 52.2 percent in middle/secondary schools, while the CPI for all food and beverages rose 48.9 percent and the CPI for food away-from-home grew by 46.5 percent between 1984 and 1996.

Table III-11: Mean, Median, and Range of Student Lunch Prices, Full-Price and Reduced-Price, by Size of Public Unified School District, SY 1996/97

School district enrollment	Full-price lunch			Reduced-price lunch		
	Mean	Median	Range	Mean	Median	Range
	dollars			dollars		
Less than 1,000						
Elementary	1.14	1.10	.60 - 1.75	0.39	0.40	.25 - .40
Middle/secondary	1.26	1.25	.60 - 2.50	0.36	0.40	.25 - .40
1,000 - 4,999						
Elementary	1.21	1.25	0.00 - 2.25	0.36	0.40	0.00 - .40
Middle/secondary	1.37	1.35	0.00 - 2.75	0.37	0.40	0.00 - .40
5,000 - 24,999						
Elementary	1.22	1.25	.60 - 1.75	0.37	0.40	0.00 - .40
Middle/secondary	1.40	1.45	.70 - 2.25	0.37	0.40	0.00 - .40
25,000 or more						
Elementary	1.21	1.25	0.00 - 1.60	0.35	0.40	0.00 - .40
Middle/secondary	1.39	1.40	0.00 - 1.94	0.35	0.40	0.00 - .40
All districts						
Elementary	1.21	1.25	0.00 - 2.25	0.36	0.40	0.00 - .40
Middle/secondary	1.38	1.35	0.00 - 2.75	0.36	0.40	0.00 - .40

Source: *School Food Purchase Study*, 1998.

Breakfast. The mean full-price breakfast among these school districts in SY 1996/97 was \$.59 in elementary schools and \$.63 in middle/secondary schools. The median prices were \$.65 and \$.70, respectively. As with lunch prices, the mean values for full-price breakfasts were lowest for the smallest school districts and rose with increasing size. However, the median prices for a full-price breakfast were nearly the same for the smallest school districts as for the largest. There was very little difference in the mean values for reduced-price breakfasts, regardless of district size, and no difference at all in the median values which is a constant \$.30 for all sizes. As with lunch prices, this uniformity results from program requirements in SY 1996/97 that set the reduced-price breakfast at no more than \$.30.

Table III-12: Mean, Median, and Range of Student Breakfast Prices, Full-Price and Reduced-Price, by Size of Public Unified School District, SY 1996/97

School district enrollment	Full-price breakfast			Reduced-price breakfast		
	Mean	Median	Range	Mean	Median	Range
	dollars			dollars		
Less than 1,000						
Elementary	0.44	0.60	0.00 - 1.00	0.24	0.30	0.00 - 0.30
Middle/secondary	0.44	0.70	0.00 - 1.25	0.24	0.30	0.00 - 0.30
1,000 - 4,999						
Elementary	0.59	0.65	0.00 - 1.25	0.26	0.30	0.00 - 0.30
Middle/secondary	0.61	0.65	0.00 - 1.40	0.26	0.30	0.00 - 0.30
5,000 - 24,999						
Elementary	0.61	0.70	0.00 - 1.15	0.23	0.30	0.00 - 0.30
Middle/secondary	0.67	0.75	0.00 - 1.19	0.23	0.30	0.00 - 0.30
25,000 or more						
Elementary	0.63	0.60	0.00 - 1.25	0.24	0.30	0.00 - 0.30
Middle/secondary	0.68	0.73	0.00 - 1.30	0.24	0.30	0.00 - 0.30
All districts						
Elementary	0.59	0.65	0.00 - 1.25	0.24	0.30	0.00 - 0.30
Middle/secondary	0.63	0.70	0.00 - 1.40	0.24	0.30	0.00 - 0.30

Source: *School Food Purchase Study*, 1998.

4. The Role of a la Carte Food Sales

In many schools, students are offered an opportunity to buy food items on an individual or a la carte basis. A la carte foods thereby become an alternative to the reimbursable meal. Whether or not foods are available to students on an a la carte basis, they are generally made available to adult staff members. Since most SFA records do not distinguish between student and adult a la carte sales, the sales estimates that appear in this section include both and should be interpreted accordingly.

As indicated in Table III-13, an estimated 69.3 percent of all public unified NSLP school districts offer foods a la carte in at least some of their schools.¹ Only about one-third (36.6 percent) of the smallest districts offer a la carte. However, the share in the next size class (1,000 to 4,999) rises

1/ Although respondents were prompted to consider milk as an a la carte item, to the extent some respondents failed to do so these estimates are lower than the actual levels.

sharply to 84.1 percent and is even higher in the two largest size classes, reaching 97.6 percent in districts with 25,000 students or more.

A la carte foods are more frequently available in middle and high schools than in elementary schools, as can be seen in Table III-14. A la carte foods at lunch are offered in 74.6 of all middle/secondary schools but in only 47.7 percent of all elementary schools. As a result, the number of all schools offering a la carte items for lunch is a smaller share of the total than the share of school districts. A comparable relationship exists for a la carte foods offered at breakfast, though only about half as many schools offer a la carte foods at this meal.

For those school districts that offer foods a la carte, the revenue from these sales averaged \$181,456 per district in SY 1996/97. Total a la carte sales for all districts approached \$1.3 billion in SY 1996/97.

The smallest size class, districts with less than 1,000 students, average \$628 in a la carte sales per 1,000 students although this size category is the least likely to offer a la carte with only 36.6 percent of the districts offering a la carte. This compares to \$335 in a la carte sales per 1,000 students for the largest districts of more than 25,000 students. One reason for this might be the increased number of students in larger districts that receive their meals free or reduced whereas students in smaller districts who pay full-price for their meals have the option of choosing a reimbursable meal or buying a la carte.

Of the 41.8 million students attending public unified NSLP school districts in SY 1996/97, as many as nine out of every ten (89.7 percent) had access to a la carte sales (Table III-15).¹ In those districts with 1,000 or more students, 92 percent had access to a la carte sales. Only in the smallest districts, those with enrollments of less than 1,000, did less than half (42.6 percent) the students have access to a la carte sales.

1/ Since all students within these districts might not have had access to a la carte sales, these percentages should be considered upper bounds.

Table III-13: Use of A La Carte Sales Among Public Unified NSLP School Districts, by Size of District, SY 1996/97

School district enrollment	Districts offering a la carte		A la carte sales, SY 1996/97		
	Number	Percent of total	Total	Mean per district	Sales per 1,000 students
			(\$000)	(\$)	(\$)
Less than 1,000	1,249	36.6	55,866	44,734	628
1,000 to 4,999	4,214	84.1	408,646	96,965	455
5,000 to 24,999	1,278	90.6	400,734	313,644	383
25,000 or more	247	97.6	402,680	1,632,811	335
All districts	6,988	69.3	1,267,926	181,456	392

Source: School Food Purchase Study, 1998.

Table III-14: Percent of Public Unified NSLP Schools Offering A La Carte Foods at Lunch and Breakfast, by Size of District and Grade Category, SY 1996/97

Grade category	All districts	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more
	percent of schools				
	Lunch				
Elementary	47.7	23.5	39.3	53.6	55.7
Middle/secondary	74.6	39.9	78.1	81.3	79.8
Other	33.3	9.2	33.0	45.5	48.1
Total	54.1	25.2	51.6	61.0	61.5
	Breakfast				
Elementary	20.3	6.6	13.5	23.2	27.7
Middle/secondary	45.6	23.4	37.7	60.0	54.0
Other	9.3	5.8	13.9	9.7	4.9
Total	26.7	12.7	21.8	32.7	32.4

Source: School Food Purchase Study, 1998.

Table III-15: Number of Students in Public Unified NSLP School Districts With Access to A La Carte Sales, by Size of School District, SY 1996/97

School district enrollment	Number of students with access to a la carte	Number of students without access to a la carte	Total number of students
Less than 1,000	892,920	1,201,673	2,094,593
row percent	42.6	57.4	100.0
column percent	2.4	27.9	5.0
1,000 to 4,999	10,297,959	1,727,016	12,024,975
row percent	85.6	14.4	100.0
column percent	27.5	40.1	28.8
5,000 to 24,999	12,256,892	1,035,966	13,292,858
row percent	92.2	7.8	100.0
column percent	32.7	24.1	31.8
25,000 or more	14,054,220	339,658	14,393,878
row percent	97.6	2.4	100.0
column percent	37.5	7.9	34.4
All districts	37,501,990	4,304,313	41,806,303
row percent	89.7	10.3	100.0
column percent	100.0	100.0	100.0

Source: School Food Purchase Study, 1998.

To help put a la carte sales in context, receipts from a la carte sales, as reported by the school district, were compared to our calculated estimate of receipts from the sale of reimbursable meals and Federal reimbursements and with the receipts, as reported by the district, from the sale of food through other programs. Receipts from the sale of reimbursable meals were estimated on the basis of the reported prices charged for full-price and reduced-price meals and the number of each of these meals served during the quarter in which the school district participated in the study. Federal reimbursements were estimated on the basis of the number of free, reduced-price, and full-price meals served and the standard reimbursement rates for SY 1996/97.¹ Receipts from

1/ No adjustment was made for the additional 2 cents per meal reimbursement where 60 percent or more of lunches served in the second preceding school year were served free or at reduced prices nor was an adjustment made for severe need breakfasts.

other program sales and from a la carte sales were reported by participating school districts for the quarter of their participation in the study.

The estimated revenue from these sources for SY 1996/97 by size of district is displayed in Table III-16. Receipts from a la carte sales for all school districts combined accounted for only 13.6 percent of total receipts from these four main sources of SFA revenue. Federal reimbursements accounted for the largest share (55.9 percent), by far, followed by student meal receipts which accounted for another 24.3 percent. Other program sales were about half as important as a la carte sales, accounting for an estimated 6.2 percent of the total.

As a share of total receipts, a la carte receipts were highest for medium-size school districts, those with enrollments of 1,000 to 24,999. The relatively high incidence of full-price meals among the smallest school districts (less than 1,000 students) results in student meal receipts equal to one-third of total revenue while this source of revenue accounts for less than half this share (14.0 percent) among the largest districts where free and reduced-price meals are in the majority.

BLANK

PAGE

**Table III-16: Comparison of Sources of District Revenue in Public Unified NSLP School Districts
by Size of District, SY 1996/97**

Sources of district revenue	<u>Less than 1,000</u>		<u>1,000 to 4,999</u>		<u>5,000 to 24,999</u>		<u>25,000 or more</u>		<u>All districts</u>	
	\$000	% of total	\$000	% of total	\$000	% of total	\$000	% of total	\$000	% of total
Student meal receipts	161,896	33.4	807,887	30.8	746,573	27.6	415,987	14.0	2,132,343	24.3
Reimbursements	252,410	52.0	1,267,455	48.4	1,380,027	51.0	2,008,654	67.6	4,908,546	55.9
Other program sales receipts	14,964	3.1	148,333	5.7	189,967	7.0	192,969	6.5	546,232	6.2
A la carte sales receipts	55,866	11.5	396,008	15.1	391,325	14.5	353,397	11.9	1,196,586	13.6
Total	485,136	100.0	2,619,683	100.0	2,707,892	100.0	2,971,007	100.0	8,783,717	100.0

Note: Districts that could not provide a la carte sales receipts or other program sales receipts were excluded from this analysis.

Source: School Food Purchase Study, 1998.

Respondents for those school districts that offered foods a la carte were asked to identify the ten top-selling (by dollar sales) a la carte food items for both elementary and middle/secondary schools. Foods were described in general terms, e.g. cookies, ice cream, pizza, etc. A total of 61 foods were identified. They are listed in Table III-17, together with the number of school districts that identified the food as one of its ten top-selling a la carte items, for elementary and middle/secondary schools.

These results should be interpreted with care. The information was difficult to collect since most SFAs do not maintain records on this basis. The responses were judgmental and should therefore be treated as approximations of the leading a la carte foods. As indicated in Table III-17, milk, fruit drinks, ice cream, and cookies were most frequently cited as leading a la carte sellers in elementary schools. Among middle/secondary schools, fruit drinks, pizza, snack chips, ice cream, cookies, and french fries topped the list in terms of the frequency with which foods were identified.

Table III-17: Number of Public Unified NSLP School Districts Identifying Specified Foods as One of Ten Top Selling A La Carte Food Items, by Elementary and Middle/Secondary, SY 1996/97

Food description	Elementary	Middle/ secondary	Food description	Elementary	Middle/ secondary
	number of school districts			number of school districts	
Milk	2,690	2,014	Meat snacks	103	39
Fruit drinks	2,583	4,953	Yogurt	93	337
Pizza	1,274	4,212	Pudding	137	81
French fries	733	3,284	Snack crackers	506	665
Soft drinks	32	609	Egg roll	n/a	152
Hamburgers	510	1,527	Granola bars	148	448
Cheeseburgers	42	594	Breadsticks/bread/rolls	98	687
Snack chips	1,299	3,719	Mashed potatoes	52	184
Burritos	55	973	Tea	44	532
Sandwiches	166	2,014	Corn dog	29	218
Ice cream	2,480	3,479	Milkshake	39	256
Hot dogs	110	473	String cheese	194	n/a
Cookies	2,019	3,328	Potato items	18	185
Pretzels	599	977	Baked potatoes	39	254
Snack cakes	816	2,337	Frozen fruit bars	23	13
Popcorn	163	11	Vegetables	n/a	576
Bagels	81	349	Hot chocolate	n/a	38
Soup	41	235	Cheese sticks	12	114
Fruit	386	880	Rice	n/a	76
Tacos	73	412	Cottage cheese	n/a	37
Nachos	218	1,111	Sunflower seeds	32	22
Water	251	1,336	Peanuts	18	n/a
Fruit roll-ups	1,348	635	Cereals	12	n/a
Candy	333	1,505	Fruit snacks/dried fruit	79	10
Donuts	159	548	Onion rings	20	187
Chicken nuggets	279	1,042	Desserts/baked goods	332	586
Chicken strips	16	282	Chicken fillet	48	64
Pickles	54	126	Miscellaneous pockets	n/a	239
Salad	65	688	Chicken sandwiches	81	807
Entrée items	456	1,063	Other	n/a	15

Source: *School Food Purchase Study*, 1998.

5. Programs Served other than NSLP and SBP

Many school food programs are used to prepare foods for purposes other than serving lunch and/or breakfast to enrolled students. Historically, SFAs have provided meals to school staff and have catered school events. In more recent years, they have extended their reach to include a variety of other food assistance programs, some unique to the local community and some FNS-sponsored.

School districts are not required to maintain separate records for foods acquired for these other purposes if the revenues generated by the sale of these foods meets or exceed the cost. Nonetheless, it is useful to know the general magnitude of these activities for purposes of making inferences with regard to foods used in preparing student meals. The measurements of food acquisition that are described later in this report include acquisitions for these uses as well as for school meals.

It is estimated that just over 80 percent of all public unified NSLP school districts had sales in addition to student meals in SY 1996/97. Nationally, the sales from these programs in SY 1996/97 is estimated at \$547 million.

Meal sales to adult staff in 80.7 percent of all districts was the most frequently noted source of other sales followed by 57.6 percent of all districts that provided food for school events. These were the two most prominent sources of other food program sales, regardless of school district size.

With increasing enrollment size, SFA involvement in other food programs increases. It is noteworthy that half or more of all districts with an enrollment of 25,000 or more were estimated to have provided meals through the Head Start, Child and Adult Care Feeding, and Summer Food Service Programs in SY 1996/97. This is also reflected in the somewhat greater share of total revenue accounted for by receipts from these programs, as noted earlier.

Table III-18: Share of Public Unified NSLP School Districts Serving Other Programs, by Size of District and Type of Program, SY 1996/97

Type of program	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more	All districts
-----percent of all school districts-----					
Adult staff	74.3	84.0	83.5	84.2	80.7
Head Start	5.8	36.7	33.0	58.5	26.3
Elderly feeding	0.0	3.1	6.2	11.1	2.7
Child and Adult Care feeding	0.0	7.1	16.8	50.6	7.2
Day care	3.0	7.4	23.8	20.2	8.5
Summer Food Service Program	14.6	21.4	40.9	54.2	22.7
Other schools	2.1	10.4	24.1	29.2	10.0
Disaster feeding	0.0	11.3	19.1	26.1	9.0
School events	33.5	69.7	67.5	88.1	57.6
Public Catering	2.5	24.5	29.6	24.1	17.8
Other	0.0	3.4	12.8	7.5	3.6

Source: *School Food Purchase Study, 1998.*

6. Food Service Management Companies

School districts have increasingly turned to food service management companies (FSMCs) to run their food programs in recent years. The General Accounting Office estimated that about 8 percent of all SFAs participating in the NSLP in SY 1994/95 used FSMCs, up from around 4 percent in SY 1987/88.¹ An earlier study conducted for FNS found that approximately 5.6 percent of all school districts participating in the NSLP in SY 1990/91 were using FSMCs.²

1/ General Accounting Office, *School Lunch Program: Role and Impacts of Private Food Service Companies, August 1996.*

2/ Price Waterhouse, *Study of Food Service Management Companies in School Nutrition Programs*, USDA, FNS, OAE, June 1994.

The results of this survey are consistent with these earlier findings, indicating that 9.7 percent of all public unified school districts participating in the NSLP were using FSMCs in SY 1996/97. This suggests that FSMCs are continuing to make inroads into the school food market. A slightly smaller share of national enrollment (9.2 percent) is represented by FSMCs, compared to the share of districts where they operate.

It appears from the distribution of FSMCs by district size shown in Table III-19 that these operations have concentrated among mid-size school districts, those in the 1,000 to 24,999 size range. This is consistent with findings of the study conducted for FNS cited above. A comparison of the mean number of years these districts have been under food service management companies suggests that FSMCs have not been serving the largest districts quite as long and that it has been even more recently that they have begun managing among the smallest districts.

**Table III-19: Food Service Management Companies Serving
Public Unified NSLP School Districts, by Size of District, SY 1996/97**

Item	All districts	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more
Number of districts with food service management company	975	209	582	166	18
Share of all districts	9.7	6.1	11.6	11.8	7.1
Average number of years under food service management company	9.5	4.0	10.3	14.0	8
Total enrollment of food service management company districts	3,850,327	159,140	1,356,446	1,190,166	1,144,575
Share of total national enrollment	9.2	7.6	11.3	9.0	8.0
Average enrollment of food service management company districts	3,949	761	2,331	7,170	63,588

Source: *School Food Purchase Study, 1998.*

As indicated by the estimate of mean district enrollment, FSMCs are operating in school districts of widely different size. The mean enrollment ranged from 761 in the smallest size class to 64,093 in the largest. Of the 28 FSMC-operated SFAs in the sample, only one is known to have split managerial responsibility within the district, with some schools FSMC-run and some schools managed by the district's food service director. In this particular case, the division of responsibility was viewed as temporary in that the district was moving toward an entirely FSMC-run program.

A comparison of FSMC and non-FSMC districts indicates that a slightly higher share of FSMC operations are in districts with less than 25 percent of their students from households below the poverty level as well as in districts with more than 75 percent of their students from poor households (Table III-20).

**Table III-20: Comparison of Public Unified NSLP School Districts
Under FSMC Operation and Not Under FSMC Operation,
by District Income and Urbanicity, SY 1996/97**

Item	Operated by FSMCs		Not operated by FSMCs	
	Number of districts	Percent	Number of districts	Percent
Share of students in poor households				
Less than 25 percent	693	71	5,545	61
25 to 75 percent	253	26	3,465	38
Greater than 75 percent	29	3	97	1
Total	975	100	9,108	100
Degree of urbanicity				
Unclassified	19	2.0	33	0.4
Large central city	71	7.2	56	0.6
Mid-size central city	14	1.5	364	4.0
Urban fringe of large city	172	17.7	682	7.5
Urban fringe of mid-size city	58	5.9	540	5.9
Large town	52	5.4	169	1.9
Small town	416	42.7	3,138	34.5
Rural	172	17.6	4,125	45.3
Total	975	100.0	9,108	100.0
A la carte sales per enrolled student	\$47		\$34	

Source: *School Food Purchase Study*, 1998.

7. Menu Planning Systems

A key element of the reform of the school meals program that got underway in 1994 under the banner of the School Meals Initiative (SMI) was the required adoption of one of four available menu planning approaches. Regardless of which approach or combination of approaches is used by an SFA, foods served over a one week menu cycle are required to meet updated nutritional requirements that satisfy the Dietary Guidelines for Americans developed jointly by the USDA and the Department of Health and Human Services.

Two of the optional approaches, Nutrient Standard Menu Planning (NuMenus) and Assisted Nutrient Standard Menu Planning (Assisted NuMenus), are computerized systems that in addition to their flexibility make it possible to focus on the nutritional content of the weekly menu rather than the nutritional content of individual foods. The Food-Based Menu Planning and Traditional Meal Patterns systems focus on the food components of the menu. The latter approach most closely approximates the system that was in use prior to the adoption of the new regulations.

In addition to granting SFAs additional flexibility in the implementation of these options, legislation approved in 1996 authorized SFA's to use "any reasonable approach" in accordance with Department Guidelines to meeting the requirements of the Dietary Guidelines. Thus, some SFAs are following procedures other than the prescribed approaches described above.

School Year 1996/97 was the first year in which the new menu planning requirements were in effect. However, States were allowed to issue waivers that allowed school districts to delay implementation for up to two years. As a result, and because USDA encouraged SFAs to phase-in the new approaches, some school districts were using more than one system in SY 1996/97.

As shown in Table III-21, the vast majority of school districts (81.6 percent) were using either the food-based or traditional approaches to menu planning in SY 1996/97. While some of these districts were also experimenting with other approaches, including the computerized systems, most were not. Only 3.0 percent of all districts were using a combination of approaches. Nearly one-fifth (19.6 percent) of all SFAs were using the NuMenu or Assisted NuMenu approaches in SY 1996/97.

The use of alternative menu planning systems at the school level (Table III-22) corresponds closely with use at the district level. Nearly four of every five schools (79.6 percent) were using either the food-based or traditional approaches in SY 1996/97, while 19.1 percent of all schools

were using one of the computerized approaches. The rate of use of NuMenus and Assisted NuMenus is somewhat greater among elementary schools (21.6 percent) than among middle/secondary (17.0 percent) or schools falling in the "other" grade category (13.2 percent).

Table III-21: Number of Public Unified NSLP School Districts by Type of Menu Planning System, SY 1996/97

Menu planning system	Assisted					Total
	Nu Menu	Nu Menu	Food-based	Traditional	Other	
	number of school districts					
Nu Menu	1,434	0	138	94	0	1,666
Assisted Nu Menu	0	278	0	32	0	310
Food-based	138	0	4,697	21	0	4,856
Traditional	94	32	21	3,203	14	3,364
Other	0	0	0	14	171	185
Total	1,666	310	4,856	3,364	185	10,381

Note: Entries on the diagonal indicate the number of school districts that are using one menu planning system throughout the district; all other entries indicate the number of school districts using the indicated combinations. (To the extent school districts use more than one system, they are represented more than once in this matrix. The total number of entries (10,381) exceeds the total number of districts (10,083) by the extent of this double-counting.)

Source: *School Food Purchase Study, 1998.*

Table III-22: Number of Schools in Public Unified NSLP School Districts by Type of Menu Planning System and Grade Category, SY 1996/97

Menu planning system	Elementary	Middle/ Secondary	Other	Total
	number of schools			
Nu Menu	8,049	3,572	989	12,610
row percent	63.8	28.3	7.8	100.0
column percent	19.0	15.2	10.2	17.0
Assisted Nu Menu	823	423	290	1,537
row percent	53.6	27.5	18.9	100.0
column percent	2.0	1.8	3.0	2.1
Food-based	17,925	10,818	4,844	33,587
row percent	53.4	32.2	14.4	100.0
column percent	43.6	46.0	50.2	45.2
Traditional	13,898	8,212	3,439	25,549
row percent	54.4	32.1	13.5	100.0
column percent	33.6	34.9	35.6	34.4
Other	374	507	96	977
row percent	38.3	51.9	9.8	100.0
column percent	0.9	2.2	1.0	1.3
Total	41,070	23,532	9,658	74,260
row percent	55.3	31.7	13.0	100.0
column percent	100.0	100.0	100.0	100.0

Note: Only schools that participate in the NSLP are shown. Percentages might not add to 100.0 due to rounding.

Source: *School Food Purchase Study*, 1998.

8. Meal Preparation Facilities

Study respondents were asked to identify the number of kitchens they operated using the following system of classification:

- Central Kitchens. Meals are prepared for serving at receiving or satellite schools. No student meals are served on-site at a central kitchen.
- Base Kitchen. At this type of kitchen, meals are prepared for serving on-site and for shipment to other locations (including multiple locations within the same school).
- Receiving or Satellite Kitchens. These kitchens obtain partially or fully prepared meals from central kitchens or an outside vendor, but other than re-heating or refrigeration, no food preparation occurs at a satellite kitchen.
- Combination Kitchens. Some food is prepared for on-site consumption and some food is received fully or partially prepared from a central or base kitchen.
- On-site Kitchens. From these kitchens, all meals served are prepared at the facility in which the kitchen is located. No meals are shipped to other locations.
- Other. This kitchen type is described by the respondent.

Public unified NSLP school districts operated an estimated 72,150 kitchens of various types in SY 1996/97. This falls short of the estimated number of schools in this universe by about 4.7 percent.

Many school districts operate more than one type of kitchen within their systems. Not surprisingly, larger school districts are more likely to do this than smaller districts. On average, districts in the largest enrollment category operated three types of kitchens in SY 1996/97 while districts in the next smallest size class averaged just over two kitchen types while most of the remaining districts operated only one type.

On-site kitchens are the most prevalent type, particularly among smaller districts where they were found in 90.0 percent of all districts and accounted for 81.5 percent of the total number of kitchens. While base kitchens are found in all but the smallest districts, central kitchens play a more prominent role among the largest districts. Of the largest districts, 32.0 percent operate central kitchens and 78.2 percent operate satellite kitchens, many of which are presumably served by their associated central kitchens.

Table III-23: Number of Public Unified NSLP School District Kitchens by Type of Kitchen and Size of School District, SY 1996/97

School district enrollment	Central kitchens		Base kitchens		Satellite kitchens		Comb. kitchens		On-site kitchens		Other types		All kitchens	
	# of districts	# of kitchens	# of districts	# of kitchens	# of districts	# of kitchens	# of districts	# of kitchens	# of districts	# of kitchens	# of districts	# of kitchens	# of districts	# of kitchens
Less than 1,000	0	0	413	413	218	363	285	285	3,071	4,681	0	0	3,411	5,742
row percent	0.0	0.0	12.1	7.2	6.4	6.3	8.4	5.0	90.0	81.5	0.0	0.0	100.0	100.0
column percent	0.0	0.0	9.6	5.3	6.5	2.1	12.3	3.4	39.0	12.2	0.0	0.0	33.8	8.0
1,000 - 4,999	89	89	2,911	3,640	2,215	6,040	1,455	3,144	3,525	12,502	67	86	5,009	25,500
row percent	1.8	0.4	58.1	14.3	44.2	23.7	29.0	12.3	70.4	49.0	1.3	0.3	100.0	100.0
column percent	31.4	29.5	67.7	46.8	67.2	35.4	62.5	37.3	44.8	32.5	48.8	55.2	49.7	35.3
5,000 - 24,999	115	124	837	2,263	664	4,089	468	2,725	1,083	11,592	44	44	1,410	20,837
row percent	8.1	0.6	59.4	10.9	47.1	19.6	33.2	13.1	78.8	55.6	3.2	0.2	100.0	100.0
column percent	40.2	41.0	19.5	29.1	20.2	24.0	20.1	32.3	13.8	30.2	32.7	28.6	14.0	28.9
25,000 or more	81	89	142	1,461	198	6,565	118	2,282	186	9,649	25	25	253	20,071
row percent	32.0	0.4	56.0	7.3	78.2	32.7	46.8	11.4	73.5	48.1	10.0	0.1	100.0	100.0
column percent	28.4	29.5	3.3	18.8	6.0	38.5	5.1	27.0	2.4	25.1	18.5	16.2	2.5	27.8
All districts	285	303	4,302	7,775	3,295	17,058	2,326	8,436	7,865	38,423	136	155	10,083	72,150
row percent	2.8	0.4	42.7	10.8	32.7	23.6	23.1	11.7	78.0	53.3	1.4	0.2	100.0	100.0
column percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: If districts use more than one kitchen type, they are counted with each kitchen type. Number of districts under all kitchens will be less than the total for the row.

Source: *School Food Purchase Study*, 1998.

Continuous Program Features

Schools operate their feeding programs in many different ways. A wide array of food service programs are employed. Some of the program features that are in current use are listed in Table III-24. It will be noted that the percentages displayed here are for schools and not school districts since many of these features are made available for some schools within a given district but not for others.

Of the features listed, *offer versus serve* was found to be the most widely used with an estimated 85.1 percent of all schools using it. And, though a higher share of schools in the very largest school districts provided the option, 73.0 percent of all schools in the smallest districts did too.

For some of these program features, the share of schools that offered the feature rose sharply with increased district size. This includes the practice of offering more than one entrée and offering foods on an a la carte basis, whether for lunch or breakfast. For other features, however, the relationship went in the opposite direction. This is most evident for schools featuring an *open campus*. The share of schools with an open campus increases from only 3.4 percent among the largest districts to 24.8 percent among the smallest.

The share of schools operating vending machines and using electronic debit cards was also found to be highest among schools in the smallest districts. Respondents were not asked to indicate under whose control vending machines were operated within the school district. Since electronic debit cards are primarily used to track the status of paying customers, the much higher incidence of free and reduced-price meals among the largest school districts probably explains the smaller share of these schools using this technology.

The breakdown of food service options by grade category is displayed in Table III-25. Not surprisingly, most of these options are available with greater frequency among middle/secondary schools than among elementary schools.

Table III-24: Food Service Options Offered by Public Unified NSLP School Districts, by Size of District, SY 1996/97

Food service option	All districts	Less than 1,000	1,000 to 4,939	5,000 to 24,999	25,000 or more
		percent of schools			
A la carte breakfast	26.7	12.7	21.8	32.7	32.4
A la carte lunch	54.1	25.2	51.6	61.0	61.5
More than one entrée	56.3	25.3	53.6	64.0	63.8
Offer versus serve	85.1	73.0	80.1	87.5	93.9
Open campus	10.0	24.8	12.3	7.9	3.4
Vending machines	19.6	23.0	21.4	22.0	13.3
Snack bars	12.8	11.7	14.2	15.6	8.5
Electronic debit cards	13.0	19.5	13.9	15.9	6.3
Student stores	8.6	4.2	7.6	13.4	6.8

Source: School Food Purchase Study, 1998.

Table III-25: Food Service Options Offered by Public Unified NSLP School Districts, by Grade Category, SY 1996/97

Food service option	All schools	Elementary	Middle/secondary	Other
		percent of schools		
A la carte breakfast	26.7	20.3	45.6	9.3
A la carte lunch	54.1	47.7	74.6	33.3
More than one entrée	56.3	54.2	70.5	32.8
Offer versus serve	85.1	84.4	93.4	69.0
Open campus	10.0	4.7	19.9	7.9
Vending machines	19.6	5.6	43.2	20.7
Snack bars	12.8	4.9	30.9	2.9
Electronic debit cards	13.0	13.2	16.3	5.1
Student stores	8.6	4.1	19.3	2.3

Source: School Food Purchase Study, 1998.

10. Participation in Reimbursable Lunch Programs

Participation rates serve as an indicator of the extent to which eligible students are taking part in the NSLP. Since 1970, overall participation rates have generally ranged between 55 and 60 percent. Calculated on a slightly different basis than used here, USDA data imply a participation rate in SY 1996/97 of 57.1 percent. For this study, participation rates were calculated by dividing the number of lunches served in SY 1995/96 by the number of students eligible for that type of lunch, adjusted by the overall rate of attendance for the district. The rate of participation for full-price lunches was calculated by dividing the total number of full-price lunches by total enrollment less the number of students certified eligible for free and reduced-price meals, again adjusted by the rate of attendance.¹

Participation rates for free, reduced-price, and full-price lunches, by size of district, are displayed in Table III-26. As past studies have found, participation rates are highest for free lunches and in smaller districts and lowest for full-price lunches and in the largest districts.² Across all districts and meal types, public unified school districts are estimated to have achieved a participation rate of 56.6 percent in SY 1996/97. Among districts of different sizes, the widest disparity in rate of participation is found within the full-price category. In the smallest districts, participation in full-price lunches averages 59.1 percent compared to only 32.8 percent among the largest districts. As indicated earlier, a la carte foods are substantially more available in schools of larger districts though these schools are also less likely to have an open campus, vending machines, or snack bars.

Table III-26: Mean Rates of Participation in the Reimbursable Lunch Programs of Public Unified NSLP School Districts, by Meal Type and Size of School District, SY 1996/97

School district enrollment	Free lunches	Reduced-price lunches	Full-price lunches	All reimbursable lunches
	-----percent of certified eligible students-----			
Less than 1,000	81.4	77.6	59.1	65.2
1,000 to 4,999	78.2	71.1	47.5	56.8
5,000 to 24,999	77.0	67.9	45.5	55.3
25,000 or more	76.2	59.5	32.8	52.4
All districts	77.9	69.1	45.9	56.6

Source: *School Food Purchase Study*, 1998.

1/ Not all students eligible for free or reduced-price meals become formally approved to receive them or certified. The subset of eligible students, those that are certified, is therefore the more appropriate participation universe. However, this information was not available to the study.

2/ USDA, FNS, *Child Nutrition Program Operations Study: Third Year Report*, January 1993, pp. 28-40.

IV. MARKET AND POLICY SETTING

Food utilization is affected by many influences, some short-term in effect and some longer-term. While the principal interest of this study is in the more permanent trends in school food procurement, short-term influences are inevitably part of the picture. Since the supply (and price) of individual foods can be highly variable as a result of the many uncontrollable factors that affect agricultural production, measures of food use at any one point in time offer an imperfect indication of longer-term trends and rates of utilization. While some foods are more susceptible to pronounced swings in availability than others (e.g. the effects of a freeze in Florida on the availability and price of orange juice), the relative prices of nearly all foods are in a continual state of change as a result of changing market conditions.

To some extent, instability in food prices has been lessened in recent years by changes in the food system. Two changes are particularly noteworthy. On the supply side, foods are increasingly acquired in a global marketplace. This is especially true of highly seasonal foods, such as fresh fruits and vegetables, that are particularly vulnerable to supply interruptions and sharp swings in price, though nearly all foods (even water) are now traded internationally. Globalization of the marketplace has therefore had the effect of evening-out supply, geographically and seasonally, and stabilizing prices.

Another change, this one on the use side, has had a similar effect. Food products in general, and those purchased by institutional users such as public schools in particular are much more highly processed than in the past. As a result, the portion of value added at the producer level (where much of the instability in price originates) accounts for a smaller share of the price of the acquired food. And since prices of the other cost components – primarily labor and to a lesser extent capital – are less volatile, this too has had the effect of dampening price variability at the user level.

In addition to market conditions, another factor that can obscure longer-term trends are those associated with public policy actions. School food programs are particularly susceptible to the effects of policy since they are directly dependent on decisions made each year by the US Department of Agriculture in purchasing foods for donation under the Commodity Distribution Program. In addition, during SY 1996/97, participants in the NSLP/SBP were affected by significant changes in overall program requirements.

The remainder of this Chapter is devoted to an examination of these influences, beginning with a brief review of the food market in SY 1996/97.

A. Market Conditions

1. The Supply/Demand Situation in SY 1996/97

Producer prices for all finished consumer foods rose 3.2 percent during SY 1996/97. Among the major food categories, prices of fruit in all forms (fresh, canned, and frozen) moved higher while prices of fresh vegetables dropped from the unusually high levels of the year before. Potato prices were sharply lower in 1996/97, down 25 percent from the year before as production soared to a record high level.

Livestock product prices generally moved higher during this period. The largest price advances were registered by pork (+15.1 percent) and processed eggs (+15.8 percent), though fluid milk prices rose substantially too (+7.8 percent). In September 1996, the price of fluid grade milk at the farm gate reached a record high. Prices of manufactured dairy products followed, though the sharply higher prices were short-lived. The only livestock product that experienced lower prices during the period was turkey, with prices for the 12-month period down 4.5 percent.

2. Comparison to the Supply/Demand Situation in SY 1984/85

The overall supply/demand situation in 1984/85, as reflected in wholesale prices, was not materially different from that experienced in 1996/97. The index for all finished consumer foods rose more slowly in SY 1984/85, increasing by 1.8 percent from the year before.

As can be seen in the table below, prices of citrus fruits and juices experienced an even sharper rise in 1984/85 than in the period of this study. However, prices of other fruits were relatively stable. Fresh vegetables were in abundant supply in 1984/85, as they were in 1996/97.

Among livestock products, supplies of both beef and broilers were abundant during the period of the earlier study. A Milk Diversion Program that provided incentives to dairy farmers to reduce the size of their dairy herds was in operation during this period and was adding to the supply of beef, particularly lower grade beef used in hamburger. The wholesale price of beef fell 1.6 percent during SY 1984/85 while the price of broilers dropped 6.8 percent. Prices of processed and fresh eggs both fell sharply. The only major product in this category that experienced much price strength due to limited supply was turkey, with an increase in wholesale price of 10.7 percent. In contrast to the situation in 1996/97, the price of dairy products rose nominally in 1984/85.

**Table IV-1: Comparison of Changes in Selected Components of the
Producer Price Index, SYs 1984/85 and 1996/97**

Foods	Change between SYs 1984/85 and 1996/97	Change from previous year	
		SY 1984/85	SY 1996/97
		percent	
All finished consumer foods	+28.3	+1.8	+3.2
Fruits			
Fresh citrus	+6.5	+16.8	+11.2
Other fresh fruit and berries	-2.0	-0.1	+28.8
Canned fruits and juices	+26.9	+4.3	+3.4
Frozen fruits, melons, and berries	+21.2	-0.3	+11.2
Frozen fruit juices and ades	-3.4	+18.0	-0.5
Dried and dehydrated fruits	+40.6	-10.7	+1.4
Vegetables			
Fresh vegetables (except potatoes)	+16.1	-14.7	-12.3
Dry vegetables	-3.2	-3.2	+11.5
Canned vegetables and juices	+19.4	-1.8	+1.6
Frozen vegetables	-1.4	+3.5	+1.1
Cereals and bakery products			
Bakery products	+55.1	+4.9	+3.5
Other cereal products	+46.5	+2.5	-5.4
Dairy products			
Fluid milk	+35.3	+2.0	+7.8
Cheese	+21.3	-0.1	+3.0
Ice cream and frozen desserts	+28.9	+3.2	+5.6
Meat and poultry			
Boneless beef (including hamburger)	-19.1	-1.6	+4.7
Pork	+40.8	+3.6	+15.1
Other meats (including frankfurters and canned meats)	+18.6	+1.9	+4.6
Broilers	+14.4	-6.8	+4.6
Turkey	-13.6	+10.7	-4.5
Seafood			
Frozen package fish and seafood	+95.8	-6.2	-0.8
Canned and cured seafood	+18.0	-1.6	+0.6
Fats and oils			
Shortening and cooking oil	+3.6	+6.5	-2.0
Eggs			
Processed eggs	+44.4	-28.3	+15.8
Fresh eggs	+7.1	-25.9	+4.0
Other			
Canned specialties (including canned beans and soup)	+49.4	+4.0	+2.4
Frozen specialties (including frozen pies and dinners)	+27.7	+4.7	+1.8
Meat sauces	+27.7	+4.2	+1.6
Other processed foods (including snack foods, salad dressing dressings, dry mix preps.)	+30.1	+8.4	+2.6

Source: Department of Labor, Bureau of Labor Statistics.

The producer price index for all finished consumer foods in SY 1996/97 was 28.3 percent above the level in SY 1984/85. Among the major food categories, producer price indexes in SY 1996/97 exceeded their SY 1984/85 levels by more than the average amount for: cereals and bakery products, pork, frozen fish and seafood, fluid milk, processed eggs, and canned specialty foods. Since these foods had become more expensive relative to other major food categories, some negative impact on rates of utilization due to price might have resulted.

Prices of fruits, vegetables, beef, and poultry were up less than the average of all foods in SY 1996/97, compared to SY 1984/85. An opposite effect could therefore have occurred regarding these foods. That is, their lower prices relative to other foods might have contributed to higher rates of use than would otherwise have occurred.

B. The Policy Setting

As noted above, at least two policy measures in SY 1996/97 potentially affected school food procurement. One of these measures, the Commodity Donation Program, is an on-going program that has a direct and clearly defined effect on the types and quantities of food acquired by SFAs. Since this program was in place at the time of the earlier study too, its impact on school food procurement was considered then too. The other element of the policy setting in SY 1996/97 that potentially affected procurement practices was the School Meals Initiative (SMI) and the collective actions that were being taken to implement it. This was the first school year in which school districts participating in the NSLP were required, unless granted a waiver by their State Agency, to have adopted one of four alternative approaches to menu planning and to have served meals that met the Dietary Guidelines for Americans. We examine actions taken through the Commodity Donation Program first, followed by a brief discussion of possible implications of the implementation of the SMI.

1. The Commodity Donation Program, SY 1996/97

The Commodity Donation Program plays a significant role in school feeding programs. In 1984/85, foods donated under this program accounted for approximately 30 percent of the value of total school food acquisitions.¹ Funding for the program is down from the levels of the 1980s, though it continues to play an important role.

1/ This estimate is based on donated foods valued at commercial prices.

The commodities distributed through the Commodity Donation Program are divided into two major categories: (1) entitlement commodities and (2) bonus commodities. Entitlement commodities are made available to SFAs on the basis of the number of reimbursable lunches they serve. All participating school districts are *entitled* to these foods. Bonus commodities are made available to participating school districts on the basis of availability and in quantities that districts can effectively use without waste. Bonus commodities have traditionally been foods that were in a state of major over-supply. Prior to the 1990s, government-owned dairy products acquired under the price support program often accounted for a large share of the bonus commodities.

Trends in the overall size of commodity donations made through school food programs are shown in Table IV-2. While the overall (current) dollar value of the program is somewhat lower than it was for most of the 1980s, the bonus component is sharply lower, having fallen to only \$19.0 million in SY 1996/97.

**Table IV-2: Commodity Donations Through
School Food Programs, FY 1980 – FY 1997**

Fiscal year	Entitlement	Bonus	Total
	million dollars		
1980	765.5	139.0	904.5
1981	578.9	316.3	895.2
1982	426.2	330.8	757.0
1983	426.8	374.1	800.9
1984	440.5	386.9	827.4
1985	456.0	345.2	801.3
1986	445.7	376.2	821.9
1987	448.5	439.6	888.2
1988	466.3	347.4	813.7
1989	471.4	292.5	763.9
1990	465.9	153.8	619.7
1991	590.1	109.1	699.3
1992	583.4	123.9	707.2
1993	579.8	90.7	670.4
1994	629.2	96.1	725.3
1995	611.8	81.8	693.6
1996	647.2	45.8	693.0
1997	591.1	28.8	619.9
SY 1996/97	623.2	19.0	642.2

Sources: USDA, FNS, *Annual Historical Review, Fiscal Year 1995*, June 1997 and unpublished updates from the FNS National Data Bank.

Since foods distributed through the Commodity Donation Program are generally those that are available in the most abundant supply in the market, commodity donations tend to reinforce the behavior that would be expected in response to lower prices. That is, when supplies are large and prices low, there is an economic incentive for SFAs to substitute these same lower-priced foods for other relatively higher-priced foods, when it is feasible to do so. However, these circumstances also lead to greater purchases by USDA for purpose of donation. In this way, USDA's actions tend to reinforce the expected market reaction to lower prices.

The principal reason for taking a close look at the level and mix of foods donated by USDA in SY 1996/97 is to determine their possible influence on study findings relative to the procurement of individual foods. As indicated above, two commodities that were under price pressure in 1996/97 were potatoes and turkey. Not surprisingly, both of these commodities were donated in significant volume that year. Of all commodities donated, turkey accounted for 9.7 percent of the total value of donations and potatoes for 2.8 percent of total value. Collectively, they accounted for 14.1 percent of the total number of pounds of donated commodities.

As in most years, beef products accounted for the largest single share of commodity donations in SY 1996/97, whether measured in terms of dollar value or pounds. Beef, mostly in the form of frozen ground beef, accounted for 17.3 percent of the total quantity of commodity donations (including bonus commodities) and 24.9 percent of total dollars. While most fruits were in relatively short supply during the year, apples were an exception with a fall 1996 crop comparable to the year before. Thus, USDA donated a relatively large volume of apple products, including over 11 million pounds of fresh apples.

In SY 1996/97, the USDA was in the third year of a pilot project under which the Department of Defense (DOD) makes available its system for buying fresh produce for military installations to school districts in certain states. Eleven states were participating in the project at the time of this study. Orders are placed with DOD field offices, either directly by the participating school districts or indirectly through their State Distributing Agencies. School districts can assign a portion of their entitlement funds for this purpose. Participating states are also authorized to devote funds apportioned to them under Sections 4 and 11 of the National School Lunch Act, as amended, for this purpose.

2. Comparison of Commodity Donations, SYs 1984/85 and 1996/97

As noted above, funding for the Commodity Donation Program has been declining in recent years. This is reflected in overall donations in SY 1996/97 that were 23 percent lower in dollar value and 22 percent lower in weight than those provided schools in 1984/85. Given that public school enrollment has risen 16.7 percent and the number of NSLP lunches served has risen by 13.3 percent over this period, in a relative sense the per unit level of assistance has fallen even more. Relative to the number of reimbursable meals served, the quantity of commodity donations was down 31 percent between the two periods.

The quantity of individual commodities delivered to child nutrition programs in the two years is compared in Table IV-3. Beyond the reduced volume of donations in SY 1996/97, there are several other features of the comparison worth noting, including the following.

- A much broader array of products is represented in SY 1996/97 than in the former period, despite the reduced level of funding. At the most detailed level in which they are reported for administrative purposes, 166 separate food items were distributed in SY 1996/97.¹ It is estimated that no more than half this number of food items were distributed in 1984/85. There are several reasons for the increased number of donated food items. In recent years, the USDA has made a concerted effort to improve the variety, quality, and nutritional content of its donated commodities. In May 1994, the Department established a Commodity Improvement Council and in October 1995 published a task force report² identifying a number of potential improvements in the commodity donation program. These and other activities have led to several changes including the addition of several reduced-fat foods and foods processed under the State Option Contract (SOC) Program, in addition to the availability of fresh produce items in certain states through procurement by the Department of Defense.

1/ This number underestimates the actual number of separate food items since it combines all fresh produce purchases by the Department of Defense into a single line item. It is estimated that the DOD has purchased over 60 different fresh fruit and vegetable products for participating school districts.

2/ US Department of Agriculture, *Improving USDA Commodities*, 1995 Tri-Agency Commodity Specification Review Report, October 1995.

**Table IV-3: Comparison of Donated Commodities Delivered
to Child Nutrition Programs, SY 1984/85 and SY 1996/97**

Commodity	SY 1984/85		SY 1996/97	
	lbs. (1,000)	lbs. (1,000)/ meals (mil.)	lbs. (1,000)	lbs. (1,000)/ meals (mil.)
Grain and grain products				
Flour (including bulgar and rolled wheat)	181,735	46.7	78,464	17.8
Pasta – spaghetti	7,518	1.9	4,647	1.1
macaroni	7,006	1.8	3,163	0.7
other pasta	–		2,756	0.6
Rice	22,035	5.7	15,753	3.6
Rollled oats	5,431	1.4	1,487	0.3
Commeal/grits	6,633	1.7	2,367	0.5
Legumes				
Soybean oil	40,026	10.3	35,297	8.0
Soybean oil shortening	20,581	5.3	7,249	1.6
Salad dressing	–		76	0.0
Peanut butter	11,401	2.9	10,501	2.4
Peanuts/peanut granules	3,534	0.9	873	0.2
Dry edible beans	4,058	1.0	1,529	0.3
Canned dry beans	12,490	3.2	9,525	2.2
Vegetarian beans	25,642	6.6	10,124	2.3
Nuts				
Almonds	2,250	0.6	–	
Walnuts	1,486	0.4	–	
Honey	6,483	1.7	–	
Fruit				
Fresh – pears	5,414	1.4	3,973	0.9
apples	7,632	2.0	11,073	2.5
grapefruit	–		905	0.2
oranges	–		4,565	1.0
Canned – applesauce	46,065	11.8	23,382	5.3
peaches	25,520	6.6	16,417	3.7
mixed fruit	–		9,336	2.1
pears	30,376	7.8	22,311	5.1
cherries	–		3,156	0.7
purple plums	–		18	0.0
pineapple	1	0.0	13,635	3.1
apple slices	–		10,808	2.5

**Table IV-3: Comparison of Donated Commodities Delivered
to Child Nutrition Programs, SY 1984/85 and SY 1996/97 (continued)**

Commodity	SY 1984/85		SY 1996/97	
	lbs. (1,000)	lbs. (1,000)/ meals (mil.)	lbs. (1,000)	lbs. (1,000)/ meals (mil.)
Frozen – peaches	–		8,196	1.9
tart cherries	12,914	3.3	8,671	2.0
apple slices	–		2,227	0.5
strawberries	–		8,905	2.0
blueberries	5,036	1.3	–	
Dried – figs (nuggets/paste/whole)	330	0.1	198	0.0
dry pitted prunes	2,371	0.6	984	0.2
prune puree	–		1,868	0.4
raisins	8,399	2.2	–	
date pieces	–		702	0.2
Orange juice (canned & froz. conc.)	–		5,465	1.2
Vegetables				
Fresh – misc. produce (DOD)	–		18,577	4.2
potatoes	–		4,555	1.0
Canned – green beans	22,290	5.7	–	
green peas	–		2,747	0.6
tomato paste	35,891	9.2	5,173	1.2
canned tomatoes	24,652	6.3	8,368	1.9
tomato sauce	–		4,778	1.1
carrots	–		3,167	0.7
spaghetti sauce	–		6,984	1.6
salsa	–		7,306	1.7
corn	23,988	6.2	8,432	1.9
sweet potatoes	10,608	2.7	5,026	1.1
Frozen – french fried potatoes	–		13,890	3.2
potato rounds	11,787	3.0	23,480	5.3
potato wedges	–		18,518	4.2
sweet potatoes	–		590	0.1
corn	3,894	1.0	10,480	2.4
carrots	–		3,457	0.8
green beans	1,038	0.3	–	
mixed vegetables	18,106	4.7		
green peas	–		3,209	0.7

65

**Table IV-3: Comparison of Donated Commodities Delivered
to Child Nutrition Programs, SY 1984/85 and SY 1996/97 (continued)**

Commodity	SY 1984/85		SY 1996/97	
	lbs. (1,000)	lbs. (1,000)/ meals (mil.)	lbs. (1,000)	lbs. (1,000)/ meals (mil.)
Meat and Poultry				
Frozen ground beef	155,488	40.0	153,798	34.9
Miscellaneous beef products	4,428	1.1	6,069	1.4
Frozen pork	-		16,988	3.9
Canned pork	7,449	1.9	-	
Pork sausage	-		3,365	0.8
Frozen ham	-		15,345	3.5
Chicken - frozen cut-up	71,378	18.3	30,153	6.8
frozen whole	-		38,908	8.8
bulk chilled	4,932	1.3	-	
other forms	15,357	3.9	13,420	3.0
Eggs - whole frozen	-		8,455	1.9
dry mix	707	0.2	1,278	0.3
Turkey - frozen whole	12,127	3.1	9,308	2.1
frozen ground	-		35,588	8.1
frozen roasts	11,066	2.8	14,535	3.3
chilled bulk	1,656	0.4	-	
other forms	-		10,905	2.5
Seafood				
Canned tuna	5,145	1.3	-	
Canned salmon	2,249	0.6	-	
Frozen salmon	-		2,743	0.6
Dairy Products				
Cheese - cheddar	29,321	7.5	11,861	2.7
processed	75,829	19.5	35,972	8.2
mozzarella	30,384	7.8	23,903	5.4
Nonfat dry milk	24,499	6.3	4,141	0.9
Butter/butter oil	75,912	19.5	-	
Total	1,182,548	304.0	926,064	210.1

Note: Dash indicates that the commodity was not available that year.

Sources: *School Food Purchase Study: Agricultural Commodity Markets and School Food Acquisitions, 1984-85*, February 1986 and FDD, FNS records for SY 1994/95 and SY 1996/97.

- Fruits and vegetables (including potatoes) accounted for a larger share of total volume in the latter period (in combination, 32.9 percent versus 23.3 percent). This is due in very substantial measure to the DOD procurement program.
- The share of total volume accounted for by dairy products fell from 20.7 percent to 8.2 percent as no butter was reported to be donated in SY 1996/97 and the quantity of cheese was sharply lower as well. This is due to a combination of the exhaustion of government-held dairy stocks and the relatively high prices of dairy products in late 1996.

3. Implementation of the School Meals Initiative

In late 1993, the USDA launched the School Meals Initiative for Healthy Children, a major reform of the school lunch program. The principal objective of the reform, an activity that is still underway, is to improve the nutritional content of school meals. Past results of USDA research have indicated that school meals, on balance, were not meeting key elements of the Dietary Guidelines, a set of dietary standards developed by the USDA and the Department of Health and Human Services. The Healthy Meals for Healthy Americans Act of 1994 (P. L. 103-448) mandated that each school's meals comply with the Dietary Guidelines by SY 1996/97, though states were granted authority to waive a school's compliance until SY 1997/98. The Healthy Meals for Healthy Children Act of 1996 (P. L. 104-149) granted schools additional flexibility in menu planning by authorizing them to use the SY 1994/95 meal pattern or "any reasonable approach" to meeting the requirements of the Dietary Guidelines.

The latter measure was enacted just over one month prior to the start of data collection for this study. Thus, while changes in program requirements, including the adoption of new menu planning techniques, had been under consideration for over two years, final regulations in support of the 1996 Act were still under development at the time this study got underway.

The impact of SMI on the results of this study can only be surmised in general terms. Many schools were already taking steps to improve the nutritional content of their meals at the time the SMI was begun. Thus, changes were already underway in some school districts. As indicated in Chapter III, by SY 1996/97, 19.6 percent of all SFAs had adopted one of the new, computer assisted menu planning systems (NuMenus or Assisted NuMenus). Thus, a significant number of SFAs were at least looking for ways to reduce the levels of fat, saturated fat, and sodium and to increase the level of carbohydrates. SFAs taking part in the Nutrient Standard Menu Planning Demonstration reported increased use of fresh fruits and vegetables, increased use of lower-fat products, and the addition of and/or increased portion sizes of foods high in carbohydrates.¹ Thus, at the time of this study many school districts were in a state of transition as they gave increased emphasis to the nutritional content of their meals.

^{1/} USDA, FCS, *Evaluation of the Nutrient Standard Menu Planning Demonstration: Findings from the Formative Evaluation*, September 1996.

4. Other Policy Changes Since 1984/85

In addition to the policy changes described above, there have been two other significant changes affecting the commodity distribution component of the NSLP. One is the series of changes that has taken place in the Milk Price Support Program, beginning in 1981 and extending through the 1996 Farm Bill.

By gradually reducing the level of support from \$13.10/cwt in 1981 to \$10.05/cwt in 1998, as well as making other changes in the size and distribution of program benefits, the incentive for over-producing milk has been substantially lowered. As a result, takeovers of manufactured dairy products by the USDA's Commodity Credit Corporation have all but disappeared, except for nonfat dry milk during periods of very low price. Furthermore, under terms of the 1996 Farm Bill, the milk price support program will be terminated at the end of calendar year 1999, ending government takeovers of manufactured dairy products altogether. Since government-acquired stocks of manufactured dairy products (primarily butter and cheese) have made up a significant share of commodity donations over the past 15 years, this change in policy has had and will continue to have a major effect on the composition of commodity donations. This is evident from the comparison of donations in SY 1984/85 and SY 1996/97 shown in Table IV-3. This change in dairy policy is also largely responsible for the sharp drop in the value of bonus commodities over the last 10 years.

Another policy change mandated by Congress is a requirement under the Healthy Meals for Healthy Americans Act of 1994 that at least 12 percent of total school lunch entitlement support (cash and entitlement commodities) be provided in the form of entitlement commodities each year. In FY 1985, entitlement commodities accounted for 13.3 percent of total USDA school food entitlement support. However, as cash reimbursements have risen in response to the growth in participation by children approved for free meals, the entitlement commodity share has fallen. In SY 1996/97, it had fallen to about 12 percent of total entitlement. As long as the proportion of free meals remains at or above the 1996 level, USDA reports that it will be necessary in most years¹ to increase the per meal commodity support more rapidly than the inflation adjustment would otherwise require.

Thus, while the move toward a more market-oriented dairy policy has resulted in a reduced level of overall donations and a reduced share for dairy products, the 12 percent minimum requirement has had the effect of establishing a floor under the total value of donated products distributed through school meals.

1/ Whether the 12 percent threshold is met also depends on the rounding rules used to establish entitlement commodity reimbursement rates.

V. FOOD ACQUISITIONS BY PUBLIC UNIFIED SCHOOL DISTRICTS

A. Introduction

In this chapter, we summarize findings of the study with regard to national estimates of food acquisitions by public unified NSLP school districts in SY 1996/97. We begin with a brief review of some methodological points that should be considered in interpreting study results. This is followed by an examination of study findings for each of the three categories to which the acquisitions are assigned: commercial purchases, donated commodities, and processed foods containing donated commodities. Finally, the results for SY 1996/97 are compared to the results of the 1984/85 study.

B. Methodological Considerations

The estimates presented in this Chapter are national estimates of foods acquired by public unified NSLP school districts in the continental United States. As noted earlier, these districts are a subset of the total number of school districts in the nation since not all districts participate in the NSLP. Furthermore, they are also a subset within the universe of districts that participate in the NSLP since private schools and nonunified school systems were excluded from the study, as were school districts in Alaska, Hawaii, and the US possessions.

For this study, food acquisitions were assigned to one of 842 general food descriptions. Information on brands, flavors, grades, varieties, cuts, and unit sizes is generally not reflected in these descriptions. The principal exceptions are for foods that the USDA commonly purchases for donation, such as different varieties of dry beans. Distinctions are made among different product forms (e.g., fresh, canned, frozen, dried) and for some foods (e.g., fluid milk), distinctions are made among different levels of fat content. Given the generic nature of these descriptions, each food item should be viewed as representing a collection of closely related foods.

Estimates of volume or weight are net weights measured in pounds of the food as it is delivered to the school district. Since foods arrive at districts in many different forms and states of preparation, when aggregated by group or subgroup they generally contain foods that are not equivalent. For example, while the "milk" subgroup is comprised largely of fluid milk, it also includes such related foods as evaporated milk, condensed milk, eggnog, nonfat dry milk, and

dry buttermilk, for example. The aggregated weight estimate for this subgroup should therefore not be considered as an estimate of whole milk equivalent.

While care should be exercised in interpreting aggregations of food items, distortions of this nature are less of an issue for individual food items. Individual items are much more homogeneous, though some aggregation has been required at this level too.

For ease of comparability with results from the 1984/85 study, data were aggregated into the same 16 groups and 65 subgroups as used in preparing summary tables for the earlier study, with slight modification. The principal change in classification is the adoption of a "prepared foods" group. Since no record could be found of the assignment of individual food items to their respective subgroups in the earlier study, it is possible that there is some slight inconsistency between the two, though any differences are thought to be small.

As described earlier, each food acquisition record fell into one of the following categories: purchased foods, processed foods containing donated commodities, or donated commodities. Of the three categories, the processed foods containing donated commodities is the most difficult to identify from school district records. A wide range of foods are processed under agreements between processors and Federal and State governments as well as between processors and some school districts. Though particular care was exercised to identify these foods, to the extent underreporting occurred, it was probably for foods in this category. Furthermore, any underreporting in this category was probably matched by overreporting in the purchased foods category.

As noted in Chapter II, commercial values rather than USDA values were assigned to all donated commodities and all processed foods containing donated commodities. The value of foods assigned to both these categories therefore exceeds values reported by USDA and are therefore not comparable to USDA reported expenditures.

C. School Food Acquisitions, SY 1996/97

School food acquisitions for SY 1996/97 are summarized by dollar value in Table V-1 and by weight in Table V-2. Dollar value and weight information for each of the 842 food items represented in the summary tables appears in the Statistical Appendix Report.

Public unified NSLP school districts acquired foods valued at more than \$4.6 billion in SY 1996/97. This is equivalent to 86.9 percent of trade estimates of total food purchases by primary and secondary school systems in 1996 and 3.8 percent of food purchases by all foodservice operations, commercial and noncommercial, the same year.¹

Of the total value of foods acquired, 82.9 percent were foods purchased from commercial sources and 12.7 percent were donated by the USDA. The remaining 4.4 percent were commercially processed foods containing donated commodities as ingredients. On the basis of weight, an even larger share (89.4 percent) of all school food acquisitions were commercially purchased.

In value terms, the largest single component of the school food bill is the dairy group which is dominated by commercial expenditures for fluid milk. Collectively, dairy products accounted for 22.7 percent of total acquisitions. There are several other food groups that each account for around 10 percent of the total. This includes bakery products, red meats, poultry, fruits, vegetables, and prepared foods.

1/ The Food Institute, Food Industry Review, June 1997, p. 477.

BLANK

PAGE

BLANK

PAGE

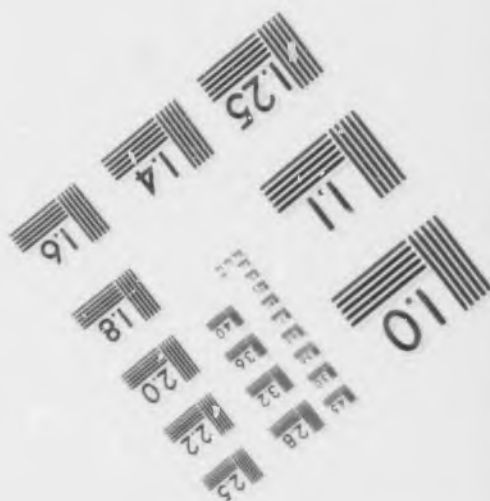
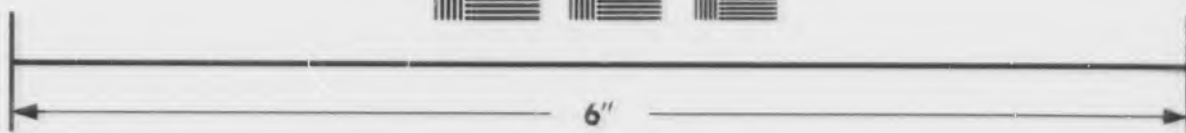
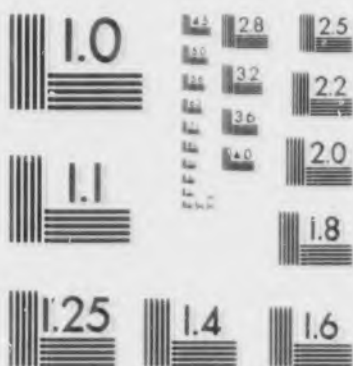
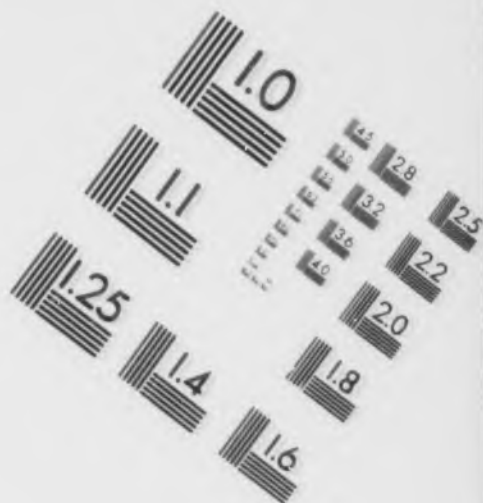
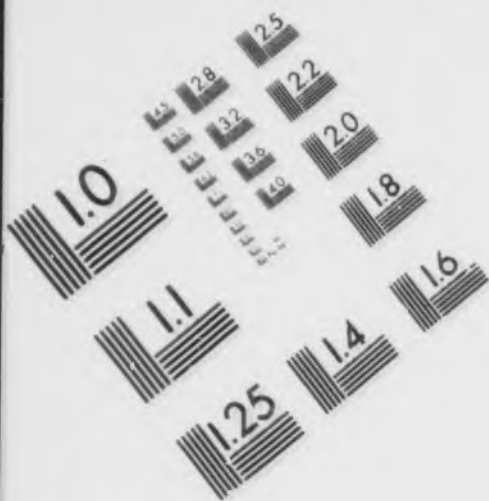


Table V-1: Summary of Dollar Value of Food Acquisitions by Public Unified NSLP School Districts, SY 1996/97

Food group/subgroups	All Foods		Purchased foods		Processed foods containing donated commodities		Donated commodities	
	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)
All Foods	4,642,667,312	100.00	3,850,762,224	100.00	202,842,530	100.00	589,262,458	100.00
Grain products	166,735,494	3.59	143,495,902	3.73	391,860	0.19	22,847,733	3.88
Breakfast cereals	79,239,667	1.71	78,727,234	2.04	0	0.00	512,433	0.09
Prepared flour mixes	13,600,668	0.29	13,107,549	0.34	0	0.00	493,120	0.08
Flours & other milled grains	25,256,707	0.54	12,010,797	0.31	0	0.00	13,245,910	2.25
Mixtures with grain	24,654,471	0.53	24,262,611	0.63	391,860	0.19	0	0.00
Pasta & noodles	15,286,116	0.33	8,941,622	0.23	0	0.00	6,344,494	1.08
Rice, barley, and grains	8,697,865	0.19	6,446,089	0.17	0	0.00	2,251,776	0.38
Bakery products	529,081,323	11.40	518,030,010	13.45	11,051,314	5.45	0	0.00
Biscuits, muffins, pancakes, and waffles	116,095,388	2.50	111,898,906	2.91	4,196,482	2.07	0	0.00
Bread & rolls	177,490,523	3.82	175,016,251	4.54	2,474,272	1.22	0	0.00
Cakes & other bakery desserts	110,146,103	2.37	106,802,237	2.77	3,543,866	1.75	0	0.00
Pretzels and snack chips	95,187,925	2.05	94,733,392	2.46	454,533	0.22	0	0.00
Crackers	30,161,384	0.65	29,779,224	0.77	382,161	0.19	0	0.00
Fats/oils	85,880,799	1.85	63,751,872	1.66	4,947,800	2.44	17,181,127	2.92
Butter	7,438,648	0.16	6,572,306	0.17	0	0.00	866,342	0.15
Lard and other animal fats	1,005	0.00	1,005	0.00	0	0.00	0	0.00
Margarine	14,229,274	0.31	13,615,781	0.35	198,029	0.10	415,464	0.07
Salad dressings & mayonnaise	35,076,384	0.76	30,326,613	0.79	4,749,771	2.34	0	0.00
Vegetable oils & shortenings	29,135,488	0.63	13,236,167	0.34	0	0.00	15,899,321	2.70
Red meats	455,585,528	9.81	239,568,138	6.22	60,012,922	29.62	156,004,468	26.47
Beef and veal	280,132,876	6.03	121,636,477	3.16	49,573,320	24.46	108,923,079	18.48
Mixed meats	47,203,563	1.02	46,295,737	1.20	907,828	0.45	0	0.00
Pork	126,140,605	2.72	69,758,474	1.81	9,300,742	4.59	47,081,389	7.99
Recipe mix	2,108,484	0.05	1,877,450	0.05	231,034	0.11	0	0.00
Poultry	444,036,307	9.56	272,144,144	7.07	60,030,352	29.62	111,861,812	18.98
Chicken	314,933,136	6.78	216,729,313	5.63	43,952,528	21.69	54,251,296	9.21
Recipe mix	339,880	0.01	339,880	0.01	0	0.00	0	0.00
Turkey	128,763,281	2.77	55,074,951	1.43	16,077,824	7.93	57,610,516	9.78

Table V-1: Summary of Dollar Value of Food Acquisitions by Public Unified NSLP School Districts, SY 1996/97 (continued)

Food group/subgroups	All Foods		Purchased foods		Processed foods containing donated commodities		Donated commodities	
	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)
Eggs	26,532,606	0.57	15,375,674	0.40	1,662,994	0.82	9,493,937	1.61
Eggs	19,125,736	0.41	9,502,282	0.25	129,517	0.06	9,493,937	1.61
Mixtures with eggs	7,406,870	0.16	5,873,392	0.15	1,533,477	0.78	0	0.00
Fish	52,963,516	1.14	47,109,089	1.22	952,322	0.47	4,902,125	0.83
Fish	50,728,120	1.09	44,873,673	1.17	952,322	0.47	4,902,125	0.83
Shellfish	2,235,396	0.05	2,235,396	0.06	0	0.00	0	0.00
Milk & other dairy products	1,052,305,120	22.67	932,061,878	24.20	8,757,080	4.32	111,486,181	18.92
Cheese	213,099,022	4.59	98,139,520	2.55	8,674,155	4.28	106,285,347	18.04
Cream	3,189,740	0.07	3,189,740	0.08	0	0.00	0	0.00
Ice cream & ice milk	64,154,232	1.38	64,071,327	1.66	82,905	0.04	0	0.00
Milk	764,250,783	16.46	759,049,948	19.71	0	0.00	5,200,834	0.88
Yogurt	7,611,343	0.16	7,611,343	0.20	0	0.00	0	0.00
Fruits/juices	513,941,696	11.07	433,499,418	11.26	2,127,366	1.05	78,314,923	13.29
Fruits	342,678,950	7.38	264,325,502	6.86	1,947,229	0.96	76,406,219	12.97
Juices	171,262,746	3.69	169,173,916	4.39	180,127	0.09	1,908,704	0.32
Vegetables	423,484,868	9.12	371,673,377	9.66	1,763,588	0.87	46,847,893	8.46
Green vegetables	86,998,841	1.87	82,797,000	2.15	0	0.00	4,201,841	0.71
Mixed vegetables	29,845,164	0.64	28,619,932	0.74	0	0.00	1,225,232	0.21
Mixtures with vegetables	5,794,199	0.12	5,794,199	0.15	0	0.00	0	0.00
Other vegetables	11,080,745	0.24	10,950,008	0.28	0	0.00	130,737	0.02
Potato & potato products	179,135,576	3.86	157,985,092	4.10	0	0.00	21,150,484	3.59
Tomato & tomato products	49,545,676	1.07	38,621,144	1.00	1,481,709	0.73	9,442,823	1.60
Yellow vegetables	61,084,667	1.32	47,106,002	1.22	281,869	0.14	13,696,776	2.32
Legumes/nuts/seeds	43,166,005	0.93	21,744,091	0.56	54,045	0.03	21,367,958	3.63
Dry beans/peas	20,908,670	0.45	14,665,261	0.38	54,045	0.03	6,189,364	1.05
Other nuts	475,256	0.01	475,256	0.01	0	0.00	0	0.00
Peanuts/peanut butter	17,899,114	0.39	2,720,519	0.07	0	0.00	15,178,594	2.58
Seeds	682,297	0.01	682,297	0.02	0	0.00	0	0.00
Soybeans & soy products	3,200,668	0.07	3,200,668	0.08	0	0.00	0	0.00

Table V-1: Summary of Dollar Value of Food Acquisitions by Public Unified NSLP School Districts, SY 1996/97 (continued)

Food group/subgroups	All Foods		Purchased foods		Processed foods containing donated commodities		Donated commodities	
	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)	Dollar Value (\$)	Percent of total (%)
Sugar/desserts	91,220,610	1.96	90,344,347	2.35	832,722	0.41	43,540	0.01
Candies/toppings	23,157,738	0.50	23,157,738	0.60	0	0.00	0	0.00
Gelatins	5,854,186	0.13	5,854,186	0.15	0	0.00	0	0.00
Jellies, jams, and preserves	5,504,136	0.12	5,504,136	0.14	0	0.00	0	0.00
Puddings/pie filling	9,656,786	0.21	9,035,957	0.23	620,828	0.31	0	0.00
Sherbert/ices	13,372,019	0.29	13,160,125	0.34	211,894	0.10	0	0.00
Sugars	24,732,220	0.53	24,732,220	0.64	0	0.00	0	0.00
Syrups, molasses, and honey	8,943,525	0.19	8,899,985	0.23	0	0.00	43,540	0.01
Non dairy drinks	154,392,548	3.33	154,392,548	4.01	0	0.00	0	0.00
Carbonated	33,247,612	0.72	33,247,612	0.86	0	0.00	0	0.00
Dry beverage	1,093,534	0.02	1,093,534	0.03	0	0.00	0	0.00
Fruit drinks	105,818,292	2.28	105,818,292	2.75	0	0.00	0	0.00
Water	14,233,110	0.31	14,233,110	0.37	0	0.00	0	0.00
Soups/gravies	23,460,341	0.51	23,317,098	0.61	143,243	0.07	0	0.00
Gravies	5,325,558	0.11	5,274,498	0.14	51,060	0.03	0	0.00
Soups	18,134,783	0.39	18,042,600	0.47	92,183	0.05	0	0.00
Condiments	95,918,974	2.07	89,099,392	2.31	908,820	0.45	5,910,761	1.00
Catsup & other sauces	67,984,992	1.46	61,165,410	1.59	908,820	0.45	5,910,761	1.00
Flavorings	11,358,777	0.24	11,358,777	0.29	0	0.00	0	0.00
Pickles/olives	16,575,205	0.36	16,575,205	0.43	0	0.00	0	0.00
Prepared foods	483,961,578	10.42	434,955,357	11.30	49,006,220	24.18	0	0.00
Burritos/tacos	51,680,566	1.11	49,698,525	1.29	1,982,041	0.98	0	0.00
Meat or cheese filled pastry	18,759,286	0.40	18,077,448	0.47	681,838	0.34	0	0.00
Pizza	322,787,618	6.95	304,009,324	7.89	18,778,294	9.27	0	0.00
Prepared meals	52,043,183	1.12	34,348,352	0.89	17,694,830	8.73	0	0.00
Prepared sandwiches	38,690,925	0.83	28,821,708	0.75	9,869,217	4.87	0	0.00

Source: School Food Purchase Study, 1998.

75

Table V-2: Summary of Volume of Food Acquisitions by Public Unified NSLP School Districts, SY 1996/97

Food group/subgroups	All Foods	Purchased foods	Processed foods containing donated commodities	Donated commodities
			(pounds)	
All Foods	7,229,240,725	6,464,378,318	122,338,272	642,524,135
Grain products	212,216,761	138,041,187	233,457	73,942,117
Breakfast cereals	25,931,447	25,181,997	0	749,450
Prepared flour mixes	15,145,632	14,566,508	0	579,124
Flours & other milled grains	114,276,377	56,598,452	0	57,677,925
Mixtures with grain	20,563,391	20,329,934	233,457	0
Pasta & noodles	23,026,886	14,079,056	0	8,947,830
Rice, barley & other grains	13,273,028	7,285,240	0	5,967,788
Bakery products	457,789,211	449,242,705	8,546,594	0
Biscuits, muffins, pancakes, & waffles	85,312,949	83,121,416	2,191,533	0
Bread & rolls	232,871,185	229,494,904	3,376,280	0
Cakes & other bakery desserts	65,994,368	63,537,181	2,457,186	0
Pretzels & snack chips	55,804,421	55,566,681	237,740	0
Crackers	17,806,288	17,522,523	283,765	0
Fats/oils	141,535,211	100,236,262	9,278,260	32,020,680
Butter	4,609,743	4,119,956	0	489,787
Lard & other animal fats	1,986	1,986	0	0
Margarine	33,041,471	31,598,230	478,370	964,872
Salad dressings & mayonnaises	49,258,201	40,458,311	8,799,890	0
Vegetable oils & shortenings	54,623,800	24,057,769	0	30,566,031
Red meats	313,851,922	169,567,200	36,517,098	117,737,625
Beef & veal	206,052,532	82,377,631	30,713,595	92,961,306
Mixed Meats	36,843,744	36,198,473	645,271	0
Pork	69,262,203	39,460,172	5,025,713	24,776,319
Recipe mix	1,693,443	1,560,924	132,519	0
Poultry	287,820,590	177,837,879	32,331,379	77,661,294
Chicken	188,274,516	130,182,736	22,855,017	35,236,764
Recipe mix	193,167	193,167	0	0
Turkey	99,352,867	47,461,976	9,476,362	42,414,530
Eggs	27,085,529	17,425,084	799,410	8,880,035
Eggs	22,936,164	13,906,117	150,012	8,880,035
Mixtures with eggs	4,159,365	3,518,967	640,398	0

Table V-2: Summary of Volume of Food Acquisitions by Public Unified NSLP School Districts, SY 1996/97 (continued)

Food group/subgroups	All Foods	Purchased foods	Processed foods containing donated commodities	Donated commodities
			(pounds)	
Fish	30,078,191	27,765,833	428,048	1,884,310
Fish	29,097,405	26,785,047	428,048	1,884,310
Shellfish	980,786	980,786	0	0
Milk & other dairy products	2,751,646,524	2,687,318,142	4,850,185	59,478,197
Cheese	126,874,983	65,841,190	4,665,269	56,368,524
Cream	3,354,298	3,354,298	0	0
Ice cream & ice milk	69,394,912	69,209,996	184,916	0
Milk	2,544,674,203	2,541,564,530	0	3,109,673
Yogurt	7,348,128	7,348,128	0	0
Fruits/juices	976,464,876	845,029,759	2,300,282	129,134,834
Fruits	621,103,031	492,220,034	1,984,441	126,898,556
Juices	355,361,845	352,809,725	315,841	2,236,278
Vegetables	890,084,727	780,619,710	1,923,328	107,541,889
Green vegetables	201,959,039	194,060,537	0	7,898,502
Mixed vegetables	48,917,341	47,702,880	0	1,214,461
Mixtures with vegetables	7,260,239	7,260,239	0	0
Other vegetables	16,460,827	16,359,280	0	101,547
Potato & potato products	394,516,913	345,616,126	0	48,900,787
Tomato & tomato products	99,425,257	76,393,695	1,656,418	21,375,144
Yellow vegetables	121,545,111	93,226,953	266,910	28,051,248
Legumes/nuts/seeds	69,316,833	41,270,146	106,894	27,939,792
Dry beans/peas	51,402,972	35,066,201	106,894	16,229,876
Other nuts	195,828	195,828	0	0
Peanuts/peanut butter	13,995,314	2,285,398	0	11,709,916
Seeds	390,090	390,090	0	0
Soybeans & soy products	3,332,629	3,332,629	0	0
Sugar/desserts	135,500,350	134,884,538	586,855	28,957
Candies/toppings	12,095,944	12,095,944	0	0
Gelatins	6,500,689	6,500,689	0	0
Jellies, jams & preserves	7,848,723	7,848,723	0	0
Puddings/pie filling	15,704,725	15,305,969	398,756	0
Sherbet/ices	16,442,460	16,254,361	188,099	0
Sugars	61,758,637	61,758,637	0	0
Syrups, molasses & honey	15,149,172	15,120,215	0	28,957

Table V-2: Summary of Volume of Food Acquisitions by Public Unified NSLP School Districts, SY 1996/97 (continued)

Food group/subgroups	All Foods	Purchased foods	Processed foods containing donated commodities	
			Donated commodities	Donated commodities
			(pounds)	
Non dairy drinks	410,974,590	410,974,590	0	0
Carbonated	91,848,704	91,848,704	0	0
Dry beverage	1,273,204	1,273,204	0	0
Fruit drinks	271,336,475	271,336,475	0	0
Water	46,516,207	46,516,207	0	0
Soups/gravies	21,158,031	21,054,778	103,253	0
Gravies	2,941,133	2,914,339	26,794	0
Soups	18,216,898	18,140,439	76,459	0
Condiments	172,937,933	165,710,887	942,449	6,284,598
Catsup & other sauces	114,493,920	107,266,874	942,449	6,284,598
Flavorings	13,869,040	13,869,040	0	0
Pickles/olives	44,574,973	44,574,973	0	0
Prepared foods	330,769,487	307,369,621	23,399,867	0
Burritos/tacos	41,952,631	40,678,952	1,273,679	0
Meat or cheese filled pastry	10,532,947	10,071,125	461,823	0
Pizza	227,310,018	215,035,866	12,274,152	0
Prepared meals	34,956,406	28,758,133	6,198,273	0
Prepared sandwiches	16,017,485	12,825,545	3,191,940	0

Source: School Food Purchase Study, 1998.

Within the myriad of detail contained in these data, several themes become evident on closer inspection. The remainder of this section is devoted to briefly identifying and discussing some of these themes.

1. Diversity of Foods

The most obvious feature of the complete list of school food acquisitions is the diversity of the list. Though food items were described in general terms – ignoring the composition of jams and jellies and of cookies and cakes, for example – the list still numbers 842. Of this number, 147 were acquired in donated form while another 141 contained donated commodities as ingredients.

2. Universal Appeal of Selected Foods

Despite the wide variety of foods available to school feeding programs as evidenced by the long list of items acquired, the universal appeal of certain foods in these programs is striking.¹ The ten leading foods acquired by schools and their share of the total value of acquisitions in SY 1996/97 are shown in Table V-3.

**Table V-3: Share of The Total Value of Acquisitions for the
Ten Leading Food Categories Acquired by Public Unified
NSLP School Districts, SY1996/97**

Food category	Share of total value of acquisitions
fluid milk	16.1
pizza	7.0
ground beef	5.1
cheese	4.4
potatoes	3.8
chicken nuggets	2.4
oranges	2.1
hamburger/hot dog buns	2.1
apples (fresh, sauce, and juice)	2.0
fruit drinks	1.7
Total	46.7

Source: *School Food Purchase Study*, 1998.

1/ Fluid milk is the one food that must be offered to students at lunch and breakfast as required by the National School Lunch Act. Thus, its high rate of use is due to a combination of its appeal and the requirement that it be offered.

These 10 food categories, represented by only 58 of the 842 food items included in the study, account for nearly half of the value of all school food acquisitions.

Another view of the same phenomenon can be achieved by tabulating the number of school districts that acquire each food item. Results of this tabulation are displayed in Table V-4. For example, of 842 purchased foods, it indicates that 30.9 percent were purchased by 100 or fewer school districts nationally.

There are a couple methodological points to be made regarding these estimates. The first point relates to the seasonality of procurement. For those foods that are acquired throughout the school year and were reported by respondents in each of the quarterly subsamples, the methodology used here yields an accurate national estimate. However, to the extent the food item is highly seasonal with acquisitions occurring in only a portion of the year, the numbers reported here underestimate the number of school districts acquiring these foods. As an illustration of the seasonality of acquisitions, 69 of the 87 *first quarter* districts participating in the study reported no deliveries of donated frozen potato products while all but 5 of the 74 *third quarter* districts received donations of these same products. Thus, the estimated number of school districts (5,287) receiving donated frozen potatoes in SY 1996/97 is believed to underestimate the actual number that received this product.

This effect is particularly evident among USDA donated commodities, for which the results in Table V-4 indicate that over half (51.7 percent) of all donated commodities were acquired by no more than 500 school districts, or 5.0 percent of the total. While this finding is consistent with results of the 1984/85 study, it is thought to underestimate the true value for the reasons cited above.¹

A second methodological point concerns the way in which individual food items are defined. The more detailed the definition, the fewer the number of school districts acquiring the food; and vice versa. For example, there are nearly 20 different fluid milk items for which acquisition records have been collected. On average, these items were each acquired by just over 3,000 school districts. Had these items been combined in a single fluid milk item, the number of

1/ Results of an earlier study of the distribution of donated commodities reinforce this belief. It revealed that for one or more quarters in SY 1990/91, school districts in the study received no deliveries of several canned fruits and vegetables due to the seasonal nature of USDA procurement and distribution. See: USDA, FNS, Commodity Letter of Credit Modification Demonstration Evaluation: Final Report, March 1992, p. V-57.

acquiring school districts would have been 10,083, the total number of districts in the universe. Thus, the way in which individual food items are defined affects the results as well.

Despite these methodological limitations, there are some useful insights to be gained from these estimates. First, just as some foods have nearly universal acceptance, other foods are acquired by a very narrow segment of the school district market. Even after allowing for the maximum degree of under-reporting due to the seasonality of acquisitions, it is evident that many foods are acquired by a relatively small share of all school districts.¹ Assuming the reported numbers are under-reported to the maximum extent possible, 30.9 percent of all purchased food items, 33.3 percent of all donated foods, and 48.9 percent of all processed foods containing donated commodities were acquired by no more than 400 school districts, 4.0 percent of the total number. Results of the 1984/85 study indicated that an even larger share of all food items were acquired by no more than 400 school districts (again allowing for maximum under-reporting.)

There are a number of explanations for this. The most obvious reason is that school districts are highly diverse in the types of foods they offer their students. The differences are not always large. For example, a few districts add cheese to their pollock nuggets. Although a small difference, it is a difference nonetheless. These differences can be driven by many factors including regional and ethnic tastes, not to mention the creativity of school food program staff.

Donated commodities are a special case and are discussed at greater length later in this chapter. Donated commodities are especially prone to under-reporting since the distribution of many donated foods occurs during relatively limited periods of time with the greatest concentration of deliveries in the second and third quarters of the school year. Also, school districts are permitted to refuse donated commodities and, within limits, to substitute other donated foods that they can make better use of. Since some donated commodities are clearly preferred over others, this results in a relatively limited distribution of certain donated foods.

Another possible reason that so few school districts acquire some donated commodities results from the effect of carryover from one year to the next. This occurs if a commodity is purchased by USDA for donation in a given year, but a limited quantity is carried-over for distribution in the following year. This happens, but with limited frequency.

1/ Due to the collection of acquisition data on a quarterly basis with the sample school districts evenly divided among the four quarters, the maximum degree of under-reporting would be by a factor of three-quarters. Thus, an estimate of 500 school districts could actually be as large as 2,000 school districts. Thus, multiplying the reported number by 4 provides an upper limit on the true value, recognizing that it can not exceed 10,083, the total number of districts.

Many of the processed foods containing donated commodities reach a limited number of school districts because they are processed under contracts negotiated at the state or school district level and, therefore, are more likely to be unique to that jurisdiction. Although processed foods containing donated commodities are more difficult to identify from procurement records (and a few might have eluded the transcription process), this is not believed to have contributed to this result in any significant measure.

**Table V-4: Individual Food Items by Frequency of Acquisition
by Public Unified NSLP School Districts, SY 1996/97**

Number of school districts acquiring food item	Percent of food items		
	Purchased foods	Processed foods containing donated commodities	Donated commodities
100 or fewer	30.9	48.9	33.3
101 - 500	18.9	36.9	18.4
501 - 1,000	9.3	9.2	9.5
1,001 - 2,500	15.6	5.0	19.0
2,501 - 5,000	12.9	0.0	15.6
5,001 - 10,000	12.1	0.0	4.1
10,000 or more	0.4	0.0	0.0
Total	100.0	100.0	100.0
Total number of food items	828	141	147

Source: *School Food Purchase Study, 1998.*

3. Importance of Donated Commodities

As noted earlier, the USDA makes a relatively wide selection of foods available to schools through its Commodity Donation Program. For certain foods and food subgroups, the USDA has become the principal source of supply, at least in those years in which supply of the commodity merits a large purchase by USDA. Table V-5 lists, for certain food categories, the share of total value of school district acquisitions that is accounted for by USDA donated commodities and processed foods containing donated commodities in SY 1996/97.

**Table V-5: Share of the Total Value of Acquisitions by
Public Unified NSLP School Districts that is Accounted for
by USDA Donated Commodities and Processed Foods
Containing Donated Commodities, SY 1996/97**

Food category	Share of total category value that is donated or processed
peanuts and peanut butter	84.8
turkey products	57.2
beef products	56.6
vegetable oils and shortening	54.6
cheese	54.0
flour	52.4
eggs	50.3

Source: *School Food Purchase Study*, 1998.

By comparing the number of school districts that receive individual food items in the form of commodity donations to those that buy the items commercially, it is possible to see which food items are being provided primarily through USDA donations. Those 42 food items for which half or more of the acquiring school districts received them in the form of donated commodities are listed in Table V-6. As can be seen, six of these items were acquired exclusively as donations with four of the six acquired by a very small number of school districts. Since canned pork was not purchased by USDA in SY 1996/97, this was probably a carryover item.

When a large share of those districts that acquire a food receive it in donated form, it generally indicates one of two things. (1) The item is popular among SFAs and was offered in sufficient quantities to satisfy a large share of the demand. Or (2), that the item is not widely sought by SFAs and was accepted as a donation by a relatively small number of school districts and was purchased by few if any districts.

Table V-6: Share of School Districts Acquiring Food Item that Received it as a Donated Commodity, Selected Food Items, SY 1996/97

Food Description	Of school districts acquiring food item, percent acquiring as a donated commodity ^a	Estimated number of school districts receiving item as donated commodity
Frozen blackberries	100.0	11
Dates	100.0	827
Canned pork	100.0	5
Prune puree	100.0	1,254
Canned plums, light syrup	100.0	50
Figs	100.0	39
Frozen apples	98.2	938
Frozen blueberries	97.9	1,313
Individual serving size peaches	97.2	1,955
Salmon patties/nuggets	96.8	350
Frozen red tart cherries	96.6	2,536
Mashed sweet potatoes	93.7	723
Fresh prunes	93.4	425
Canned sweet potatoes, light syrup	93.1	1,726
Canned pineapple, light syrup	92.8	3,999
Ground pork	92.0	3,508
Salmon fillet	90.5	154
Frozen peaches	89.7	1,332
Canned salmon	89.2	274
Mixed turkey roasts	85.7	3,911
Canned tart cherries	81.9	920
Bread flour	80.9	2,454
Low fat cheese	80.1	752
Ground turkey/ turkey sausage	77.1	3,891
Canned chicken	76.1	1,445
Individual servings of strawberries	74.4	78
Whole turkeys	74.2	2,173
Canned vegetarian beans	72.5	2,932
Peanut butter	71.3	4,503
Dry eggs	67.8	1,213
Ground beef	67.7	7,926
Turkey ham/turkey Canadian bacon	60.3	3,887
Raw cut up chicken parts	58.5	3,150
Breaded chicken parts	58.4	2,046
Frozen sweet potatoes	57.4	51
Raw eggs, no shell	56.7	3,014
Frozen strawberries	56.7	2,389
Vegetable shortening	56.4	4,526
Vegetable oil	55.8	3,195
Salsa	54.5	3,384
Whole wheat flour	52.7	1,026
Beef patties	50.9	4,222

^aCalculated as percentage that the number of school districts receiving the item as donated commodity is of the sum of the number purchasing the item and the number receiving as a donated commodity.

Source: School Food Purchase Study, 1998.

D. Comparison of Acquisitions in SY 1984/85 and SY 1996/97

The volume of school food acquisitions in SYs 1984/85 and 1996/97 is compared in Table V-7 below. Although these estimates are for the same population (public unified NSLP school districts), the studies from which these results were drawn followed substantially different approaches in the collection of food procurement data. These differences are discussed at greater length elsewhere in this report. Beyond using a different data collection technique, authors of the earlier study indicate in their final report that due to a systematic underestimation of known population values of about 20 percent, it was necessary to make an off-setting adjustment in the sample weights.¹ What effect this adjustment might have had on the study's food acquisition estimates is not known.

A comparison of the known volume of donated commodities to the estimated volume of donated commodities (including processed foods containing donated commodities) for the two study periods suggests that the two sets of estimates might not be comparable, at least in certain dimensions. As shown in Table IV-3 in the previous Chapter, USDA reported donations totaling 1.182 billion pounds in SY 1984/85. However, the estimated acquisitions of donated commodities (including processed foods containing donated commodities) reported in the earlier study totaled 1.351 billion pounds, or 14.3 percent above the level reported by USDA. In contrast, the total volume of donated commodities (including processed foods containing donated commodities) estimated in the current study is 17.4 percent *less than* the volume of total acquisitions reported by USDA.²

It was anticipated that the estimated volume of donations would fall below the actual volume since USDA's numbers include school districts that are not part of the universe under study here (or in the study conducted in SY 1984/85.) This includes private schools, nonunified school districts, and all SFAs in Alaska, Hawaii, and the US possessions. Collectively, these exclusions are estimated to account for a difference of around 11.0 percent. The effect of including processed foods containing donated commodities is harder to judge. To the extent commodities contained in these foods were cut-up, de-boned, or cooked, for example, their processed weight

1/ *School Food Purchase Study*, 1987, p. 2.10.

2/ A comparison of the estimated quantities of individual donated foods from the 1984/85 study with USDA's records of the quantities of these foods delivered to schools that year reveals a highly variable relationship. For some foods the estimated quantities are very close to the actual quantities as reported by USDA. For other foods, the estimated quantities are as much as 50 percent greater than USDA's reported number.

underestimates their commodity weight and could account for some of the difference.¹ Conversely, to the extent the donated commodity ingredients are combined with purchased ingredients, the processed weight overestimates the commodity weight. Since the former is thought to be at least as likely as the latter (especially given the relative importance of processed meat and poultry products in 1996/97), this is believed to have contributed to an estimated weight that is less than the reported weight.

Another potential reason for differences between USDA reported donations and study estimates is due to differences in data collection methodology. USDA reports deliveries to State Distributing Agencies while the estimates generated in this study are based on deliveries to school districts. It is therefore possible that some degree of difference is due to commodities reaching the State but not the school districts within the school year under study, though the amounts of such carryover are generally small.

For these reasons, readers are urged to exercise caution in comparing these data sets and in interpreting the changes they imply.

These caveats notwithstanding, a comparison of the results of these studies reveals several important changes that have occurred during the twelve year interval. While we suggest treating the absolute numbers reported for SY 1984/85 with caution, changes in the composition of the market basket and in the relative importance of major categories remain useful indicators of the direction and magnitude of change. Some of the more striking changes are described below.

1. Overall Changes in the Composition of the School Food Market Basket

Perhaps the most remarkable finding to come out of this comparison is the magnitude of change that has occurred between these two periods, periods separated by only 12 years. As indicated earlier, enrollment in public unified NSLP school districts increased an estimated 20.9 percent between SY 1984/85 and SY 1996/97. Other things being equal, therefore, an increase in

1/ The impact of commodity processing on weight loss can be illustrated with the numbers for bulk chicken and cut-up chicken pieces distributed through the donation program in SY 1996/97. USDA distributed 69.021 mil. lbs. of bulk and cut-up chicken that year. If this is reduced by 11.0 percent to account for school districts not included in the universe under study, 61.429 mil. lbs. remain. We estimate that of this amount, 22.541 mil. lbs. reached school districts in the form in which it was purchased by USDA while another 38.888 mil. lbs. went to processors for further processing. Assuming a standard weight loss of 40.0 percent due to deboning, a total weight loss of approximately 15.6 mil. lbs. (1.7 percent of the total weight of USDA donated commodities) would have resulted.

Another commodity that was processed extensively was ground beef. Of the 136.9 mil. lbs. of ground beef that we estimate public unified districts received, about one-third (32.4 percent) was further processed. Of the amount further processed, at least 22.6 mil. lbs. was cooked. Assuming an average weight loss of 20 percent in cooking, a total weight loss of about 4.5 mil. lbs. would have resulted. Thus, the loss in weight of processing these two commodities alone could have been comparable to 2.4 percent of the total weight of USDA donated commodities.

absolute quantities of approximately this magnitude would be expected. However, as a comparison of the quantities displayed in Table V-7 indicates, other things are clearly not equal. Also, some of the differences in utilization are probably due to short-term market conditions, although these impacts are believed to be limited to only a few foods.

There were significant increases in the acquisition of certain foods between 1984/85 and 1996/97; this, despite the fact that the 1984/85 estimates are thought to be inflated by as much as 15 to 20 percent. Among the major food groups demonstrating *increased* food use are the following:

- prepared foods¹
- breakfast cereals
- pretzels and snack chips
- crackers
- margarine
- carbonated beverages
- fruit drinks
- soy products
- candy
- sherbert/ices
- yogurt

Utilization of each of these food groups increased by a substantially larger percentage than the rate of increase in overall national school enrollment and many increased by a multiple of this rate. For example, breakfast cereals increased 61 percent, prepared foods 55.6 percent, yogurt 173.5 percent, fruit drinks 180.9 percent, and margarine by a multiple of over 27.

There are several possible reasons for the increased utilization of these foods. Convenience of preparation and serving, the increased number of breakfasts being served, changing food preferences, and increased a la carte sales are some of the possible explanations. The increased acquisition of margarine is clearly a result of the virtual disappearance of butter as a donated commodity. Interestingly, the increased quantity of margarine purchased was equal to only 39.8 percent of the decrease in butter donations. The increased acquisition of some of these foods, e.g.

1/ Classified as "mixtures with grain" in 1984/85.

soy products, yogurt, and sherbert/ices, might also have been driven in part by nutritional considerations.¹

There are also several food categories that experienced significant *declines* in the quantity that was acquired between these periods. The most notable of these were:

- fluid milk
- butter
- salad dressings and mayonnaise
- vegetable oils and shortening
- lard and other animal fats

In terms of absolute quantity, the more than 1.0 billion pound drop in fluid milk acquisitions is the largest decline by far. This represents a drop of 29.2 percent. On a per NSLP reimbursable meal basis, this represents a decline of 42.2 percent. Nationally, the per capita consumption of fluid milk has been declining for several years, though at a far slower rate than measured here. Between 1985 and 1997, the per capita consumption of fluid milk and cream fell 7.9 percent. And while some of this decline is offset by the increased consumption of other beverages (as discussed below), we suspect that the 1984/85 estimate is inflated by a substantial but unknown amount.

This problem aside, it will be noted that the food categories on this list share a common characteristic: at least some of the foods in each category have a high fat content. Thus, increased attention to the nutritional content of food acquisitions has almost certainly been a central influence. As noted earlier, the reduced acquisition of butter is almost entirely a function of the sharp curtailment in USDA donations of butter that occurred over this period. It is noteworthy that as this occurred, school district *purchases* of butter increased as school districts replaced a portion of the lost donations with commercial purchases. However, the additional purchases were equivalent to only 4.9 percent of the decline in the quantity of butter that had been donated in 1984/85, suggesting that school districts did not place an especially high premium on replacement of the lost product.

1/ Regulations governing the meal pattern requirements to allow yogurt to be credited as a meat alternate were amended during this period though the rule did not become final until March 1997, near the end of the study period.

This is in sharp contrast to the changes that occurred in the procurement of cheese. The USDA substantially reduced the quantity of cheese donations between 1984/85 and 1996/97 for the same reason that donations of other dairy products were curtailed. But in the case of cheese, school districts off-set the loss of donations with increased commercial purchases on a nearly pound-for-pound basis.

The large discrepancies in the quantities estimated in 1984/85 and 1996/97 for two of the food categories – “other nuts” and “catsup and other sauces” – are difficult to explain. In fact, the differences in the estimates for these two categories in combination with the differences for fluid milk described above are equivalent to nearly the entire difference (98.3 percent) in the total weight of all foods between the two study years. It is suspected that these three food categories in particular were substantially over-estimated in the earlier study.

2. Price Effect on Acquisitions

Though differences in relative market prices between the two years have almost certainly been responsible for some of the differences in acquisition levels between the two years, the association is not an easy one to document. To a major extent, off-setting price movements occur within food categories and are therefore not evident at the relatively aggregated level of presentation found in Table V-7.

There are two food categories for which the impact of short-term prices is fairly evident, however. They are pork and turkey. In the case of pork, very high prices in 1996/97 were a major deterrent to the use of pork and are thought to be the principal reason that the quantity of acquisitions was off by 67.1 percent compared to the level in 1984/85.

Operating in the opposite direction, abundant supplies and low prices are responsible in large measure for the substantially higher level of turkey acquisitions in 1996/97. In this case, there were both increased commercial purchases and increased donations in response to the lower prices.

BLANK

PAGE

**Table V-7: Comparison of Summary Volume of Food Acquisitions by
Public Unified NSLP School Districts, SYs 1984/85 and 1996/97**

Food group/subgroups	Processed Foods Containing Donated							
	All Foods		Purchased Foods		Commodities		Donated Commodities	
	1984/85	1996/97	1984/85	1996/97	1984/85	1996/97	1984/85	1996/97
	(thou. lbs.)		(thou. lbs.)		(thou. lbs.)		(thou. lbs.)	
All Foods	9,643,140	7,229,241	8,292,481	6,464,378	213,028	122,338	1,138,731	642,524
Grain products	416,553	212,216	145,068	138,041	95,484	233	176,001	73,942
Breakfast cereals	16,108	25,931	11,617	25,182	8	0	4,482	749
Prepared flour mixes	110	15,146	110	14,567	0	0	0	579
Flours & other milled grains	181,122	114,276	31,547	56,598	2,594	0	146,981	57,678
Mixtures with grain	183,926	20,563	91,848	20,330	91,879	233	200	0
Pasta & noodles	23,893	23,027	8,528	14,079	780	0	14,585	8,948
Rice, barley & other grains	11,394	13,273	1,418	7,285	223	0	9,753	5,988
Bakery products	436,779	457,788	373,509	449,243	58,229	8,547	5,041	0
Biscuits, muffins, pancakes & waffles	6,740	85,313	6,602	83,121	138	2,192	0	0
Bread & rolls	276,601	232,871	229,447	229,495	47,154	3,376	0	0
Cakes & other bakery desserts	109,903	65,994	97,317	63,537	7,545	2,457	5,041	0
Pretzels & snack chips	32,395	55,804	30,741	55,567	1,654	238	0	0
Crackers	11,140	17,806	9,402	17,523	1,738	284	0	0
Fats/oils	234,113	141,535	85,021	100,236	9,130	9,278	139,962	32,021
Butter	77,567	4,610	337	4,120	0	0	77,230	490
Lard & other animal fats	280	2	280	2	0	0	0	0
Margarine	1,156	33,041	1,052	31,598	0	478	104	965
Salad dressings & mayonnaise	77,437	49,258	65,869	40,458	8,447	8,800	3,121	0
Vegetable oils & shortenings	77,673	54,624	17,483	24,058	683	0	59,507	30,566
Red meats	642,137	313,852	430,353	159,597	17,944	36,518	193,841	117,737
Beef & veal	391,909	206,053	200,951	82,378	8,442	30,714	182,517	92,961
Lamb	47	n/a	47	n/a	0	n/a	0	n/a
Mixed meats	39,894	36,844	39,206	36,198	686	645	2	0
Pork	210,287	89,262	190,149	39,460	8,816	5,026	11,322	24,776
Recipe mix	n/a	1,693	n/a	1,561	n/a	133	n/a	0
Poultry	256,821	287,821	126,130	177,838	8,511	32,331	122,179	77,652
Chicken	199,867	188,275	95,675	130,183	5,773	22,855	98,418	35,237
Game birds	14	n/a	14	n/a	0	n/a	0	n/a
Recipe mix	n/a	193	n/a	193	n/a	0	n/a	0
Turkey	56,940	99,353	30,441	47,462	2,738	9,476	23,761	42,415

**Table V-7: Comparison of Summary Volume of Food Acquisitions by
Public Unified NSLP School Districts, SYs 1984/85 and 1996/97 (continued)**

Food group/subgroups	Processed Foods Containing Donated							
	All Foods		Purchased Foods		Commodities		Donated Commodities	
	1984/85	1996/97	1984/85	1996/97	1984/85	1996/97	1984/85	1996/97
	(thou. lbs.)		(thou. lbs.)		(thou. lbs.)		(thou. lbs.)	
Eggs	27,091	27,095	26,179	17,425	0	790	1,512	8,880
Eggs	27,172	22,936	25,660	13,906	0	150	1,512	8,880
Mixtures with eggs	519	4,159	519	3,519	0	640	0	0
Fish	61,588	30,078	55,374	27,766	586	428	5,625	1,884
Fish	59,293	29,097	53,215	26,785	452	428	5,625	1,884
Shellfish	2,295	981	2,159	981	136	0	0	0
Milk & other dairy products	3,798,426	2,751,846	3,652,657	2,687,318	14,359	4,850	131,410	59,479
Cheese	127,282	126,875	8,061	65,841	2,149	4,665	117,072	56,369
Cream	914	3,354	914	3,354	0	0	0	0
Ice cream & ice milk	71,681	69,395	65,159	69,210	6,522	185	0	0
Milk	3,595,862	2,544,674	3,575,836	2,541,565	5,688	0	14,338	3,110
Yogurt	2,687	7,348	2,687	7,348	0	0	0	0
Fruits/juices	895,499	976,465	753,367	845,030	2,240	2,300	139,691	129,135
Fruits	623,592	621,103	483,306	492,220	2,240	1,984	138,045	126,899
Juices	271,907	355,362	270,061	352,810	0	316	1,846	2,236
Vegetables	985,211	890,084	835,965	780,620	3,536	1,923	145,710	107,542
Green	18,484	201,959	18,484	194,061	0	0	0	7,899
Mixed vegetables	40,393	48,917	22,025	47,703	1	0	18,367	1,214
Mixtures with vegetables	41,785	7,260	41,771	7,260	14	0	0	0
Other vegetables	348,972	16,461	299,826	16,359	1,543	0	47,603	102
Potato & potato products	316,600	394,517	291,665	345,616	530	0	24,405	48,901
Tomato & tomato products	176,167	99,425	124,861	76,394	832	1,656	50,474	21,375
Yellow	42,810	121,545	37,333	93,227	616	267	4,861	28,051
Legumes/nuts/seeds	889,194	69,317	822,879	41,270	523	107	65,791	27,940
Dry beans/peas	98,390	51,403	56,023	35,066	60	107	42,307	16,230
Other nuts	769,400	196	764,617	196	247	0	4,536	0
Peanuts/peanut butter	20,570	13,995	1,405	2,285	216	0	18,948	11,710
Seeds	181	390	181	390	0	0	0	0
Soybeans & soy products	625	3,333	625	3,333	0	0	0	0
Lentils	28	n/a	28	n/a	0	n/a	0	n/a
Sugar/desserts	159,766	135,501	148,589	134,885	2,839	587	8,338	29
Candies/toppings	1,914	12,096	1,914	12,096	0	0	0	0
Gelatins	8,150	6,501	8,093	6,501	58	0	0	0
Jellies, jams & preserves	5,838	7,849	5,838	7,849	0	0	0	0
Puddings/pie filling	22,744	15,705	19,504	15,306	2,190	399	1,049	0

**Table V-7: Comparison of Summary Volume of Food Acquisitions by
Public Unified NSLP School Districts, SYs 1984/85 and 1996/97 (continued)**

Food group/subgroups	Processed Foods Containing Donated Commodities							
	All Foods		Purchased Foods		Commodities		Donated Commodities	
	1984/85	1996/97	1984/85	1996/97	1984/85	1996/97	1984/85	1996/97
	(thou. lbs.)		(thou. lbs.)		(thou. lbs.)		(thou. lbs.)	
Sherbet/ices	4,036	16,442	3,522	16,254	514	188	0	0
Sugars	101,718	61,759	101,718	61,759	0	0	0	0
Syrups, molasses & honey	15,366	15,149	8,000	15,120	77	0	7,289	29
Non dairy drinks	109,020	410,974	107,242	410,975	478	0	1,300	0
Carbonated	7,636	91,849	7,636	91,849	0	0	0	0
Dry beverage	4,799	1,273	4,799	1,273	0	0	0	0
Fruit drinks	96,585	271,336	94,807	271,336	478	0	1,300	0
Water	n/a	46,516	n/a	46,516	n/a	0	n/a	0
Soups/gravies	23,198	21,158	23,173	21,055	0	103	25	0
Gravies	824	2,941	812	2,914	0	27	12	0
Soups	22,374	18,217	22,361	18,140	0	76	13	0
Condiments	707,146	172,938	706,975	165,711	65	942	105	6,285
Catsup & other sauces	667,433	114,494	667,368	107,267	65	942	0	6,285
Flavorings	6,029	13,869	6,029	13,869	0	0	0	0
Pickles/olives	33,684	44,575	33,578	44,575	0	0	105	0
Prepared foods ^a	n/a	330,769	n/a	307,370	n/a	23,400	n/a	0
Burritos/tacos	n/a	41,953	n/a	40,679	n/a	1,274	n/a	0
Meat or cheese filled pastry	n/a	10,533	n/a	10,071	n/a	462	n/a	0
Pizza	n/a	227,310	n/a	215,036	n/a	12,274	n/a	0
Prepared meals	n/a	34,956	n/a	28,758	n/a	6,198	n/a	0
Prepared sandwiches	n/a	16,017	n/a	12,826	n/a	3,192	n/a	0

^aA portion of the foods classified as "prepared foods" in 1996/97 were classified as "mixtures with grain" in 1984/85.

Note: "n/a" indicates category was not used; "0" indicates category was used but no volume was reported.

Source: School Food Purchase Study, 1998.

3. Changes in Beverage Use

From these data, it would appear that there has been a virtual revolution in beverage use within these school food programs. A comparison of the volume of acquisitions for major beverage categories is shown in Table V-8. As indicated, the volume of fluid milk purchases dropped sharply, offset partially by strong growth in fruit juices and drinks and carbonated beverages (and probably bottled water). While these changes are more pronounced than those found in the general population, they are consistent in direction. Between 1980 and 1992, for example, it is estimated that the per capita quantity of household purchases of beverages changed as follows: fluid milk and cream - 18.3 percent, carbonated drinks +21.0 percent, noncarbonated drinks and beverages (other than coffee) +34.1 percent, and fresh and canned fruit juices +15.5 percent.¹

**Table V-8: Comparison of the Volume of Acquisitions for
Major Beverage Categories in Public Unified NSLP
School Districts, SYs 1984/85 and 1996/97**

Beverage	1984/85	1996/97	Percent change
	—thousand pounds—		%
Fluid milk	3,595,862	2,544,674	-29.2
Fruit juices	271,907	355,362	+30.7
Fruit drinks	96,585	271,336	+180.9
Carbonated sodas ^{1/}	7,636	91,849	+1,102.8
Dry beverage mix	4,799	1,273	-73.5
Bottled water	n/a	46,516	-
Total	3,976,789	3,311,010	-16.7

^{1/}Districts in 34 states reported the acquisition of carbonated sodas. Of those sample districts purchasing carbonated sodas, 30 percent were in 2 states.

Sources: *School Food Purchase Study*, 1987 and *School Food Purchase Study*, 1998.

1/ David M. Smallwood, et. Al. *Food Spending in American Households*, 1980-92, USDA, ERS, Statistical Bulletin Number 888, October 1994.

4. Increased Acquisition of Fresh Fruits and Vegetables

The relative importance of fresh produce (in terms of volume) was 28.5 percent greater in SY 1996/97 than in the earlier period. Approximately half of this difference is due to the increased acquisition of two items – fresh apples and fresh potatoes – in SY 1996/97, which is due in part to their attractive prices that year. However, there is a relatively consistent pattern of increased acquisitions across the entire list.

It will also be noted that a far larger number of fresh fruits and vegetables are now reaching school districts as donated commodities. This is a result of the Fresh Fruit and Vegetable Pilot Project that was active in 11 states at the time of the study. Under this program, districts in these states are able to use a portion of their entitlement funds to purchase fresh produce through a nationwide procurement system operated by the Department of Defense.

**Table V-9: Comparison of Fresh Fruit and Vegetable Acquisitions
in SY 1984/85 and SY 1996/97**

Food Item	Acquisition weight as percent of total acquisition weight		Percent of item weight acquired as donated commodity	
	1984/85	1996/97	1984/85	1996/97
	percent			
Apples, fresh	0.73	1.23	14.1	15.0
Avocado, fresh	(1)	(1)	0.0	0.0
Bananas, fresh	0.50	0.61	0.0	1.3
Plantains, fresh	0.00	(1)	0.0	0.0
Blueberries, fresh	0.00	0.00	6.7	0.0
Coconut, fresh	0.01	0.00	0.0	0.0
Grapefruit, fresh	0.01	0.01	0.0	38.6
Grapes, fresh	0.08	0.17	0.0	2.6
Jicama	0.00	(1)	0.0	0.0
Kiwi	(1)	0.03	0.0	4.4
Lemons, fresh	(1)	0.01	0.0	0.6
Mangoes, fresh	(1)	0.00	0.0	0.0
Melons, watermelons	0.07	0.20	0.0	4.4
Melons, cantaloupes	0.07	0.09	0.0	7.0
Melons, honeydew	0.01	0.03	0.0	3.4
Melons, other	0.00	(1)	0.0	0.0
Nectarines, fresh	0.02	0.04	0.0	0.8
Oranges, fresh	0.54	0.90	0.0	9.9
Oranges, mandarin, fresh	(1)	(1)	0.0	0.0
Peaches, fresh	0.02	0.02	13.6	8.1
Pears, fresh	0.09	0.18	61.8	33.2

**Table V-9: Comparison of Fresh Fruit and Vegetable Acquisitions
in SY 1984/85 and SY 1996/97 (continued)**

Food Item	Acquisition weight as percent of total acquisition weight		Percent of item weight acquired as donated commodity	
	1984/85	1996/97	1984/85	1996/97
	percent			
Pineapple, fresh	(1)	0.01	0.0	8.8
Plums, fresh	0.02	0.03	0.0	0.8
Prunes, fresh	0.00	(1)	0.0	98.2
Strawberries, fresh	0.01	0.03	0.0	4.0
Tangelos, fresh	0.01	(1)	0.0	0.0
Mixed fruit, fresh	0.00	(1)	0.0	0.0
Bean sprouts, fresh	(1)	(1)	0.0	0.5
Green beans, fresh	(1)	0.00	0.0	0.0
Broccoli, fresh (includes florets)	0.02	0.07	0.0	0.9
Cabbage, head	0.45	0.14	0.0	0.9
Cabbage, shredded	0.00	0.01	0.0	1.7
Cabbage, shredded w/other vegetables	0.00	0.03	0.0	0.2
Carrots, fresh	0.32	0.12	0.0	1.9
Carrots sticks/baby carrots/sliced carrots	0.00	0.18	0.0	6.5
Cauliflower, heads	0.02	0.03	0.0	0.1
Cauliflower, florets	0.00	0.01	0.0	7.8
Celery, fresh	0.24	0.08	0.0	0.7
Celery sticks/diced celery	0.00	0.05	0.0	4.4
Cilantro	0.00	(1)	0.0	0.8
Corn on the cob, fresh	(1)	(1)	0.0	16.7
Cucumbers, fresh	0.06	0.13	0.0	1.0
Eggplant, fresh	(1)	0.00	0.0	0.0
Kale, fresh	0.00	0.01	0.0	0.0
Lettuce, heads	1.12	0.85	0.0	0.4
Lettuce, shredded/chopped	0.13	0.23	0.0	2.2
Lettuce, salad mix	0.10	0.36	0.0	2.9
Mushrooms, fresh	(1)	(1)	0.0	1.3
Mustard greens, fresh	(1)	0.00	0.0	0.0
Okra, fresh	(1)	0.00	0.0	0.0
Onions, green, fresh	0.00	(1)	0.0	0.0
Onions, fresh	0.14	0.09	0.0	0.4
Parsley, fresh	(1)	(1)	0.0	0.5
Peas, green, fresh	(1)	0.00	0.0	0.0
Peppers, fresh	0.05	0.06	0.0	0.9
Potatoes, fresh	0.27	0.55	0.0	8.6
Radishes, fresh	0.02	0.01	0.0	3.0
Spinach, fresh	0.01	0.01	0.0	2.0
Alfalfa sprouts	(1)	(1)	0.0	3.8
Squash, fresh	(1)	0.01	0.0	0.1
Sweet potatoes, fresh	0.01	(1)	0.0	0.0
Tomatoes, fresh	0.38	0.43	0.0	1.1
Tomatoes, cherry, fresh	0.03	0.02	0.0	6.6
Mixed vegetables, fresh	(1)	0.01	0.0	79.0
Total	5.57	7.16	2.9	6.7
Number of items	51	54	4	47

(1) Less than .005 percent.

Source: School Food Purchase Study, 1998.

5. Changing Role of Donated Commodities

As noted elsewhere in this report, USDA spending on the commodity donation component of the NSLP has declined over the last several years. This diminished financial support is evident in this comparison. Results of the 1984/85 study indicated that donated commodities (excluding processed foods containing donated commodities) accounted for 11.8 percent of the total volume of all foods acquired (by weight) and 29.6 percent of the total dollar value of food acquisitions. The comparable shares in 1996/97 were 8.9 percent and 12.7 percent, respectively.¹ USDA donations of butter, one of the foods most affected by the changes taking place over this period, fell from \$193.9 million in SY 1984/85 to \$0.9 million in SY 1996/97.

Another noteworthy change that has occurred over this period is the form in which donated commodities reach the school districts. As noted earlier, donated commodities are received by districts in one of two forms. They are either still in the form in which they were initially acquired by USDA, i.e., as "donated commodities" or they occur as an ingredient in further processed foods, e.g., as ground beef in a taco or flour in a pizza. Although we do not have information on the volume or value of donated commodities used as ingredients in processed foods from this study, we can compare those foods that reach school districts as donated commodities with those processed foods that contain donated commodities as ingredients.

In 1984/85, the value of processed foods containing donated commodities was equivalent to 12.1 percent of the value of donated commodities; in 1996/97, it was equivalent to 34.4 percent. That is, a much higher share of all donated commodities are being further processed before reaching the school districts. Of course, this is a larger share of a smaller quantity since the total quantity of commodity donations was nearly cut in half between these two periods.

It should be noted that this further processing often results in a relatively slight change in form (e.g. deboning chicken) rather than preparation of an entirely new food. These changes are especially evident among meat and poultry. In 1984/85, the value of processed products containing donated beef reaching school districts was equivalent to only 3.3 percent of the value of beef in its donated form and the comparable level for all donated chicken was 3.2 percent. In 1996/97, the processed forms of these donations had climbed to 45.5 percent for beef and 81.0 percent for poultry.

^{1/} As noted earlier, donated commodities are valued at commercial price levels. If these commodities were priced at USDA-assigned values, the shares would be slightly lower.

**E. Comparison of the Mean Number of Food Items
Acquired in SY 1984/85 and SY 1996/97**

As noted earlier, estimates of the number of food items acquired are subject to underestimation when the pattern of acquisition is highly seasonal. This results from the use of a methodology based on quarterly subsamples. The same methodology was used in the earlier study. Thus, while the absolute numbers appearing in Table V-10 should be interpreted with caution, a comparison of results from the two study years is appropriate.

As in 1984/85, larger school districts were found to have purchased a greater variety of food items than smaller districts in 1996/97 (Table V-10). Though the direction of the relationship was the same in both periods, the number of foods purchased has increased significantly within each size class.

In contrast to the increased number of foods purchased by larger districts, the number of donated foods and the number of processed foods containing donated commodities is essentially the same regardless of district size. Since the same list of donated commodities are made available to districts of all sizes, this is what one would expect. However, two changes with regard to donated commodities are to be seen in these numbers. One is the increased number of donated commodities received by districts of all sizes. The other change is the uniform number of processed foods containing donated commodities that has emerged since the last study when the number of these foods was strongly tilted in favor of the largest districts. Whether this is a result of the SOC processing or increased use of state processing agreements, it appears to have leveled access to processed foods.

**Table V-10: Comparison of the Mean Number of Individual Food Items
Acquired by Public Unified NSLP School Districts,
SYs 1984/85 and 1986/87, by School District Enrollment**

School district enrollment	number of food items					
	<u>Purchased foods</u>		<u>Processed foods containing donated commodities</u>		<u>Donated commodities</u>	
	1984/85	1986/87	1984/85	1986/87	1984/85	1986/87
Less than 1,000	85	101	1	6	17	19
1,000 to 4,999	96	150	3	5	17	20
5,000 to 24,999	120	186	4	5	17	20
25,000 or more	150	208	8	6	16	21

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1988*.

98

VI. SCHOOL FOOD PROCUREMENT PRACTICES

A. Food Service Decision Making

There are two central decisions to be made in the procurement of food for SFAs: (1) Where is the food to be purchased? And (2), which foods are to be purchased? While these are decisions that might require the attention of more than one individual or administrative unit, survey respondents were asked to identify that part of the school district organization that had primary responsibility for each of these decisions, recognizing that this responsibility did not necessarily rest in the same place for both decisions. Beyond identifying the principal decision-makers, respondents were asked questions about the basis for making these decisions and the levels at which purchases were made and orders placed.

1. Vendor Selection

1.1 Responsibility for Decision

Vendor selection can affect many aspects of SFA performance including the quality and variety of the foods that are purchased, the cost of the foods, and timeliness and efficiency of delivery. Depending on the procurement system that is in use, that decision might be one of identifying potential bidders or in the case of direct-order systems, it might be the outright selection of vendors. But regardless of the formality of the procurement process that is followed, it is a decision that has important consequences for the SFA and the accomplishment of its mission.

Survey results indicate that decisions on vendor selection fall primarily on food service directors. For an estimated 67.0 percent of all public unified NSLP school districts, vendors were selected by the school food service directors. The next most important decision-maker among all districts was the kitchen manager/head cook at a distant 11.5 percent of all districts, followed by food service management companies at 9.5 percent.

When examined by size of school district, the most significant departures from the general pattern are two-fold. One is that the responsibility of the kitchen manager/head cooks decreases sharply as the size of the district increases. Among the smallest district size class, the kitchen manager/head cook had responsibility for selecting vendors in 21.8 percent of the districts while none of the largest districts selected vendors at this level in the organization.

The other departure from the overall pattern when examined by size of district is that the business office was found to play a larger role at both size extremes than for mid-sized districts. Presumably this is for different reasons, however. Among smaller school districts, it is not unusual to find school administrators, such as superintendents, taking part in administration of the school food program. Among larger districts, specialized business offices often assume responsibility for managing the procurement process.

**Table VI-1: Number of Public Unified NSLP School Districts by
Decision-Maker with Primary Responsibility for Vendor Selection,
by Size of School District, SY 1996/97**

School district enrollment	District Food Service Director	Kitchen Mgr./ Head Cook	Food Service Mgt. Co.	Business Office/ Purch. Dept.	School Board	Nutritionist	Other	Total
	number of school districts							
Less than 1,000	1,910	743	209	313	115	0	121	3,411
row percent	56.0	21.8	6.1	9.2	3.4	0.0	3.5	100.0
column percent	25.3	19.8	21.8	25.1	30.9	0.0	62.4	32.8
1,000 - 4,999	3,623	384	582	207	183	16	12	5,009
row percent	72.3	7.7	11.6	4.1	3.7	0.3	0.2	100.0
column percent	33.8	32.0	50.3	23.8	48.1	74.4	6.3	49.7
5,000 - 24,999	1,058	37	166	45	58	0	46	1,410
row percent	75.0	2.6	11.7	3.2	4.1	0.0	3.3	100.0
column percent	15.7	3.2	17.3	7.4	15.5	0.0	23.8	14.0
25,000 or more	167	0	1	48	17	5	14	253
row percent	66.1	0.0	0.5	18.8	6.7	2.1	5.7	100.0
column percent	2.5	0.0	0.1	7.3	4.5	25.0	7.4	2.5
All districts	6,758	1,165	958	614	373	21	194	10,083
row percent	67.3	11.5	9.5	6.1	3.7	0.2	1.9	100.0
column percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Percentages might not add to 100.0 due to rounding.

Source: *School Food Purchase Study, 1998.*

In comparison with results of the earlier study, the most noticeable change is in the increased use of food service directors to select vendors and the decreased use of kitchen managers/head cooks, particularly among the smallest districts. In 1983/84, vendor selection was the responsibility of the kitchen manager/head cook in 71.7 percent of districts with an enrollment of less than 1,000 while food service directors were responsible in only 10.8 percent. In 1996/97, the kitchen manager/head cook share had dropped to 21.8 percent while the share made by food service directors had jumped to 56.0 percent for the same enrollment size category. The other significant change is the increased role of the food service management companies (FSMCs) which selected vendors in 2.3 percent of all districts in 1983/84 but in 9.5 percent in 1996/97.

1.2 Selection Criteria

SFAs consider several factors in selecting their food vendors. Not surprisingly, *price* tops the list for districts of all sizes. The two most important criteria after price, based on the share of school districts that consider them, are *dependability* and *food quality*. *Service after sale*, availability of *brands* and *flexibility* were considerations that were somewhat more prevalent among the larger districts. *Location* of the vendor and the availability of *promotion programs* were the criteria given least consideration. The salient feature of the data in Table VI-2 is the consistency of the ranking across districts of different sizes.

Table VI-2: Criteria Considered by Public Unified NSLP School Districts in Selecting Vendors, SY 1996/97, by Size of School District

Selection criteria	All districts	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more
		percent of school districts			
Price	99.7	100.0	99.4	100.0	100.0
Dependability	93.9	92.0	92.6	96.4	94.0
Food quality	93.5	91.2	93.4	96.3	89.8
Service after sale	77.6	70.3	73.8	83.1	83.7
Brands	71.7	58.5	69.2	77.8	77.0
Delivery schedules	69.8	75.7	65.1	69.0	72.4
Flexibility	63.4	58.3	61.2	64.7	71.2
Location	29.4	28.5	32.0	29.6	21.1
Promotion programs	23.7	28.7	11.3	29.1	23.6

Source: School Food Purchase Study, 1998

2. Food Selection

2.1 Responsibility for Decision

Food service directors have the lead responsibility for the selection of foods in 71.3 percent of all SFAs. Mid-size districts are particularly dependent on food service directors to perform this function. In the smallest districts, those with an enrollment of less than 1,000 students, responsibility for food selection is divided between food service directors (58.4 percent) and kitchen managers/head cooks (35.5 percent). Among the largest school districts, responsibility for food selection is spread more broadly and includes food service management companies (7.1 percent), school boards (5.2 percent), nutritionists (2.6 percent) and business offices (9.8 percent.)

Table VI-3: Number of Public Unified NSLP School Districts by Decision-Maker with Primary Responsibility for Food Selection, by Size of School District, SY 1996/97

School district enrollment	District Food Service Director	Kitchen Mgr./ Head Cook	Food Service Mgt. Company	Business Office/ Purch. Dept.	Nutritionist	School Board	Other	Total
	number of school districts							
Less than 1,000	1,992	1,210	209	0	0	0	0	3,411
1,000 - 4,999	3,834	674	485	0	16	0	0	5,009
5,000 - 24,999	1,175	34	166	21	0	0	15	1,410
25,000 or more	189	0	18	25	7	13	1	253
All districts	7,191	1,917	878	46	22	13	16	10,083

Note: Percentages might not add to 100.0 due to rounding.

Source: School Food Purchase Study, 1998.

As in vendor selection, the most significant change that has occurred with regard to the responsibility for food selection since 1983/84 is the reduced share of decisions made by the kitchen manager in favor of the food service director (Table VI-4). To some extent, this change could be due to the increased use of the "food service director" title rather than to a shift in responsibility among different decision-makers. The ascendancy of the FSMCs is evident here too as their responsibility for food selection increased from only 0.9 percent of all districts in 1983/84 to 8.7 percent in 1996/97.

**Table VI-4: Comparison of Public Unified NSLP School District
Decision-Maker Responsible for Selecting Food Items,
SYs 1983/84 and 1996/97**

Decision-maker	1983/84		1996/97	
	Number of school districts	Percent of total	Number of school districts	Percent of total
Food service director	4,996	54.9	7,191	71.3
Business office/purchasing department	34	0.4	46	0.5
Nutritionist	12	0.1	22	0.2
Kitchen manager/head cook	3,817	41.9	1,917	19.0
Food service management company	78	0.9	878	8.7
Other ¹	168	1.8	29	0.3
Total	9,105	100.0	10,083	100.0

¹Includes school board.

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1996*.

2.2 Use of Product Specifications

Most school districts use product specifications in making food purchases. It is estimated that 88.3 percent of all public unified NSLP school districts used product specifications in some form in SY 1996/97. The most frequently used specifications were those relating to the packaging

unit, style/variety of product, official quality/grade standards, and the use of CN labels. All of these specifications were being used by at least seven out of ten SFAs.

Specifications relating to fat content and nutritional content were used less frequently, though still by a majority of SFAs. Of the specifications respondents were asked to comment on, product origin and standards of identity were the least likely to be used.

Table VI-5: Product Specifications Used by Public Unified NSLP School Districts in the Procurement of Food, SY 1996/97

Product specifications	Number of school districts	Percent of all school districts
Packaging unit	8,148	80.8
Style/variety of product	7,757	76.9
Official quality/grade standards	7,305	72.5
Use of child nutrition labels	7,039	69.8
Fat content	6,109	60.6
Container weight	5,901	58.5
Nutritional content	5,826	57.8
Brand name	4,913	48.7
Condition	4,443	44.1
Official standards of identity	3,757	37.3
Origin	2,947	29.2
Not using product specifications	1,183	11.7

Source: *School Food Purchase Study, 1998*

B. Use of Branded Foods

A food becomes branded with the application of a name that differentiates it from other similar foods. Some brands are applied to only a single product while others are used across a range of products. Some school food service programs have created their own "house brands" while some schools contract with commercial firms for the sale of particular foods under the firm's brand name (referred to here as "national brands").

For the SFA, the advantage of using brands is that they give the program's food an identity and, hopefully, greater appeal. If the brand is an established national brand, the SFA seeks to take advantage of existing product acceptance in attracting students to participate in its meals program. In addition, in using national brands, SFAs also gain access to the formulation, quality control, and marketing skills of the parent firm.

An estimated 17.6 percent of all public unified NSLP school districts offered house-branded foods in SY 1996/97 while 38.2 percent offered national brands (Table VI-6.)

The use of branded foods increases as size of district increases, both for house brands and national brands. While 15.7 percent of all school districts with an enrollment of less than 1,000 served nationally branded foods in 1996/97, 47.3 percent of all school districts in the largest size class (25,000 or more) served national brands.

Branded foods can arrive at school districts in different states of preparation. We asked respondents to indicate whether the foods arrived as ingredients, cold products, or as a finished item ready to serve. For those foods to which a house brand was applied, receiving the food in the form of ingredients was slightly favored across all districts and strongly favored among larger districts. Nationally branded foods more frequently reached school districts in a prepared state ready to serve. Larger districts in particular were likely to receive their branded foods in this form.

The food most highly favored for branding (in-house and nationally) was pizza, followed by tacos/burritos for the nationally branded and subs/sandwiches for house brands. Fruit and vegetable products and hamburgers/cheeseburgers are branded somewhat less frequently.

Table VI-6: Share of Public Unified NSLP Schools that Feature Branded Product, by Size of District and Grade Category, SY 1996/97

School district enrollment	Elementary schools	Middle/secondary schools	Other schools	All schools
	percent of schools			
	House Brands			
Less than 1,000	8.9	7.1	0.0	5.4
1,000 to 4,900	14.5	14.9	7.4	13.6
5,000 to 24, 999	17.5	21.3	6.4	17.5
25,000 and more	23.9	28.9	46.3	27.9
All districts	17.9	18.9	13.9	17.6
	National Brands			
Less than 1,000	19.6	15.8	11.9	15.7
1,000 to 4,900	35.9	40.4	25.7	36.0
5,000 to 24, 999	34.4	52.1	43.5	40.6
25,000 and more	37.7	62.0	62.6	47.3
All districts	35.0	45.5	34.1	38.2

Source: School Food Purchase Study, 1998.

Table VI-7: Share of Public Unified NSLP School Districts by Form in Which They Receive Branded Products and Size of District, SY 1996/97

School district enrollment	As ingredients	As cold product	As finished item	Other
	percent of all districts			
	House Brands			
Less than 1,000	0.0	2.7	3.5	0.0
1,000 to 4,999	11.1	11.2	9.0	0.0
5,000 to 24,999	17.2	7.4	5.5	0.0
25,000 or more	41.1	7.9	8.7	0.0
All districts	8.9	7.7	6.7	0.0
	National Brands			
Less than 1,000	6.5	17.2	2.7	0.7
1,000 to 4,999	6.8	25.1	28.7	0.0
5,000 to 24,999	14.4	29.4	42.0	0.4
25,000 or more	20.2	24.9	58.1	0.0
All districts	8.1	23.0	22.5	0.3

Source: School Food Purchase Study, 1998.

**Table VI-8: Share of Public Unified NSLP School Districts that
Feature Individual Branded Foods, by Size of District, SY 1996/97**

Individual food	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more	All districts
percent of all districts					
House Brands					
Hamburgers/cheeseburgers	2.4	7.6	9.3	11.5	8.6
Pizza	5.4	9.0	14.0	24.5	14.2
Subs/sandwiches	2.4	7.6	11.0	18.3	10.9
Tacos/burritos	0.0	6.0	3.6	23.2	9.2
Desserts	0.0	8.2	5.7	7.4	6.5
Fruit products	2.4	5.8	8.2	5.9	6.1
Vegetable products	2.4	5.3	8.6	5.9	6.1
National Brands					
Hamburgers/cheeseburgers	2.4	3.1	8.6	3.1	4.6
Pizza	10.0	30.2	32.2	37.9	30.7
Subs/sandwiches	2.1	7.9	13.1	12.6	10.0
Tacos/burritos	6.3	14.4	24.5	35.3	21.9
Desserts	4.0	12.4	17.8	28.6	17.3
Fruit products	0.3	9.4	9.1	6.0	7.5
Vegetable products	1.7	6.5	4.3	6.2	5.3

Source: *School Food Purchase Study, 1998.*

C. Food Delivery Practices

1. Receiving Locations

The most frequently used points of delivery for school districts are their on-site kitchens, though this varies by food group (Table VI-9). Around one-third of all districts receive some deliveries at base kitchens, again with some variation among the major types of food. Base kitchens are those that prepare meals for both on-site service and for shipment to other cafeterias within the district.

The more perishable foods, particularly dairy and bakery products, are more likely to be delivered closest to the serving lines, including deliveries to satellite kitchens and combination kitchens. The more storable foods such as canned/staples and frozen foods are more likely to be received

at a school district warehouse. However, even for these foods, a relatively small share of all SFAs receive delivery at SFA-run warehouses, 13.8 percent for canned and staples and 12.7 percent for frozen foods.

Given the differences in terminology used in the 1984/85 study and this study, a strict comparison of the two sets of results is not possible. However, the overall pattern of receiving locations relative to on-site kitchens, central kitchens, and central warehouses does not appear to have materially changed between the two time periods (Table VI-10).

**Table VI-9: Delivery Points for Food Shipments to Public Unified NSLP School Districts,
by Food Group, SY 1996/97**

Food group	On-site kitchens	School district warehouse	Commercial warehouse	Central kitchens	Base kitchens	Satellite kitchens	Combination kitchens	Other Kitchens
	percent of school districts							
Dairy products	77.6	1.3	0.0	1.8	39.6	19.8	18.4	0.3
Bakery products	73.4	4.0	0.0	2.4	39.7	7.3	11.3	0.2
Fresh produce	72.8	5.6	0.3	2.4	39.1	2.3	5.3	0.2
Canned/staples	70.4	13.8	0.0	2.1	36.6	1.1	5.6	0.2
Frozen foods	70.9	12.7	0.9	2.2	37.2	1.3	5.8	0.2
Fresh meats	64.8	9.5	0.1	2.0	33.1	1.1	1.9	0.2
Snack foods	62.1	9.6	0.0	2.0	31.8	6.0	6.6	0.2
Ice cream	63.1	2.4	0.0	2.5	33.4	10.7	8.3	0.3

Source: School Food Purchase Study, 1998.

**Table VI-10: Comparison of Receiving Locations of Public Unified NSLP School Districts,
SYs 1983/84 and 1996/97, by Food Group**

Food group	<u>On-site kitchens</u>		<u>School district warehouse</u>		<u>Commercial warehouse</u>		<u>Central kitchens</u>		<u>Base kitchens¹</u>		<u>Satellite kitchens²</u>		<u>Combination kitchens²</u>		<u>Other²</u>	
	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97
	percent of school districts															
Dairy products	94.0	77.6	2.3	1.3	0.0	0.0	3.1	1.8	n/a	39.6	n/a	19.8	n/a	18.4	n/a	0.3
Bakery products	88.5	73.4	2.5	4.0	0.0	0.0	5.0	2.4	n/a	39.7	n/a	7.3	n/a	11.3	n/a	0.2
Fresh produce	87.6	72.8	4.5	5.6	0.0	0.3	8.4	2.4	n/a	39.1	n/a	2.3	n/a	5.3	n/a	0.2
Canned/staples ¹	79.6	70.4	16.8	13.8	0.0	0.0	7.8	2.1	n/a	36.6	n/a	1.1	n/a	5.6	n/a	0.2
Frozen foods	80.9	70.9	15.5	12.7	0.0	0.9	7.5	2.2	n/a	37.2	n/a	1.3	n/a	5.8	n/a	0.2
Fresh meats	78.2	64.8	10.6	9.5	0.0	0.1	8.0	2.0	n/a	33.1	n/a	1.1	n/a	1.9	n/a	0.2
Snack items	73.1	62.1	5.9	9.6	0.0	0.0	5.4	2.0	n/a	31.8	n/a	6.0	n/a	6.6	n/a	0.2
Ice cream	83.4	63.1	3.9	2.4	0.0	0.0	7.8	2.5	n/a	33.4	n/a	10.7	n/a	8.3	n/a	0.3

¹Entries for 1984/85 are means of percentages reported separately for canned foods and staples.

²These locations were not included in the 1984/85 study.

Note: Percentages may not add to 100.0 percent in the 1996/97 study because the 1996/97 study allowed for more than one receiving location per food type whereas the 1983/84 study only allowed for one receiving location per food type.

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1998*.

D. School Food Vendors

1. Number of Vendors Used

The number of vendors used by school districts depends in part on the availability of vendors in the locality of the school district and the extent to which individual vendors are diversified across food groups. Foods that are highly perishable and therefore require frequent delivery at multiple locations near the point of use, such as bread and milk, are generally provided by a single vendor. As can be seen in Table VI-11, this is generally the case regardless of district size. Thus, dairy and bakery products are each usually provided by a single vendor.

Foods that are delivered less frequently and are storable over longer periods of time, such as canned/staples, frozen foods, and snack foods, are more likely to be supplied by more than one vendor. Furthermore, larger school districts are likely to use more vendors to supply these foods than smaller districts. Thus, while districts of less than 1,000 students use an average of 2.3 vendors to supply their canned/staple foods, districts with an enrollment of 25,000 or more use an average of 4.2 vendors. A similar relationship holds for frozen foods and snack foods.

Since some vendors provide more than one food line to their customers, the number of vendors serving an individual district can be less than the sum of the number of vendors supplying the individual food lines. That is, a single vendor might supply canned/staples, frozen foods, and snack foods and therefore be counted separately for each.

In Table VI-11, the sum of the average number of vendors across all food groups for school districts of less than 1,000 students is 14.4. However, the total number of vendors used by these districts is only 5.4, on average, indicating that many of the vendors serving this size class supply more than one food line.

The relationship between the sum of the number of vendors supplying individual food lines and the total number of vendors changes with size of enrollment. Among the largest districts (25,000 or more) there is an almost 1 to 1 relationship, indicating very little overlap among vendors supplying different types of foods and substantially greater specialization.

Comparatively little change in the average number of vendors serving SFAs is evident from a comparison of the 1996/97 results with those of the earlier study (Table VI-12). The mean number of vendors tends to be lower in 1996/97 than in 1983/84, though the differences are not

large. Snack items and ice cream are the only two categories experiencing an increase in the number of vendors. While all districts averaged 8.0 vendors in total in 1996/97, in 1983/84 the overall average was 8.7 vendors.

**Table VI-11: Mean Number of Vendors Used by Public Unified
NSLP School Districts, in SY 1996/97, by Food Group
and by Size of District**

Food group	All districts	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more
	number of vendors				
Dairy products	1.1	1.0	1.0	1.1	1.2
Bakery products	1.1	1.1	1.2	1.2	1.3
Fresh produce	1.7	1.8	1.7	1.7	1.8
Canned/staples	2.5	2.3	2.5	3.0	4.2
Frozen foods	2.6	2.3	2.6	3.0	4.1
Fresh meats	2.2	2.2	2.1	2.2	2.1
Snack foods	2.9	2.5	2.8	3.4	3.6
Ice cream	1.3	1.2	1.3	1.3	1.1
All foods	8.0	5.4	8.2	11.8	17.0

Source: School Food Purchase Study, 1998.

**Table VI-12: Comparison of the Mean and Total Number of Vendors
Used by Public Unified NSLP School Districts,
SYs 1983/84 and 1996/97, by Food Group**

Food group	1983/84		1996/97	
	Mean number of vendors	Total number of vendors	Mean number of vendors	Total number of vendors
Dairy products	1.1	11,327	1.1	10,619
Bakery products	1.1	11,184	1.1	11,143
Fresh produce	1.7	17,410	1.7	17,364
Canned/staples ¹	3.2	33,391	2.5	25,540
Frozen foods	3.3	34,084	2.6	25,940
Fresh meats	2.4	22,619	2.2	18,026
Snack items	2.2	17,219	2.9	23,550
Ice cream	1.2	10,725	1.3	11,128
Total	8.7	88,101	8.0	80,560

¹Mean of individual estimates for canned foods and staple foods in 1983/84.

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1998*.

2. Services Provided by Vendors

As intermediaries in the food distribution system that supplies school districts, vendors are in a position to provide a variety of related services to their customers. They have continuing contact with both the SFAs they serve and the manufacturers of the foods they distribute. As gatekeepers to school district acquisitions, they have access to key information relating to usage. As indicated in Table VI-13, many SFAs avail themselves of services offered by vendors. Unloading deliveries and placing them in coolers and storage facilities are the services most frequently

reported by school districts (89.7 percent and 80.2 percent, respectively), though others are used extensively too.

Over half of all school districts (55.3 percent) receive advice on purchasing from their vendors and nearly half (47.0 percent) receive purchase summaries from their vendors. Vendor summaries were used extensively in collecting information on school district acquisitions for this study. Over one-third of all districts (36.2 percent) receive delivery of USDA donated commodities through their vendors and a smaller share look to their vendors for either storage of donated commodities (17.7 percent) or processing of donated commodities (16.6 percent). It has been evident for a number of years that there are clear opportunities for efficiency gains in making greater use of commercial distributors in the delivery of donated commodities.¹

**Table VI-13: Services Provided by Vendors to Public Unified
NSLP School Districts, SY 1996/97**

Services	Percent of School Districts
	percent
Unloading at dock/school	89.7
Placing packages in coolers/storage	80.2
Advice on purchasing	55.3
Providing purchase summaries on monthly or quarterly basis	47.0
Delivery of USDA donated commodities	36.2
Storage of USDA donated commodities	17.7
Processing of USDA donated commodities	16.6
Menu Planning	13.3
Shelving delivered foods	10.4
Inventory updating	9.9

Source: *School Food Purchase Study*, 1998.

A comparison of these findings with those of the 1984/85 study reveals a marked increase in the provision of services by vendors to their school district customers. While the relative ranking of the same list of services remains largely unchanged, the share of SFAs taking advantage of services has at least doubled for most.

1/ USDA, FNS, OAE, *A Study of the State Commodity Distribution Systems*, March 1988.

For example, while 23.6 percent of all districts reported receiving advice on purchasing in SY 1983/84, the share had risen to 55.3 percent in SY 1996/97. The increased level of involvement of vendors in the delivery, storage, and processing of donated commodities was even more pronounced. Only 4.8 percent of all SFAs were estimated to have vendors deliver USDA donated commodities in SY 1983/84, compared to 36.2 percent in SY 1996/97.

Table VI-14: Comparison of Types of Service Provided by Food Vendors to Public Unified NSLP School Districts in SYs 1983/84 and 1996/97

Vendor services	SY 1983/84 ¹	SY 1996/97
	percent of school districts	
Unloading at dock/school	61.1	89.7
Placing packages in coolers/storage	57.4	80.2
Advice on purchasing	23.6	55.3
Providing monthly/quarterly purchase summaries	24.0	47.0
Delivery of USDA donated commodities	4.8	36.2
Storage of USDA donated commodities	1.8	17.7
Processing of USDA donated commodities	3.1	16.6
Menu planning	1.6	13.3
Shelving delivered foods	9.6	10.4
Inventory updating	4.3	9.9

¹Mean of measures reported individually for each of nine food groups.

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1998*.

E. Procurement and Pricing Methods

1. Procurement Methods

A wide variety of procurement methods are available to school districts for use in buying food. Since some of these foods are procured for use in the NSLP, school districts must comply with procurement requirements set forth in the Code of Federal Regulations (7 CFR 3015.180-184). In general, these regulations require organizations receiving Federal funds to maintain a written code of conduct regarding the procurement process, to conduct this process in a manner that provides maximum open and free competition, and to maintain records that can be accessed by the Federal government for a period of three years.

Food procurement methods can be viewed as falling in one of two general categories: formal methods and informal methods. Under formal procurement methods, school districts issue an invitation for vendors to submit sealed bids on particular foods to be provided under specified conditions. Bids can be awarded on a line item basis, that is, contracts are awarded item-by-item depending on which vendor offers the lowest price for each item. The principal alternative to this approach is to award contracts on the basis of the lowest combined cost for all foods in a category (e.g., all dairy products). This is referred to as the "formal lump sum bids" approach.

Informal procurement methods are generally conducted through direct SFA contact with vendor representatives for purposes of receiving price quotes and placing orders. Historically, this has been done by telephone or through sales visits.

The choice of procurement method can be dictated in part by characteristics of the product line. For some product lines, such as fresh produce and fresh meats, prices change frequently. This makes it difficult to use formal methods which generally establish contractual terms for periods of several months to a year.

As shown in Table VI-15, procurement methods vary somewhat by food groups, as expected. On the whole, formal methods are more widely used than informal methods. The single exception is fresh produce where districts rely somewhat more heavily on a combination of salesman visits and telephone quotes. Of the two formal approaches, line item bids are used by more school districts than lump sum bids.

School districts rely more heavily on formal procurement methods to purchase dairy and bakery products than any of the other food groups. Since these products not only require frequent delivery but are generally delivered to the individual schools within the district, a longer-term contractual relationship is required. Hence the heavier reliance on a formal arrangement.

With the exception of fresh produce, where frequent personal contact is required to keep abreast of rapidly changing market conditions, telephone quotes are relatively rare.

The "other methods" cited by respondents could generally be considered variations on the methods listed in Table VI-15. For example, 13 districts reported that at least a portion of their foods were acquired cooperatively or by the food management company that ran the school meals program. Presumably, most of these purchases were made through use of formal methods. Another 12 districts purchased some foods through written or faxed quotes, a variation on the telephone quotes approach.

**Table VI-15: Food Procurement Methods Used by Public Unified NSLP
School Districts in SY 1996/97, by Food Group**

Food group	Formal line item bids	Formal lump sum bids	Telephone bids/quotes	Salesman visits	Other methods
percent of school districts					
Dairy products	60.6	25.5	4.5	4.8	4.6
Bakery products	56.1	25.0	5.9	5.1	5.1
Fresh produce	22.5	13.3	23.1	33.3	7.9
Canned/staples	42.4	15.1	3.9	32.5	6.1
Frozen foods	41.6	15.1	4.1	33.1	6.1
Fresh meats	31.2	12.1	6.3	31.4	4.9
Snack foods	34.9	13.6	4.2	28.1	4.8
Ice cream	38.8	17.6	6.5	17.2	4.5

Source: *School Food Purchase Study, 1998*

Comparison of these results with those from the earlier study reveals some significant differences, particularly among the procurement methods used for certain food groups (Table VI-16). Overall, formal methods were used far more extensively in SY 1996/97 than in SY 1983/84. Comparing the two formal procurement methods, the use of lump sum bids was substantially more widespread than it had been in 1983/84. This is most notable for dairy products and bakery products, for which line item bids had been extensively used in 1983/84.

BLANK

PAGE

Table VI-16: Comparison of Percent of Public Unified NSLP School Districts Using Alternative Food Procurement Methods, SYs 1983/84 and 1996/97, by Food Group

Food group	<u>Formal line item bids</u>		<u>Formal lump sum bids</u>		<u>Telephone bids/quotes</u>		<u>Salesman visits</u>		<u>Other methods^{2/}</u>	
	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97
	percent of school districts									
Dairy products	69.8	60.6	17.2	25.5	3.1	4.5	9.1	4.8	n/a	4.6
Bakery products	65.4	56.1	13.8	25.0	5.2	5.9	15.8	5.1	n/a	5.1
Fresh produce	14.4	22.5	3.3	13.3	31.1	23.1	48.4	33.3	n/a	7.9
Canned/staples ^{1/}	30.6	42.4	5.2	15.1	8.5	3.9	52.6	32.5	n/a	6.1
Frozen	29.1	41.6	5.9	15.1	8.9	4.1	54.5	33.1	n/a	6.1
Fresh meats	26.9	31.2	4.6	12.1	15.3	6.3	51.8	31.4	n/a	4.9
Snack items	28.1	34.9	4.4	13.6	11.5	4.2	52.2	28.1	n/a	4.8
Ice cream	48.8	38.8	10.9	17.6	11.4	6.5	26.2	17.2	n/a	4.5

^{1/}Entries for 1984/85 are means of percentages reported separately for canned foods and staples.

^{2/}Other methods was not an alternative in the 1983/84 survey.

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1998*.

2. Pricing Methods

School districts and their vendors establish prices for their transactions through a variety of means. As with procurement methods, these too can be grouped into formal and informal categories. Formal methods are those that are agreed to through contractual commitments while informal methods are arrived at without benefit of contracts.

The first four pricing methods displayed in Table VI-17 – fixed price, fixed price with escalator, formula price, and cost-based price – are considered formal methods and are in common use. The remaining three methods are considered informal. The two pricing methods most frequently used across all food groups in SY 1996/97 were fixed price and bid/quote price. The former is achieved contractually; the latter can be done through a variety of informal means.

For dairy products, most school districts used either a fixed price with escalator (38.5 percent) or a fixed price (36.3 percent). Fixed prices are used most frequently for bakery products, accounting for 58.1 percent of all districts. For the reasons cited earlier, districts rely more heavily on informal pricing methods for fresh produce, with 38.4 percent of all districts using bid/quote prices. For the remaining food groups, districts are rather evenly split between fixed pricing (with or without an escalator) and bid/quote prices.

The most dramatic change in school district pricing since 1983/84, as documented in Table VI-18, has been the pronounced shift toward more formal methods and away from retail prices and discounted prices. The fixed price and fixed price with escalator methods, in particular, have become more widely adopted. Even fresh produce has moved in this direction, though a majority of all districts still use informal pricing for these foods. In SY 1983/84, only 4.1 percent of all districts priced their produce through use of a fixed price method; in SY 1996/97, an estimated 21.3 percent of all districts priced their produce this way.

BLANK

PAGE

Table VI-17: Pricing Methods Used by Public Unified NSLP School Districts in Food Procurement, SY 1996/97, by Food Group

Food group	Formal method				Informal method			
	Fixed price	Fixed price with escalator	Formula price	Cost-based price	Bid or quote price	Retail price	Discount price	Other
	percent of school districts				percent of school districts			
Dairy products	38.3	38.5	1.0	1.9	18.9	2.2	0.5	0.7
Bakery products	58.1	6.7	0.7	2.5	22.7	2.9	2.8	0.7
Fresh produce	11.7	9.6	5.5	12.4	38.4	10.7	10.5	1.0
Canned/staples	31.8	9.5	5.4	6.1	35.9	4.0	6.5	0.7
Frozen foods	30.8	9.8	5.5	7.0	35.0	4.0	7.2	0.7
Fresh meats	22.3	9.2	5.7	4.4	31.3	6.3	5.6	0.7
Snack foods	26.2	5.4	6.0	6.9	29.9	4.3	6.2	0.7
Ice cream	33.0	9.0	3.4	4.5	23.3	4.8	5.3	0.7

Source: School Food Purchase Study, 1998.

Table VI-18: Comparison of Percent of Public Unified NSLP School Districts Using Alternative Methods of Product Pricing, SYs 1983/84 and 1996/97, by Food Group

Food group	Formal method								Informal method							
	Fixed price		Fixed price with escalator		Formula price ^{1/}		Cost-based price ^{2/}		Bid or quote price		Retail price		Discount price		Other ^{2/}	
	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97	1983/84	1996/96	1983/84	1996/97	1983/84	1996/97	1983/84	1996/97
	percent of school districts								percent of school districts							
Dairy products	41.3	38.3	25.4	38.5	n/a	1.0	n/a	1.9	26.6	18.9	3.2	2.2	3.3	0.5	n/a	0.7
Bakery products	46.8	58.1	6.5	6.7	n/a	0.7	n/a	2.5	27.5	22.7	7.7	2.9	3.6	2.8	n/a	0.7
Fresh produce	2.5	11.7	1.6	9.6	n/a	5.5	n/a	12.4	32.2	38.4	14.8	10.7	31.9	10.5	n/a	1.0
Canned/staples ^{1/}	12.6	31.8	1.9	9.5	n/a	5.4	n/a	6.1	40.5	35.9	8.9	4.0	24.5	6.5	n/a	0.7
Frozen foods	11.1	30.8	2.5	9.8	n/a	5.5	n/a	7.0	40.4	35.0	10.9	4.0	25.4	7.2	n/a	0.7
Fresh meats	8.5	22.3	1.6	9.2	n/a	5.7	n/a	4.4	35.0	31.3	13.0	6.3	24.9	5.6	n/a	0.7
Snack items	13.1	26.2	2.9	5.4	n/a	6.0	n/a	6.9	28.2	29.9	10.0	4.3	19.0	6.2	n/a	0.7
Ice cream	29.5	33.0	3.6	9.0	n/a	3.4	n/a	4.5	24.4	23.3	7.3	4.8	15.6	5.3	n/a	0.7

^{1/}Entries for 1984/85 are means of percentages reported separately for canned foods and staples.

^{2/}These methods were not included in the 1984/85 study.

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1998*.

F. Cooperative Buying

By joining with other school districts, SFAs can realize the economies (and possibly other benefits) of larger scale procurement. Cooperative buying can take various forms. It can be organized and managed by a group of SFAs that are in relatively close geographic proximity. Political jurisdictions can provide the leadership to create a cooperative. At least two states have begun buying cooperatively for school districts within their states that want to take part. Though it was not considered as cooperative buying for purposes of this study, the pilot program now being conducted by the Department of Defense for the USDA in buying fresh produce for NSLP school districts is a variant of cooperative buying. So too is the pilot program that is now being planned by USDA's Agricultural Marketing Service.

As the results in Table VI-19 indicate, a significant share of all school districts, 37.1 percent, are estimated to have participated in a cooperative buying program in SY 1996/97. Among the smallest districts, 42.9 percent participated. While the incidence of participation in these programs was lowest in the largest districts, even within this group 22.9 percent of the districts were represented.

Perhaps more impressive than the number of school districts taking part in these cooperative programs is the share of their overall food purchases that they reported buying cooperatively. Overall, it is estimated that 61.9 percent of the SY 1995/96 food purchases of these districts was acquired through cooperative purchases.

On average, participating school districts reported that they had been in their cooperative buying program for around 6 years. Districts in the smallest enrollment size class participated in programs that served about twice as many school districts as did those in larger size classes.

The results are doubly surprising when compared with results of the SY 1984/85 study as displayed in Table VI-20. The earlier study found that less than 10 percent of all public unified school districts reported membership in a food buying cooperative and that no districts at all in the smallest size class (less than 1,000 students) reported membership.

As can be seen in Table VI-20, cooperative buying programs as a group provide the full range of foods acquired by SFAs. While canned and staples and frozen foods continue to be the lines that most districts buy cooperatively, 32.8 percent and 28.8 percent of all districts, respectively, a significant share of districts buy other lines as well.

**Table VI-19: Participation in Cooperative Buying by Public Unified
NSLP School Districts, by Size of District, SY 1996/97**

School district enrollment	Districts participating in cooperative buying		Average number of years in buying program	Average number of districts participating in cooperative ¹	Average share of SY 1995/96 food purchases through buying program
	Number	Percent of total			
	(number)	(%)	(years)	(SFAs)	(%)
Less than 1,000	1,465	42.9	6.4	62	70.0
1,000 to 4,999	1,619	32.3	6.5	29	56.8
5,000 to 24,999	602	42.7	5.8	28	57.4
25,000 or more	58	22.9	6.2	34	44.8
All districts	3,745	37.1	6.3	42	61.9

¹School districts were asked to report the total number of school districts participating in their buying cooperative. Information on the size of these school districts is not available.

Source: *School Food Purchase Study, 1998.*

**Table VI-20: Comparison of Public Unified NSLP School District
Participation in Purchasing Cooperatives,
SYs 1983/84 and 1996/97, by Food Group**

Food group	1983/84		1996/97	
	Number of school districts	Percent of total districts	Number of school districts	Percent of total districts
Dairy products	308	3.4	1,762	17.5
Bakery products	350	3.9	1,349	13.4
Fresh produce	93	1.0	1,647	16.3
Canned/staples ¹	716	8.0	3,304	32.8
Frozen	637	7.1	2,903	28.8
Fresh meats	218	2.4	2,205	21.9
Snack items	246	2.7	1,933	19.2
Ice cream	130	1.4	1,612	16.0

Note: Total number of districts for the 1996/97 study was 10,083. The 1983/84 study figures are from Table F3 of the *School Food Purchase Study, Final Report, 1987.*

¹Mean of individual estimates for canned foods and staples.

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1998.*

VII. THE RELATIONSHIP BETWEEN SCHOOL DISTRICT CHARACTERISTICS, PROCUREMENT PRACTICES, AND FOOD ACQUISITIONS

In this Chapter, we examine the relationship between selected school district characteristics and procurement practices and mean costs of the foods acquired by public unified school districts participating in the NSLP. In particular, we will look at the effect on food costs of district size, centralization of procurement, the number of vendors used and who within the school district organization is responsible for vendor selection, and the methods used for procurement and product pricing. Food costs are measured in dollars per pound and dollars per thousand students.

As noted in previous sections of this report, school districts require a wide variety of different foods for their programs. Even after substantial aggregation across different flavors, varieties, cuts, and sizes, we are left with over 800 individual food items. Given the differences that exist within these individual food items and the even larger differences that arise when individual food items are aggregated, caution is required in comparing costs. In other words, differences in cost might reflect differences in product characteristics rather than differences in prices paid for products with the same characteristics.

To minimize these effects, the tables that appear in this Chapter contain information either for selected individual food items that are thought to be highly comparable or for major aggregations of individual food items within which these differences will tend to be off-setting.

A. Effect of School District Characteristics on Food Costs

1. Size of Enrollment

A comparison of mean costs per pound for major food categories by school district size (Table VII-1) suggests an inverse relationship between mean cost per pound and district size, though the relationship is weak for districts of less than 5,000 enrollment. The cost advantage of the largest districts is somewhat more apparent. Of the 67 food categories listed in Table VII-1, districts with an enrollment of 25,000 or more had the lowest mean cost (or were tied for lowest mean cost) in 33 categories. Furthermore, these districts were lowest mean cost in many of the highest value food categories, including beef, pork, chicken, turkey, milk, fruits, juices, and potato products.

Districts of 5,000 to 24,999 had 17 food categories for which they had the lowest mean cost. Districts of 1,000 to 4,999 had 9 categories with lowest mean cost while the smallest size class, less than 1,000, had 12.

**Table VII-1: Mean Cost Per Pound Paid by Public Unified NSLP
School Districts for Purchased Foods by Food Subgroups
and by Size of School District, SY 1996/97**

Food group/subgroups	dollars per pound				
	All districts	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more
Grain Products					
Breakfast cereals	3.13	3.37	3.41	3.22	2.78
Flour mix	0.90	1.46	1.00	0.87	0.79
Flour/other milled grains	0.21	0.21	0.22	0.21	0.21
Mixtures with grain	1.19	0.94	0.98	1.22	1.40
Pasta	0.64	0.70	0.69	0.59	0.60
Rice/other grains	0.89	0.61	0.82	1.20	0.72
Bakery					
Biscuits	1.35	1.31	1.42	1.31	1.32
Bread & rolls	0.76	0.78	0.76	0.75	0.78
Cakes/other desserts	1.68	1.57	1.72	1.61	1.73
Chips	1.71	1.65	1.69	1.76	1.62
Crackers	1.70	1.72	1.85	1.64	1.59
Fats & Oils					
Butter	1.59	1.68	1.46	1.58	1.68
Lard	0.50	n/a	n/a	0.50	n/a
Margarine	0.43	0.50	0.47	0.41	0.39
Salad dressing	0.75	0.84	0.79	0.74	0.69
Vegetable oil	0.55	0.97	0.57	0.53	0.50
Red Meats					
Beef	1.48	1.56	1.45	1.52	1.43
Mixed meats	1.28	1.49	1.31	1.23	1.26
Pork	1.77	1.77	1.88	1.70	1.67
Recipe mix	1.20	n/a	1.08	0.87	1.76
Poultry					
Chicken	1.67	1.70	1.71	1.68	1.61
Recipe mix	1.76	n/a	1.31	2.37	1.97
Turkey	1.16	1.21	1.29	1.13	1.09
Eggs					
Eggs	0.68	0.68	0.69	0.65	0.73
Mixtures with eggs	1.67	1.72	1.89	1.74	1.47

**Table VII-1: Mean Cost Per Pound Paid by Public Unified NSLP
School Districts for Purchased Foods by Food Subgroups
and by Size of School District, SY 1996/97 (continued)**

Food group/subgroups	All districts	Less than	1,000 to	5,000 to	25,000 or
		1,000	4,999	24,999	more
		dollars per pound			
Fish					
Fish	1.68	1.72	1.82	1.68	1.50
Shellfish	2.28	2.24	2.50	2.47	1.85
Milk & other dairy					
Cheese	1.49	1.47	1.51	1.47	1.51
Cream	0.95	1.15	0.99	0.88	0.89
Ice cream	0.93	0.75	0.98	0.92	0.90
Milk	0.30	0.31	0.30	0.30	0.29
Yogurt	1.04	1.64	1.05	1.10	0.83
Fruits/Juices					
Fruits	0.54	0.60	0.56	0.54	0.49
Juices	0.48	0.52	0.49	0.48	0.47
Vegetables					
Green vegetables	0.43	0.41	0.42	0.42	0.44
Mixed vegetables	0.60	0.66	0.61	0.58	0.59
Mixtures with vegetables	0.80	0.96	0.84	0.79	0.72
Other vegetables	0.67	0.79	0.71	0.65	0.63
Potato & potato products	0.46	0.53	0.47	0.45	0.44
Tomato & tomato products	0.51	0.51	0.51	0.50	0.51
Yellow vegetables	0.51	0.45	0.50	0.52	0.51
Legumes/nuts/seeds					
Dry beans/peas	0.42	0.41	0.38	0.47	0.40
Other nuts	2.43	3.55	1.78	3.99	3.98
Peanuts/peanut butter	1.19	1.56	1.08	1.27	1.18
Seeds	1.75	2.03	1.82	1.66	1.91
Soybeans & soy products	0.96	1.20	0.82	1.20	0.79
Sugar/desserts					
Candies/toppings	1.92	1.97	2.04	1.80	1.83
Gelatins	0.90	1.47	0.83	0.80	0.85
Jellies, jams & preserves	0.70	0.87	0.77	0.68	0.63
Puddings/pie fillings	0.59	0.57	0.62	0.56	0.59
Sherbet/ices	0.81	0.92	0.86	0.79	0.78
Sugars	0.40	0.44	0.42	0.40	0.38
Syrups, molasses & honey	0.59	0.52	0.65	0.56	0.56
Non dairy drinks					
Carbonated	0.36	0.43	0.40	0.36	0.33
Dry beverage	0.86	0.90	0.76	1.04	0.77
Fruit drinks	0.39	0.44	0.38	0.40	0.38
Water	0.31	0.42	0.31	0.29	0.33

126

**Table VII-1: Mean Cost Per Pound Paid by Public Unified NSLP
School Districts for Purchased Foods by Food Subgroups
and by Size of School District, SY 1996/97 (continued)**

Food group/subgroups	All districts	Less than	1,000 to	5,000 to	25,000 or
		1,000	4,999	24,999	more
dollars per pound					
Soups & gravies					
Gravies	1.81	2.33	1.84	1.94	1.49
Soups	0.99	0.96	0.86	1.05	1.30
Condiments					
Catsup & other sauces	0.57	0.51	0.57	0.57	0.58
Flavorings	0.82	0.90	0.99	0.87	0.55
Pickles/olives	0.37	0.41	0.36	0.38	0.37
Prepared meals					
Burritos/tacos	1.22	1.34	1.28	1.21	1.18
Meat or cheese filled pastry	1.79	2.02	1.82	1.75	1.79
Pizza	1.41	1.23	1.41	1.39	1.47
Prepared meals	1.19	3.17	3.29	1.73	1.06
Prepared sandwiches	2.25	2.57	2.93	1.80	2.48

Note: Shading indicates lowest price. When two or more categories hold the lowest price, all are shaded.
Source: *School Food Purchase Study, 1998.*

As a means of comparing costs at a level closer to that of individual foods, the 50 individual food items that were purchased in the largest dollar volume nationally in SY 1996/97 were identified. (See Appendix C for a more complete description of this list.) The list was selected on the basis of school district purchases since all other cost estimates are based on values derived from purchased foods. Ordered from highest value to lowest value, the list begins with flavored 1% milk (\$225.3 million) and ends with meat filled pastry (\$17.5 million). Nearly all of the major food categories are represented on this list. And, though the list includes only 50 of the 842 food items acquired by school districts, collectively these foods accounted for an estimated \$2.2 billion of school district purchases in SY 1996/97, 57.5 percent of total purchases.

A comparison of the mean costs of these individual items, as displayed in Table VII-2, leads to much the same conclusion as described above. Though each district size class has the lowest mean cost for at least some foods, the two larger size classes are lowest cost for more items (43) than are the two smaller size classes (18).¹ Conversely, the two larger size classes are highest cost for fewer items (17) than the two smaller size classes (39).

^{1/} When two or more categories share the lowest (highest) cost, both are counted. Thus, the total number of lowest (highest) observations can exceed 50.

Table VII-2: Mean Cost per Pound of the Top Fifty Items Purchased by Public Unified NSLP School Districts, by Size of District, SY 1996/97

Food item	School district enrollment				
	All Districts	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more
Milk, flavored, lo fat, 1%	0.30	0.30	0.30	0.30	0.29
Milk, flavored, lo fat, fat solids unknown	0.31	0.31	0.31	0.30	0.31
Milk, whole	0.31	0.31	0.32	0.31	0.31
Milk, lo fat, 2%	0.31	0.30	0.31	0.30	0.33
Hamburger and hot dog buns/steak and sub roll	0.81	0.86	0.83	0.78	0.78
Potatoes, french fries/wedges, frozen	0.45	0.49	0.45	0.44	0.44
Fruit drinks, individual	0.43	0.45	0.44	0.42	0.40
Orange juice, individual	0.48	0.53	0.48	0.46	0.46
Cereals, individual	3.92	4.28	4.15	3.80	3.43
Milk, lo fat, 1%	0.31	0.31	0.30	0.30	0.32
Pizza, w/real cheese	1.73	1.51	1.79	1.66	1.75
Ice cream/ice milk novelties	1.25	1.25	1.24	1.33	1.16
Pizza, sausage w/cheese blend	1.32	1.28	1.34	1.29	1.37
Chicken, patties, white meat	1.79	1.85	1.78	1.80	1.83
Pizza, pepperoni w/cheese blend	1.38	1.37	1.37	1.43	1.34
Chicken, nuggets, white meat	1.71	1.60	1.72	1.69	1.78
Cookies individual	2.23	2.27	2.36	2.03	2.24
Chicken, nuggets, white/dark mix unknown	1.77	1.90	1.73	1.78	1.80
Chips, tortilla/corn	1.46	1.46	1.51	1.38	1.47
Milk, flavored, lo fat, .5%	0.31	n/a	0.32	0.31	0.32
Milk, flavored, skim/nonfat	0.29	0.32	0.31	0.29	0.26
Donuts/churros/honey bun/cinnamon rolls	1.62	1.59	1.65	1.63	1.56
Apple juice, individual	0.48	0.56	0.49	0.46	0.48
Cheese, American/processed	1.74	1.92	1.77	1.67	1.69
Chips, potato or potato sticks	2.48	2.44	2.51	2.54	2.31
Pizza, pepperoni w/real cheese	1.80	1.77	1.78	1.78	1.87
Beef, patties cooked	1.71	1.83	1.75	1.70	1.58
Apples, fresh	0.45	0.47	0.46	0.44	0.41
Pizza, cheese, type unknown	1.51	1.23	1.46	1.56	1.56
Pizza, cheese blend	1.35	1.28	1.36	1.35	1.35
Potatoes, formed, frozen	0.45	0.47	0.46	0.43	0.44
Sodas, carbonated	0.39	0.35	0.40	0.39	0.37
Milk, lo fat, fat solids unknown	0.31	0.29	0.30	0.33	0.30
Catsup, individual pack	0.76	0.86	0.81	0.73	0.66
Bread, white	0.64	0.74	0.65	0.62	0.59
Peaches, canned, light syrup	0.60	0.63	0.59	0.59	0.62
Chicken, patties, white/dark mix unknown	1.79	1.89	1.75	1.82	1.81
Pizza, pepperoni, cheese unknown	1.49	1.62	1.51	1.43	1.54
Cookie dough	1.46	1.40	1.45	1.48	1.47
Oranges, fresh	0.39	0.42	0.41	0.39	0.35
Beef, breaded patties/nuggets	1.47	1.51	1.52	1.44	1.40
Mixed fruit, canned, light syrup	0.67	0.70	0.67	0.65	0.65
Lettuce, heads	0.35	0.33	0.36	0.33	0.40
Fruit juice, bars, frozen	0.91	0.93	0.93	0.91	0.86
Fish, nuggets/patties, breaded	1.74	1.88	1.78	1.79	1.52
Biscuits and rolls	1.08	1.13	1.10	1.06	1.05
Tomatoes, fresh	0.67	0.75	0.68	0.65	0.62
Milk, flavored, whole	0.35	0.41	0.33	0.34	0.36
Cakes/brownies, prepared, individual pack	1.82	1.80	1.82	1.91	1.68
Meat filled pastry (includes Hot Pockets)	1.96	1.96	1.97	1.96	1.92

Note: Shading indicates lowest price. When two or more categories hold the lowest price, all are shaded.
Source: School Food Purchase Study, 1998.

2. Degree of Procurement Centralization

Procurement decisions can be made at different levels within a school district. By procurement decisions we mean major decisions regarding the selection of foods to be purchased and the selection of vendors, for example, not just the placing of orders. School districts were asked whether these decisions were centralized at the district level, decentralized with decisions made at the level of the individual schools, or a combination of the two. On the basis of their responses, it is estimated that procurement decisions were made as follows among public unified school districts in SY 1996/97.

Size of district	Centralized		Decentralized		Combination		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Less than 1,000	2,314	67.3	413	12.1	684	20.1	3,411	100.0
1,000 to 4,999	2,772	55.3	390	7.8	1,847	36.9	5,009	100.0
5,000 to 24,999	1,017	72.2	31	2.2	361	25.6	1,409	100.0
25,000 or more	231	91.3	0	0.0	22	8.7	253	100.0
All districts	6,334	62.8	835	8.3	2,914	28.9	10,083	100.0

As indicated, a majority of all districts use a centralized approach. The proportion using a centralized approach increases with district size with 91.3 percent of districts of 25,000 or more students using this approach. Overall, only 8.3 percent of all districts are estimated to make their decisions on a decentralized basis while the remaining 28.9 percent use some combination of the two.

Table VII-3 lists the mean cost per pound of the same 50 food items displayed in Table VII-2, except costs are classified by the degree to which procurement by the respective school districts is centralized. Of the 50 items on the list, districts using a centralized approach to procurement had the lowest mean cost (or tied for lowest mean cost) for 30 items. Decentralized systems were lowest for 13 of the 50 items while districts using a combination of centralized and decentralized procurement were lowest on 15 of the 50 items. To some extent, this is further confirmation of the inverse relationship between per unit cost and size of district since larger districts rely more heavily on centralized procurement.

Table VII-3: Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts, SY 1996/97, by Extent to which Procurement is Centralized

Food Item	Degree of Centralization		
	Centralized	Decentralized	Combination
	dollars per pound		
Milk, flavored, lo fat, 1%	0.30	0.30	0.30
Milk, flavored, lo fat, fat solids unknown	0.30	0.31	0.31
Milk, whole	0.31	0.32	0.32
Milk, lo fat, 2%	0.31	0.31	0.31
Hamburger and hot dog buns/steak and sub roll	0.81	0.86	0.80
Potatoes, french fries/wedges, frozen	0.45	0.43	0.45
Fruit drinks, individual	0.42	0.44	0.44
Orange juice, individual	0.47	0.55	0.47
Cereals, individual	3.90	4.45	3.91
Milk, lo fat, 1%	0.31	0.30	0.31
Pizza, w/real cheese	1.70	1.82	1.81
Ice cream/ice milk novelties	1.21	1.22	1.36
Pizza, sausage w/cheese blend	1.31	1.41	1.34
Chicken, patties, white meat	1.78	1.82	1.80
Pizza, pepperoni w/cheese blend	1.39	1.47	1.35
Chicken, nuggets, white meat	1.89	1.97	1.72
Cookies individual	2.18	2.53	2.31
Chicken, nuggets, white/dark mix unknown	1.79	1.77	1.72
Chips, tortilla/corn	1.46	1.65	1.43
Milk, flavored, lo fat, .5%	0.31	n/a	0.34
Milk, flavored, skim/nonfat	0.28	0.33	0.31
Donuts/churros/honey bun/cinnamon rolls	1.60	1.68	1.68
Apple juice, individual	0.48	0.58	0.47
Cheese, American/processed	1.73	1.88	1.74
Chips, potato or potato sticks	2.48	2.55	2.46
Pizza, pepperoni w/real cheese	1.81	1.83	1.81
Beef, patties cooked	1.70	1.82	1.75
Apples, fresh	0.44	0.44	0.46
Pizza, cheese, type unknown	1.51	1.32	1.54
Pizza, cheese blend	1.33	1.45	1.38
Potatoes, formed, frozen	0.45	0.45	0.44
Sodas, carbonated	0.38	0.41	0.39
Milk, lo fat, fat solids unknown	0.30	n/a	0.33
Catsup, individual pack	0.74	0.83	0.78
Bread, white	0.63	0.68	0.66
Peaches, canned, light syrup	0.60	0.61	0.59
Chicken, patties, white/dark mix unknown	1.82	2.00	1.86
Pizza, pepperoni, cheese unknown	1.47	1.58	1.53

Table VII-3: Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts, SY 1996/97, by Extent to which Procurement is Centralized (continued)

Food Item	Degree of Centralization		
	Centralized	Decentralized	Combination
	dollars per pound		
Cookie dough	1.46	1.40	1.48
Oranges, fresh	0.39	0.39	0.40
Beef, breaded patties/nuggets	1.48	1.42	1.45
Mixed fruit, canned, ls	0.66	0.69	0.67
Lettuce, heads	0.36	0.39	0.32
Fruit juice, bars, frozen	0.91	0.91	0.94
Fish, nuggets/patties, breaded	1.70	1.90	1.82
Biscuits and rolls	1.07	1.19	1.11
Tomatoes, fresh	0.66	0.91	0.65
Milk, flavored, whole	0.35	n/a	0.37
Cakes/brownies, prepared, individual pack	1.85	1.90	1.73
Meat filled pastry (includes Hot Pockets)	1.95	1.53	2.06

Note: Shading indicates lowest price. When two or more categories hold the lowest price, all are shaded.
Source: *School Food Purchase Study*, 1998.

B. The Effect of Procurement Practices on Food Costs

1. The Relationship Between Food Cost and Responsibility for Vendor Selection

The selection of vendors is a key decision in the procurement process of an SFA. The assignment of responsibility for the decision depends both on the level of specialization within the SFA and on how the SFA is organized. As discussed in Chapter VI, a majority of SFAs in every size category looked to their food service director to select vendors. Overall, 71.2 percent of all SFAs assigned this responsibility to the food service director.

The remaining SFAs assign this task to a variety of positions within their school districts including the kitchen manager, business office, school board, and staff nutritionist among others. Of these, kitchen managers are most prominent, particularly among the smallest districts where they make the decision for 21.8 percent of all districts with less than 1,000 students.

Among its key findings, the study conducted in 1984/85 found that those school districts where the kitchen manager made the decision were more likely to experience higher per unit costs while those in which the business office made the decision were more likely to experience lower per unit costs. Results from the survey conducted in FY 1996/97 are similar in some respects but different in others, as can be seen from Table VII-4.

As in the earlier study, those districts in which the kitchen managers selected the vendors, paid the highest price for more items (17) than did any other category of decision-maker. However, these districts also had the second highest number of items (10) for which they were lowest cost. Interestingly, five of the ten items for which they were lowest cost (by a small amount) were different forms of fluid milk. It is possible that the slightly lower prices enjoyed by these districts (which are highly concentrated among the smallest) are due to their closer proximity to fluid milk supplies.

The decision-maker category with the largest number of items of lowest cost (24) was the catch-all "other" category (a category not included in the earlier study). This category is represented in the sample by only seven SFAs and, therefore, the results should be interpreted with caution. Of these seven districts, vendors for three were selected by the buying cooperatives to which they belonged and for two others the decisions were made by nutritionists.

Business office and school board decision-makers both experienced slightly more highest prices than lowest prices, ratios of 11:8 and 9:6, respectively. For those SFAs where food service management companies selected the vendors, there was an even split between lowest (7) and highest (7) prices. With the exception of two food items, SFAs where the food service director made the decision were always somewhere in the middle on prices. Of the two exceptions, one was lowest and the other highest.

**Table VII-4: Mean Cost Per Pound for the Top Fifty Foods Purchased by
Public Unified NSLP School Districts, SY 1996/97,
by Decision-Maker Responsible for Vendor Selection**

Food Item	District food service director	Business office/ purchasing dept.	Food service mgt co.	Kitchen mgr/ head cook	School board	Other
	dollars per pound					
Milk, flavored, lo fat, 1%	0.30	0.29	0.30	0.27	0.31	0.30
Milk, flavored, lo fat, fat solids unknown	0.31	0.29	0.31	0.31	0.31	0.33
Milk, whole	0.32	0.31	0.31	0.30	0.33	0.31
Milk, lo fat, 2%	0.31	0.34	0.29	0.29	0.31	0.30
Hamburger and hot dog buns/steak and sub	0.80	0.84	0.79	0.95	0.80	0.72
Potatoes, french fries/wedges, frozen	0.45	0.44	0.43	0.47	0.47	0.42
Fruit drinks, individual	0.43	0.39	0.45	0.51	0.42	0.34
Orange juice, individual	0.47	0.49	0.52	0.51	0.48	0.46
Cereals, individual	3.93	3.43	4.36	4.24	3.99	3.64
Milk, lo fat, 1%	0.31	0.33	0.29	0.29	0.30	0.31
Pizza, w/real cheese	1.70	1.98	1.73	1.44	1.75	1.73
Ice cream/ice milk novelties	1.26	1.05	1.39	1.25	1.36	1.07
Pizza, sausage w/cheese blend	1.32	1.31	1.33	1.35	1.34	1.31
Chicken, patties, white meat	1.80	1.68	1.77	1.88	1.80	1.48
Pizza, pepperoni w/cheese blend	1.39	1.26	1.35	1.36	1.44	1.52
Chicken, nuggets, white meat	1.70	1.74	1.47	1.85	1.79	2.07
Cookies individual	2.23	2.33	2.03	2.56	1.93	2.50
Chicken, nuggets, white/dark mix unknown	1.78	1.81	1.81	1.97	1.65	1.66
Chips, tortilla/corn	1.47	1.41	1.54	1.45	1.34	1.30
Milk, flavored, lo fat, .5%	0.31	0.32	n/a	n/a	n/a	n/a
Milk, flavored, skim/nonfat	0.30	0.31	0.26	0.30	n/a	n/a
Donuts/churros/honey bun/cinnamon rolls	1.62	1.63	1.72	1.65	1.57	1.50
Apple juice, individual	0.48	0.48	0.52	0.53	0.49	0.47
Cheese, American/processed	1.73	1.78	1.77	1.89	1.64	1.58
Chips, potato or potato sticks	2.51	2.60	2.40	2.57	2.04	2.08
Pizza, pepperoni w/real cheese	1.81	1.84	1.81	1.79	1.25	1.15
Beef, patties cooked	1.72	1.61	1.71	1.97	1.67	1.28
Apples, fresh	0.45	0.43	0.42	0.50	0.43	0.40
Pizza, cheese, type unknown	1.53	1.59	1.29	1.25	1.21	1.78
Pizza, cheese blend	1.36	1.58	1.26	1.47	1.45	1.16
Potatoes, formed, frozen	0.45	0.47	0.43	0.47	0.51	0.42
Sodas, carbonated	0.39	0.41	0.38	0.40	0.36	n/a
Milk, lo fat, fat solids unknown	0.31	0.29	n/a	0.29	0.32	0.34
Catsup, individual pack	0.75	0.68	0.85	0.93	0.70	0.68
Bread, white	0.63	0.61	0.62	0.79	0.64	0.60
Peaches, canned, light syrup	0.60	0.60	0.61	0.59	0.62	0.60
Chicken, patties, white/dark mix unknown	1.83	1.76	1.61	1.78	1.52	1.59
Pizza, pepperoni, cheese unknown	1.50	1.49	1.36	1.58	1.50	1.19
Cookie dough	1.47	1.79	1.37	1.15	1.49	1.22
Oranges, fresh	0.40	0.36	0.38	0.42	0.39	0.33
Beef, breaded patties/nuggets	1.48	1.23	1.48	1.70	1.58	1.20
Mixed fruit, canned, light syrup	0.66	0.67	0.68	0.67	0.68	0.64
Lettuce, heads	0.36	0.35	0.38	0.30	0.35	0.33
Fruit juice, bars, frozen	0.91	0.34	0.87	1.13	0.99	0.79
Fish, nuggets/patties, breaded	1.73	1.76	1.80	1.66	1.84	1.83
Biscuits and rolls	1.09	1.06	1.06	1.15	1.04	0.94
Tomatoes, fresh	0.66	0.66	0.66	0.74	0.83	0.65
Milk, flavored, whole	0.34	0.54	n/a	0.30	0.27	0.41
Cakes/brownies, prepared, individual pack	1.80	1.85	1.69	1.78	2.23	2.76
Meat filled pastry (includes Hot Pockets)	1.99	1.85	1.85	1.96	2.07	1.90

Note: Shading indicates lowest price. When two or more categories hold the lowest price, all are shaded.
Source: School Food Purchase Study, 1998.

2. Relationship of Cost Per Pound and Decision-Maker Responsible for Food Selection

As reported in Chapter VI, food selection is the responsibility of the food service director in the majority (71.3 percent) of all SFAs. This is followed in relative importance by the kitchen manager/head cook (19.0 percent), predominately in smaller districts, and by food service management companies (8.7 percent) operating in districts of all sizes. A variety of other decision-makers are also responsible for making food selections, including purchasing departments, nutritionists, and school boards, but they collectively accounted for only about 1.0 percent of all districts.

The relationship between per pound cost and food selection responsibility closely resembles the relationship between per pound cost and vendor selection. The number of food items for which each type of decision-maker was found to have the mean lowest cost, highest cost, and the ratio of the number of lowest-to-highest cost is as follows:

<u>Decision-maker</u>	<u>Number lowest cost</u>	<u>Number highest cost</u>	<u>Ratio lowest/highest</u>
district food service director	4	2	2.0
business office	16	12	1.3
kitchen manager	7	21	0.3
food service management company	9	7	1.3
other	23	13	1.8

Food service directors most frequently fall in the middle of the per unit cost range and are rarely at the extreme lower or upper boundaries. This should not be too surprising since food service directors comprise such a large share of the total and therefore represent a variety of off-setting influences.

Purchasing offices and food service management companies both have slightly more food items that are lowest cost than highest cost, though the difference is not significant. The "other" category is associated with a large member of lowest cost items that exceeds the number of highest cost by nearly 2 to 1. However, this category is based on a small number of observations representing very diverse situations that defy generalization.

The most clear-cut relationship revealed in Table VII-5 is the relatively large number of food items (21) for which the kitchen manager/head cook was highest cost. As noted above, however, this position is inversely correlated (and highly so) with district size. Thus, we suspect that the relationship here has as much to do with size as it does with who is responsible for food selection.

**Table VII-5: Cost Per Pound for Foods Frequently Purchased by
Public Unified NSLP School Districts, SY 1996/97,
by Decision-Maker Responsible for Food Selection**

Food Item	District food service director	Business office/ purch. dept.	Kitchen mgr/ head cook	Food service mgmt. company	Other
	dollars per pound				
Milk, flavored, lo fat, 1%	0.30	0.31	0.28	0.29	0.28
Milk, flavored, lo fat, fat solids unknown	0.31	0.28	0.32	0.31	0.28
Milk, whole	0.32	0.31	0.32	0.31	0.30
Milk, lo fat, 2%	0.31	0.38	0.30	0.29	0.29
Hamburger and hot dog buns/steak and sub	0.81	0.77	0.88	0.77	0.82
Potatoes, french fries/wedges, frozen	0.45	0.43	0.48	0.42	0.45
Fruit drinks, individual	0.43	0.41	0.43	0.43	0.38
Orange juice, individual	0.47	0.41	0.50	0.53	0.50
Cereals, individual	3.92	3.16	4.05	4.24	3.50
Milk, lo fat, 1%	0.31	0.47	0.30	0.29	0.28
Pizza, w/real cheese	1.71	1.97	1.81	1.73	2.00
Ice cream/ice milk novelties	1.24	1.25	1.27	1.38	1.03
Pizza, sausage w/cheese blend	1.32	1.30	1.33	1.32	1.32
Chicken, patties, white meat	1.80	1.64	1.82	1.67	1.86
Pizza, pepperoni w/cheese blend	1.38	1.19	1.35	1.37	1.62
Chicken, nuggets, white meat	1.70	1.55	1.88	1.53	1.94
Cookies individual	2.21	2.78	2.48	1.98	2.69
Chicken, nuggets, white/dark mix unknown	1.77	1.43	1.93	1.57	1.93
Chips, tortilla/corn	1.47	1.23	1.45	1.41	1.55
Milk, flavored, lo fat, .5%	0.31	0.34	n/a	n/a	n/a
Milk, flavored, skim/nonfat	0.29	n/a	0.32	0.26	0.25
Donuts/churros/honey bun/cinnamon rolls	1.63	1.59	1.56	1.71	1.48
Apple juice, individual	0.48	0.40	0.51	0.52	0.48
Cheese, American/processed	1.73	1.69	1.85	1.76	1.76
Chips, potato or potato sticks	2.51	2.63	2.40	2.34	2.27
Pizza, pepperoni w/real cheese	1.80	1.92	1.62	1.81	1.99
Beef, patties cooked	1.71	1.64	1.92	1.64	1.34
Apples, fresh	0.45	0.45	0.48	0.42	0.38
Pizza, cheese, type unknown	1.52	1.63	1.24	1.41	1.43
Pizza, cheese blend	1.36	1.50	1.45	1.27	1.17
Potatoes, formed, frozen	0.45	0.42	0.48	0.42	0.54
Sodas, carbonated	0.39	0.48	0.36	0.38	0.33
Milk, lo fat, fat solids unknown	0.31	0.29	0.29	n/a	0.32
Catsup, individual pack	0.75	0.67	0.86	0.83	0.63
Bread, white	0.63	0.58	0.74	0.62	0.55

**Table VII-5: Cost Per Pound for Foods Frequently Purchased by
Public Unified NSLP School Districts, SY 1996/97,
by Decision-Maker Responsible for Food Selection (continued)**

Food Item	District food service director	Business office/ purch. dept.	Kitchen mgr/ head cook	Food service mgmt. company	Other
	dollars per pound				
Peaches, canned, light syrup	0.59	0.77	0.61	0.61	0.59
Chicken, patties, white/dark mix unknown	1.82	1.61	1.83	1.54	1.68
Pizza, pepperoni, cheese unknown	1.49	1.24	1.61	1.57	1.19
Cookie dough	1.48	1.59	1.29	1.37	1.66
Oranges, fresh	0.39	0.41	0.40	0.39	0.31
Beef, breaded patties/nuggets	1.46	1.39	1.56	1.46	1.29
Mixed fruit, canned, light syrup	0.66	0.67	0.68	0.67	0.66
Lettuce, heads	0.35	0.46	0.39	0.37	0.33
Fruit juice, bars, frozen	0.90	0.78	1.16	0.88	0.95
Fish, nuggets/patties, breaded	1.73	1.51	1.88	1.85	1.40
Biscuits and rolls	1.08	1.07	1.10	1.09	1.10
Tomatoes, fresh	0.67	0.68	0.74	0.63	0.76
Milk, flavored, whole	0.34	0.39	0.40	0.41	n/a
Cakes/brownies, prepared, individual pack	1.83	1.66	1.87	1.65	2.49
Meat filled pastry (includes Hot Pockets)	1.97	1.69	2.09	1.87	1.96

Note: Shading indicates lowest price. When two or more categories hold the lowest price, all are shaded.
Source: School Food Purchase Study, 1998.

3. Relationship Between Cost Per Pound and Procurement Method

As we found in Chapter VI, SFAs now make greater use of formal bidding procedures than they did at the time of the earlier study, though informal methods are still used widely. The question to be addressed in this section is: to what extent are differences in procurement method associated with differences in product cost? We address this by comparing the mean per pound cost of the same list of fifty individual food items examined in the previous section. The same procurement methods discussed in Chapter VI are used here.

Since SFAs reported the procurement methods they used for each of eight different product categories separately, each of the fifty food items for which costs were compared was assigned

to one of these categories.¹ Seven of the eight product categories are represented; fresh meat is the only category not represented. To illustrate, the mean per unit cost of flavored, 1% milk for a given SFA is associated with the procurement method that the SFA reported using in the purchase of its dairy products.

An examination of the prices displayed in Table VII-6 reveals the following with regard to the number of items for which each method was lowest cost or highest cost (including both methods when two methods had the same mean cost):

<u>procurement method</u>	<u>number lowest cost</u>	<u>number highest cost</u>	<u>ratio lowest/highest</u>
formal line item bids	16	2	8.0
formal lump sum bids	13	5	2.6
telephone bids/quotes	10	17	0.6
salesperson visits	4	21	0.2
other	16	10	1.6

Not surprisingly, the more formal approaches to procurement are found to result in lower cost more frequently than the more informal approaches. For this particular list of foods, the line item approach to formal bidding resulted in the greatest number of items at lowest cost and the least number at highest cost. In contrast, purchases made through sales visits experienced the highest cost outcome, and by a wide margin.

About 15 percent of all SFAs responding to the survey reported that they either used a different procurement method than the four approaches listed in the question or that they were too far removed from procurement to know for certain which method was being used for one or more of the food categories. One-third of the sample SFAs indicating use of "other" procurement methods did so for the latter reason. Three-quarters of these cited their participation in a cooperative buying program (including the USDA/DOD fresh produce program) as the reason while the remaining one-quarter attributed it to their association with a food service management company.

1/ These assignments are described in Appendix E.

Table VII-6: Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts, SY 1996/97, by Procurement Method Used

Food Item	Procurement Methods				
	Formal line item bids	Formal lump sum bids	Telephone bids/ quotes	Sales- person visits	Other
	(\$/pound)				
Milk, flavored, lo fat, 1%	0.29	0.30	0.33	0.31	0.30
Milk, flavored, lo fat, fat solids unknown	0.30	0.31	0.33	0.34	0.28
Milk, whole	0.31	0.32	0.34	0.33	0.31
Milk, lo fat, 2%	0.30	0.31	0.32	0.33	0.29
Hamburger and hot dog buns/steak and sub roll	0.80	0.79	0.89	1.12	0.80
Potatoes, french fries/wedges, frozen	0.43	0.46	0.50	0.51	0.42
Fruit drinks, individual	0.42	0.43	0.44	0.43	0.45
Orange juice, individual	0.46	0.49	0.47	0.52	0.47
Cereals, individual	3.71	3.93	4.00	4.90	3.77
Milk, lo fat, 1%	0.31	0.31	0.32	0.30	0.30
Pizza, w/real cheese	1.70	1.77	2.12	1.54	1.88
Ice cream/ice milk novelties	1.23	1.21	1.44	1.41	1.24
Pizza, sausage w/cheese blend	1.32	1.31	1.68	1.32	1.27
Chicken, patties, white meat	1.73	1.85	2.11	1.88	1.73
Pizza, pepperoni w/cheese blend	1.38	1.39	1.66	1.32	1.32
Chicken, nuggets, white meat	1.72	1.64	1.63	1.78	1.73
Cookies individual	2.14	2.05	2.38	2.51	2.53
Chicken, nuggets, white/dark mix unknown	1.78	1.80	1.82	1.78	1.69
Chips, tortilla/corn	1.42	1.37	1.78	1.54	1.57
Milk, flavored, lo fat, .5%	0.32	0.31	n/a	n/a	n/a
Milk, flavored, skim/nonfat	0.31	0.29	0.27	0.31	0.26
Donuts/churros/honey bun/cinnamon rolls	1.57	1.67	1.71	1.67	1.71
Apple juice, individual	0.47	0.50	0.44	0.54	0.46
Cheese, American/processed	1.70	1.77	1.72	1.86	1.80
Chips, potato or potato sticks	2.41	2.43	2.87	2.60	2.39
Pizza, pepperoni w/real cheese	1.67	1.91	2.13	1.90	2.04
Beef, patties cooked	1.69	1.70	1.75	1.86	1.51
Apples, fresh	0.45	0.44	0.44	0.46	0.46
Pizza, cheese, type unknown	1.53	1.48	1.32	1.45	1.55
Pizza, cheese blend	1.38	1.32	1.64	1.34	1.23
Potatoes, formed, frozen	0.43	0.46	0.50	0.51	0.44
Sodas, carbonated	0.38	0.38	0.41	0.42	0.38
Milk, lo fat, fat solids unknown	0.30	0.32	n/a	0.29	0.29
Catsup, individual pack	0.74	0.74	0.86	0.89	0.76
Bread, white	0.63	0.62	0.83	0.72	0.68
Peaches, canned, light syrup	0.58	0.62	0.57	0.64	0.59
Chicken, patties, white/dark mix unknown	1.71	1.91	1.97	1.83	1.83
Pizza, pepperoni, cheese unknown	1.47	1.43	1.64	1.59	1.64
Cookie dough	1.45	1.50	1.23	1.45	1.62
Oranges, fresh	0.40	0.36	0.39	0.41	0.42
Beef, breaded patties/nuggets	1.44	1.47	1.49	1.60	1.48
Mixed fruit, canned, light syrup	0.65	0.67	0.67	0.70	0.68
Lettuce, heads	0.36	0.36	0.32	0.35	0.41
Fruit juice, bars, frozen	0.90	0.93	0.87	1.01	0.75
Fish, nuggets/patties, breaded	1.69	1.90	1.40	1.75	1.86
Biscuits and rolls	1.09	1.08	0.96	1.11	1.11
Tomatoes, fresh	0.69	0.65	0.64	0.77	0.59
Milk, flavored, whole	0.37	0.32	0.75	0.33	n/a
Cakes/brownies, prepared, individual pack	1.67	2.00	1.95	1.97	1.73
Meat filled pastry (includes Hot pockets)	1.92	2.09	1.79	2.02	1.90

Note: Shading indicates lowest price. When two or more categories hold the lowest price, all are shaded.
Source: School Food Purchase Study, 1998.

4. Relationship Between Cost Per Pound and Pricing Method

As we found in Chapter VI, SFAs use a variety of techniques to price their food acquisitions. Some of these techniques are formal in the sense that they are specified under terms of the contract they enter into with vendors. Others are arrived at informally between SFAs and their suppliers.

For those districts that price their purchases contractually, a fixed price approach is most commonly used. The principal exception is the widespread use of escalator clauses as part of fixed price contracts for dairy products, though they are used for other foods as well, though less frequently. For those districts that procure informally through salesman visits or by telephone or fax orders, prices are most frequently established on the basis of price bids or quotes.

The number of food items listed in Table VII-7 for which each pricing method was lowest and highest priced and the ratio of the two is as follows:

<u>Pricing method</u>	<u>Number lowest cost</u>	<u>Number highest cost</u>	<u>Ratio lowest/highest</u>
fixed price contract	9	5	1.8
fixed price w/escalator	13	2	6.5
formula price	6	9	0.7
cost-based price	6	1	6.0
bid or quote price	4	3	1.3
retail price	9	10	0.9
mutually accepted discount	4	17	0.2
other	10	9	1.1

While each pricing method is represented at least once as both lowest price and as highest price, as a group the formal pricing methods exhibit a substantially more favorable relationship between the number of lowest and highest priced food items. Of these methods, the fixed price with escalators has the highest ratio of low to high prices, though cost-based pricing techniques has a ratio that is nearly at high. It is noted that four of the five highest prices reported for the "fixed price contract" technique are fluid milk products. This illustrates the drawback of using a rigid pricing procedure for a food that is inherently unstable in price, particularly in an era of reduced government intervention in commodity markets, including the market for fluid milk.

Bid or quote pricing, a technique that is widely used among SFAs that use less formal procurement procedures, seems to result in per unit costs that generally fall somewhere between the extremes. Discount pricing, which is used by only about 10 percent of all SFAs and most frequently in pricing fresh produce, had the largest number of highest price items by far (17) and the lowest ratio of low to high (0.2).

The "other" pricing category was represented in the sample by a diverse group of six school districts. Three of these districts were identified as "other" only for fresh produce; two of the three obtained their produce through DOD. Another SFA was included because it purchased all foods through a cooperative while still another was operated by a food service management company.

A comparison of the relationship between per unit cost and the pricing methods used for SYs 1984/85 and 1996/97 is summarized in Table VII-8 below. The results suggest two things about this relationship. First, formal pricing methods resulted in lower costs in both periods. Second, the clear advantage (in terms of lower per unit cost) that formal methods exhibited in 1984/85 had lessened by 1996/97, though a significant advantage remained. This is perhaps due to the reduced use of informal techniques in both procurement and pricing that occurred over this period.

BLANK

PAGE

**Table VII-7: Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts,
by Product Pricing Method Used, SY 1996/97**

Food Items	Formal pricing method				Informal pricing method			Other
	Fixed price contract	Fixed price w/escalator	Formula price	Cost-based price	Bid or quote price	Retail price	Mutually accepted discount	
	dollars per pound							
Milk, flavored, lo fat, 1%	0.29	0.29	0.30	0.28	0.30	0.31	0.33	0.35
Milk, flavored, lo fat, fat solids unknown	0.31	0.30	0.41	0.32	0.31	0.30	0.37	0.30
Milk, whole	0.31	0.31	0.32	0.32	0.32	0.31	0.34	0.35
Milk, lo fat, 2%	0.31	0.30	0.38	0.31	0.31	0.33	0.31	0.33
Hamburger and hot dog buns/steak and sub roll	0.78	0.84	0.92	0.79	0.85	0.92	1.15	0.92
Potatoes, french fries/wedges, frozen	0.43	0.43	0.46	0.50	0.45	0.51	0.50	0.54
Fruit drinks, individual	0.42	0.43	0.46	0.45	0.43	0.46	0.41	0.29
Orange juice, individual	0.46	0.49	0.50	0.48	0.48	0.48	0.54	0.25
Cereals, individual	3.82	3.71	3.86	4.07	4.05	4.14	4.97	4.32
Milk, lo fat, 1%	0.30	0.30	0.44	0.29	0.30	0.30	n/a	n/a
Pizza, w/real cheese	1.78	1.70	1.74	1.61	1.69	n/a	1.59	1.86
Ice cream/ice milk novelties	1.17	1.19	1.15	1.37	1.41	1.49	1.40	0.97
Pizza, sausage w/cheese blend	1.27	1.39	1.35	1.40	1.36	1.41	1.26	n/a
Chicken, patties, white meat	1.79	1.67	2.14	1.61	1.79	1.52	2.03	1.77
Pizza, pepperoni w/cheese blend	1.31	1.41	1.48	1.45	1.48	1.22	1.26	1.44
Chicken, nuggets, white meat	1.70	1.59	1.67	1.79	1.76	1.61	1.86	1.41
Cookies individual	2.06	2.57	2.29	2.31	2.29	2.65	2.58	2.29
Chicken, nuggets, white/dark mix unknown	1.77	1.80	1.72	1.65	1.80	1.58	1.64	n/a
Chips, tortilla/corn	1.41	1.52	1.48	1.53	1.48	1.53	1.67	1.15
Milk, flavored, lo fat, .5%	0.33	0.31	0.33	n/a	0.31	n/a	n/a	n/a
Milk, flavored, skim/nonfat	0.31	0.29	n/a	n/a	0.28	n/a	n/a	n/a
Donuts/churros/honey bun/cinnamon rolls	1.60	1.48	1.58	1.70	1.68	1.63	1.72	1.84
Apple juice, individual	0.46	0.49	0.50	0.50	0.51	0.40	0.54	0.33
Cheese, American/processed	1.70	1.71	1.72	1.73	1.80	1.95	1.97	1.83
Chips, potato or potato sticks	2.40	2.50	2.48	2.53	2.54	2.58	2.72	1.95
Pizza, pepperoni w/real cheese	1.78	1.75	1.94	1.75	1.79	1.82	1.95	2.06
Beef, patties cooked	1.66	1.51	1.89	1.85	1.81	1.96	1.93	1.49
Apples, fresh	0.43	0.43	0.44	0.45	0.45	0.44	0.48	0.46
Pizza, cheese, type unknown	1.45	1.50	1.73	1.46	1.62	1.31	1.64	n/a
Pizza, cheese blend	1.33	1.37	1.33	1.28	1.39	1.37	1.45	n/a
Potatoes, formed, frozen	0.44	0.44	0.43	0.49	0.46	0.48	0.54	0.44

Table VII-7: Mean Cost Per Pound for the Top Fifty Foods Purchased by Public Unified NSLP School Districts, by Product Pricing Method Used, SY 1996/97 (continued)

Food Items	Formal pricing method				Informal pricing method			Other
	Fixed price contract	Fixed price w/escalator	Formula price	Cost-based price	Bid or quote price	Retail price	Mutually accepted discount	
	dollars per pound							
Sodas, carbonated	0.39	0.34	0.37	0.38	0.39	0.42	0.47	0.42
Milk, lo fat, fat solids unknown	0.31	0.31	0.29	n/a	0.30	n/a	n/a	n/a
Catsup, individual pack	0.72	0.71	0.75	0.85	0.82	0.94	0.83	0.90
Bread, white	0.61	0.69	0.43	0.53	0.66	0.89	0.97	0.60
Peaches, canned, light syrup	0.58	0.60	0.61	0.61	0.60	0.68	0.67	0.61
Chicken, patties, white/dark mix unknown	1.80	1.69	2.12	1.55	1.74	2.05	1.83	2.14
Pizza, pepperoni, cheese unknown	1.38	1.58	1.79	1.28	1.63	2.08	1.27	n/a
Cookie dcugh	1.46	1.47	1.53	1.40	1.46	1.41	1.45	1.37
Oranges, fresh	0.38	0.40	0.36	0.40	0.39	0.41	0.42	0.40
Beef, breaded patties/nuggets	1.43	1.28	1.40	1.83	1.54	1.81	1.71	1.65
Mixed fruit, canned, light syrup	0.66	0.66	0.67	0.68	0.66	0.76	0.70	0.70
Lettuce, heads	0.37	0.38	0.41	0.35	0.34	0.33	0.33	0.46
Fruit juice, bars, frozen	0.87	0.88	0.88	0.91	0.97	1.02	1.34	1.05
Fish, nuggets/patties, breaded	1.76	1.69	1.73	1.81	1.75	1.52	1.87	1.54
Biscuits and rolls	1.07	1.04	1.06	0.81	1.13	1.42	1.33	0.87
Tomatoes, fresh	0.67	0.67	0.63	0.70	0.65	0.70	0.68	0.99
Milk, flavored, whole	0.42	0.32	0.33	n/a	0.29	0.36	n/a	n/a
Cakes/brownies, prepared, individual pack	1.64	1.65	1.60	2.02	2.14	1.82	2.14	1.98
Meat filled pastry (Includes Hot Pockets)	2.05	1.74	1.79	1.82	2.01	1.49	1.97	2.19

Note: Shading indicates lowest price. When two or more categories hold the lowest price, all are shaded.

Source: School Food Purchase Study, 1998.

**Table VII-8: Percentage of Selected List of Food Items that Averaged
Lowest Price and Highest Price, by Method of Product Pricing,
SYs 1984/85 and 1996/97**

Rank/school year	Formal pricing methods				Informal pricing methods			
	Fixed price	Fixed price w/escalator	Formula price	Cost- based price	Bid or quote	Retail price	Discount price	Other
				percent				
<u>Lowest price</u>								
1984/85	21	42	n/a	n/a	19	12	6	n/a
1996/97	15	21	10	10	7	15	7	16
<u>Highest price</u>								
1984/85	9	9	n/a	n/a	2	60	19	n/a
1996/97	9	4	16	2	5	18	30	16

Source: *School Food Purchase Study, 1987* and *School Food Purchase Study, 1998*.

5. Relationship Between Cost Per Pound and Participation in Cooperative Buying and Use of Food Service Management Company

Two operational changes that have come into greater prominence among SFAs in recent years, as described earlier in this report, are the involvement of school districts in cooperative buying programs and the use of food service management companies (FSMCs) to run school food service operations. A primary purpose of both actions is presumably a desire to achieve improved economies of operation.

The study conducted in 1984/85 found that less than 10 percent of the school districts reported membership in a buying cooperative. No comparisons of cost were made between SFAs taking part in cooperative buying programs and those that did not take part. The earlier study also found that only about 1.6 percent of all school districts used a food service management company in 1983/84. A comparison of per unit costs for a selected list of food items indicated that FSMCs

did not compare favorably with most other districts, categorized on the basis of who was responsible for selecting vendors for the districts.

Given the increased use of both cooperatives and FSMCs, the per unit cost of frequently purchased foods for SFAs engaged in these activities was compared against the per unit cost of all other SFAs. The results appear in Table VII-9 below. Since not all school districts that participate in cooperative buying programs do all their buying cooperatively, only those food items that fell within the categories for which respondents indicated they purchased through the cooperative buying program were considered to have been cooperatively purchased.

Of the 47 food items for which prices differed depending on participation in a cooperative buying program, those SFAs participating in a cooperative had the lowest mean price for 36 items (76.6 percent). This would appear to represent a substantial cost advantage. A comparison of the weighted mean cost across all food items on the list indicates that foods purchased through cooperatives were about 3.6 percent below those purchased through other means.¹

It should also be noted, as discussed in Chapter VI, that participation in cooperative buying programs is greatest among small and mid-size school districts and that the estimated share of overall food purchases made by SFAs participating in these programs is highest among the smallest districts. Thus, any cost advantage achieved by these districts is probably not due to their size since smaller districts, as a group, tend to have higher costs.

Information on other possible costs associated with participation in a cooperative program, such as a membership fee or periodic overhead assessment, was not collected. A more meaningful comparison would require the inclusion of these costs.

School food programs managed by FSMCs were found to have a per unit cost advantage over those not managed by FSMCs. Of the 44 food items that can be compared and for which there were differences in the mean cost, districts managed by FSMCs had the lower cost for 27 items or 61.4 percent. For this particular market basket (weighted on the basis of the relative volume of each food purchased by all SFAs), FSMC districts had costs that were 1.5 percent lower than non-FSMC districts. As with buying cooperatives, the invoiced cost of food items provided by FSMCs does not tell the entire story since there are other costs associated with these operations.

1/ Costs were weighted on the basis of the volume of total purchases.

144

Table VII-9: Cost Per Pound of Foods Frequently Acquired by Public Unified NSLP School Districts, by Participation in Cooperative Buying and Involvement of Food Service Management Company, SY 1996/97

Food Item	Purchased through cooperative buying	Not purchased through cooperative buying	Managed by FSMC	Not managed by FSMC
	dollars per pound			
Milk, flavored, lo fat, 1%	0.29	0.30	0.29	0.29
Milk, flavored, lo fat, fat solids unknown	0.30	0.31	0.29	0.29
Milk, whole	0.29	0.32	0.32	0.31
Milk, lo fat, 2%	0.29	0.31	0.29	0.29
Hamburger and hot dog buns/steak and sub roll	0.75	0.82	0.74	0.78
Potatoes, french fries/wedges, frozen	0.42	0.46	0.39	0.44
Fruit drinks, individual	0.42	0.43	0.37	0.39
Orange juice, individual	0.47	0.48	0.47	0.44
Cereals, individual	3.75	4.00	3.79	3.51
Milk, lo fat, 1%	0.30	0.31	0.28	0.30
Pizza, w/real cheese	1.74	1.72	1.85	1.64
Ice cream/ice milk novelties	1.17	1.27	1.23	1.08
Pizza, sausage w/cheese blend	1.33	1.32	1.21	1.23
Chicken, patties, white meat	1.74	1.81	1.51	1.77
Pizza, pepperoni w/cheese blend	1.34	1.40	1.29	1.32
Chicken, nuggets, white meat	1.69	1.72	1.58	1.67
Cookies individual	2.03	2.27	1.70	2.08
Chicken, nuggets, white/dark mix unknown	1.71	1.80	1.73	1.72
Chips, tortilla/corn	1.41	1.48	1.25	1.64
Milk, flavored, lo fat, .5%	0.29	0.32	n/a	0.31
Milk, flavored, skim/nonfat	0.29	0.29	0.26	0.28
Donuts/churros/honey bun/cinnamon rolls	1.54	1.64	1.57	1.50
Apple juice, individual	0.49	0.48	0.51	0.44
Cheese, American/processed	1.77	1.73	1.65	1.65
Chips, potato or potato sticks	2.34	2.51	2.32	2.26
Pizza, pepperoni w/real cheese	1.82	1.79	1.75	1.73
Beef, patties cooked	1.65	1.74	1.54	1.68
Apples, fresh	0.45	0.45	0.38	0.43
Pizza, cheese, type unknown	1.50	1.51	1.30	1.49
Pizza, cheese blend	1.31	1.37	1.24	1.31
Potatoes, formed, frozen	0.43	0.46	0.42	0.44
Sodas, carbonated	0.39	0.39	0.34	0.36
Milk, lo fat, fat solids unknown	0.29	0.31	na	0.32
Catsup, individual pack	0.75	0.76	0.85	0.70
Bread, white	0.56	0.65	0.55	0.62
Peaches, canned, light syrup	0.58	0.61	0.59	0.60
Chicken, patties, white/dark mix unknown	1.78	1.79	1.56	1.72
Pizza, pepperoni, cheese unknown	1.57	1.48	1.68	1.41
Cookie dough	1.51	1.45	1.47	1.46
Oranges, fresh	0.40	0.39	0.35	0.37
Beef, breaded patties/nuggets	1.44	1.48	1.63	1.37
Mixed fruit, canned, light syrup	0.65	0.67	0.64	0.67
Lettuce, heads	0.32	0.36	0.31	0.32
Fruit juice, bars, frozen	0.89	0.92	0.73	0.87
Fish, nuggets/patties, breaded	1.81	1.72	1.65	1.69
Biscuits and rolls	0.93	1.11	1.04	1.01
Tomatoes, fresh	0.70	0.67	0.56	0.62
Milk, flavored, whole	0.38	0.35	0.41	0.30
Cakes/brownies, prepared, individual pack	1.71	1.84	1.44	1.49
Meat filled pastry (includes Hot Pockets)	1.94	1.98	1.80	1.79

Note: Shading indicates lowest price. When two or more categories hold the lowest price, all are shaded.
Source: School Food Purchase Study, 1998.

**6. Relationship of Number of Food Items
Procured and Food Costs Per 1,000 Students**

The vast majority of all school districts acquire between 100 and 250 individual food items (as defined for purposes of this study). Of the SFAs included in the study sample, 84 percent had acquisitions in 1996/97 that fell within this range. In Table VII-10 below, the mean annual food cost per thousand enrolled students is compared among school districts cross-classified by size of school district and number of individual food items acquired during the 1996/97 study period.

The variation in cost levels per 1,000 students is surprisingly large, ranging from as little as \$26,493 to as much as \$195,996. Though the variation for similar data in 1984/85 was not quite as great, the largest value was a multiple of the smallest value then too. Also, the extreme values in the table below represent a small number of SFAs (as indicated) and should therefore be interpreted with care.

These values are subject to numerous other influences beyond size of district and number of items, including the relative importance of reimbursable meals versus a la carte food sales and the extent to which enrollment levels correspond to the number of students obtaining their meals through these programs.

These qualifications aside, the findings suggest two relationships. First, costs tend to rise as the number of food items acquired increases. We suspect that a larger number of food items is associated with the increased sale of a la carte foods and/or with greater use of more highly processed foods, including prepared sandwiches and prepared meals. The latter also tend to be higher cost.

The second relationship is between per unit cost and size of district; the smaller the district the higher the per unit cost. Furthermore, this relationship occurs in almost all cases among districts within the same range of items procured. This is generally consistent with the findings reported earlier in this Chapter relative to the relationship between district size and cost per pound. In this comparison, however, not only do the per unit prices of individual foods or categories come into play but so too do several other factors. This includes differences in the mix of foods, in the efficiency of food utilization and preparation, in whether breakfasts are served, in the relative importance of a la carte versus reimbursable meals, and in rates of student participation. Since the bases of this comparison are the total food expenditures and the total number of students in attendance (adjusted for those not having access to the program), the results reflect a convergence of these influences.

In combination, these factors are resulting in substantially higher food costs per 1,000 students for smaller school districts as well as for districts of all sizes that procure a wider array of foods. For example, the per unit cost for districts with an enrollment of less than 1,000 was 51.6 percent larger than the per unit cost for districts with an enrollment of 5,000 to 24,999 in the 101 to 150 items procured range. Similar magnitudes of difference exist among other comparisons within this table, ignoring those measures that represent a small number of observations and might therefore be considered outliers.

Since the cost of food – the focus of this study – is but one element in the overall financial picture, it is necessary to look at the relationship of these costs to other elements before drawing conclusions. In particular, it is important to know if higher food costs are off-set by lower preparation and serving costs and reduced waste and if they result in higher revenue.

Table VII-10: Mean Cost per Thousand Enrolled Students in Public Unified NSLP School Districts by Number of Individual Food Items Procured and by Size of School District, SY 1996/97

Number of individual food items procured	School district enrollment			
	Less than 1,000	1,000 to 4,999	5,000 to 24,999	25,000 or more
	dollars per 1,000 students			
1 to 50	26,493 (1)			
51 to 100	76,935 (9)	91,070 (4)		115,050 (2)
101 to 150	135,817 (20)	98,298 (54)	89,563 (16)	110,916 (2)
151 to 250	189,369 (5)	142,327 (85)	119,583 (61)	104,625 (28)
251 to 350		195,996 (4)	144,454 (13)	118,547 (15)
More than 350				144,866 (2)

Note: Number of observations for each entry appears in parentheses.

Source: *School Food Purchase Study*, 1998.

APPENDIX A

METHODOLOGY

This Appendix provides a more detailed description of the methodology used in conducting the study. In this regard, it supplements the description that appears in Chapter II. The principal sections of the Appendix address the following topics:

- sample selection
- recruitment and training
- valuing donated commodities
- transcription and processing of raw data
- edit checks
- derivation of final weights
- estimation of standard errors

A. Sample Selection

In deriving an optimal sample design, it is necessary to strike an equilibrium or balance between the idealized objectives of a survey and the costs and problems of gathering data in the real world. The objective of sample frame development is to obtain an accurate and comprehensive list of the members of the survey population. The sample frame for this study was derived from the "super 2000" database obtained from Quality Education Data (QED). The sampling frame excluded private, state-operated, and special ungraded schools and non-unified districts, those that do not include all grades kindergarten through twelve. School districts in Alaska, Hawaii, and the US possessions were also excluded.

1. Sample size

A national sample of 480 school districts was used. Initially it had been planned to sample with replacement and to have a final sample of 400 districts, with an additional 200 drawn as replacement districts to be used as needed. This approach, which had been used in the study conducted in SY 1984/85, met the desired accuracy requirement. The requirement was to generate 90-percent confidence intervals ranging no more than ten percent below to ten percent

above the resulting population estimates.¹ The current survey design is so similar to the previous one that it was expected to produce confidence intervals in the same general range. However, in granting approval to collect the data, the Office of Management and Budget required that a fixed sample of 480 school districts (without replacement) be used.

2. Stratification

The sample was stratified by the USDA's ten Agricultural Production Regions to ensure that the sample was evenly distributed across the country. Each of these strata was assigned a share of the 480 school districts prorated by student enrollment counts per stratum. It is important to note that the strata were not used as domains of study since only national estimates were derived. If the national-level accuracy requirements were extended to the stratum level, the sample would have had to have been much larger.

Stratifying districts by whether they provide a breakfast program was considered but not adopted. We anticipated that at least half of the sampled school districts would have breakfast programs. The probability of selecting an unrepresentative sample of such programs would have been significant only if the fraction of school districts serving breakfast had been much closer to zero.

There are about 350 school districts nationwide that participate in the NSLP but do not receive donated commodities. This includes all school districts in Kansas (over 300) as well as those that receive cash and commodity letters of credit (CLOC) as a result of earlier studies of alternatives to commodity donation. In place of commodities, these school districts receive additional cash payments. While we considered using special treatments for these districts, we kept them in the sample and have discussed the implications of their inclusion in the interpretation of the study results. Of the 480 school districts in the final sample, two were from Kansas and five others were receiving cash or commodity letters of credit. Both of the Kansas districts and four of the five cash/commodity letter of credit districts took part in the study.

3. Quarterly Sampling

Each sampled school district submitted data on food purchases for one quarter of the survey year. This element of the sample design has the following arguments in its favor:

1/ *School Food Purchase Study: Final Report*, August 1987, p. 2.2

- **Effect on sampling error.** Increasing the sample size reduces the standard error of estimates made from survey data, but adding uncorrelated observations has more effect on error rates than adding correlated observations. Because of this principle, one can expect that quarterly observations from 400 school districts, for example, would yield lower error rates than annual observations from 100 districts. Even though individual SFA food purchases exhibit season variation, each quarter's purchases are related to other quarters. Thus, adding more districts to the sample is more valuable than adding more quarterly observations from each district.
- **Burden and response rate.** Here and in other aspects of the sample design, we cannot ignore the relationship between respondent burden and response rate. Clearly, the greater burden of collecting data for a year rather than a quarter could have further reduced the response rate.

Though it was not reported in the earlier study, one drawback to the quarterly approach became evident as we reached the analysis phase and particularly analysis of the number of SFAs acquiring individual food items. We found that food items that are highly seasonal and therefore are only acquired during certain periods of the year are likely to be underreported in terms of the number of school districts acquiring them. At the extreme, the estimated number of school districts acquiring the items could be as small as one-quarter of the actual number. This would occur if all SFAs reporting delivery of the item received it in the same quarter.

While this effect limited the usefulness of the estimates of this measure, quarterly sampling was found to have some distinct advantages that more than compensated for this limitation. Estimates of the quantity and value of acquisitions were not affected

4. Weights for sample selection

In a population that has a natural clustering, such as that of students into school districts, and a skewed distribution of cluster sizes, sampling with probability proportional to size (PPS) has a strong potential to improve the survey results. Clearly, the size distribution of school districts is quite skewed, so sampling with PPS will select more larger districts and include more students in the sample. This will tend to make the statistics based on the sample data more representative and efficient.

However, some PPS sampling can also have some disadvantages that should be considered:

- Larger units often have higher data collection costs, so PPS sampling can raise data collection costs.
- When PPS sampling is used, the combination of the distribution of district sizes and the total sample size creates certainty sampling units. These are units whose probability of selection exceeds one. The usual methods of handling this is to remove the certainty units, reweight and reassign probabilities to the remaining units, and draw a second round. The minor problem with certainty units is the extra work required to handle them.
- Standard PPS sampling can sometimes shift the sample "too far" toward the large units and leave the smaller units underrepresented. For example, there could be a concern that smaller units are responsible for more innovations, deviations from regulations, or other behaviors that result in increased variability. PPS sampling in a very skewed population will gather very few observations on the smaller members.

Thus, while PPS sampling provides significant benefits, it seems to shift the sampling weights too far in favor of the larger districts. A solution is to draw the sample with probability proportional to a power of the size measure.¹ To be explicit, the weight, W_i , for the i th school district becomes:

$$W_i = S_i^\beta \tag{1}$$

where S_i is the measure of the size of the i th unit and β is a parameter with a value between zero and one. Setting β at zero simplifies to equal probability sampling; setting it at one yields simple PPS sampling. Choosing a value for β between zero and one offers a compromise that can capture the desirable features of both. A good, or even optimal choice of β can be based solely on judgement; in some cases it can be derived by formal means; and sometimes certain values of β fit in naturally with a feature or constraint of the sample design. All three derivations are relevant here.

1/ "...sometimes it is actually desirable to select with probability proportional to a power of size." Brewer & Hanif, *Lecture Notes in Statistics*, Vol. 15 "Sampling with Unequal Probabilities," New York: Springer-Verlag, 1983, p. 3.

Considering the drawbacks of conventional PPS sampling noted above, we concluded that moving β to a point only a "little" below one both simplified and improved the sample design.

5. Sampling procedure

The first step in the sampling procedure was to allocate the 480 target samples to the ten geographic strata. Each stratum was assigned a fraction of the 480 samples, n_h , equal to its share of total enrollment. We refer to n_h as the net stratum sample size.

Within each stratum we used an ordered, systematic selection procedure to select school districts.¹ This guaranteed an even distribution with respect to school district size. The steps in this procedure for each stratum were as follows:

- Given the discussion above, an appropriate value for the β parameter, which was allowed to vary by stratum, was identified.
- The measure of size, S_i , was computed for each school district as enrollment raised to the β power. TS_h , the total of the size measures, was calculated.
- The gross stratum sample size, m_h , was derived.
- The stratum skip interval $SI_h = TS_h / m_h$, computed as the ratio of total size measures to the gross sample count, was found.
- Districts were sorted by size and to find CS_i , the cumulative size from the first to the i th district.
- A uniformly distributed random number, U , was drawn on the interval between zero and the skip interval. The first district selected was the i th one for which $CS_{i-1} < U < CS_i$.
- The remainder of the sample was drawn by repeatedly adding the skip interval to U and finding the district whose range in the CS series contains that value.
- The relative probabilities of selection, $p_i = S_i / SI_h$, were recorded and saved for use in subsequent reweighting calculations.

1/ William Cochran (*Sampling Techniques*, 3rd ed., p. 265) gives Madow and Murthy credit for this technique

After drawing the sample, one allocation remained: the assignment of samples to quarters. While there was no requirement for quarters within strata to be used as domains of study, a fourth of the selected districts in each geographic stratum were allocated to each quarter so that the enrollment variance of the districts in each quarter would be as close to equal as possible. This resulted in a dispersion of sample districts that was about the same in each quarter. It also helped prevent the chance allocation of all small or all large districts to a single quarter.

In addition, the selected commodity letter of credit and cash districts were distributed among the quarters so that the total enrollment of these districts per quarter was as even as possible. Because only five of these districts were selected, this constraint had to be applied to the overall sample rather than to each stratum.

B. Recruitment and Training

1. Recruitment

Before recruitment of school districts to participate in the study could begin, it was necessary to collect additional information about the individuals to be contacted in each school district. The QED database contained general information for each school district, including its address and recent student enrollment, but nothing about its food program. Basic information about the food programs in these districts was collected from the Child Nutrition (CN) Programs Directors in the 45 states with school districts in the sample.

Each state CN Director was notified by letter of the school districts within their state that were included in the sample and asked to: (a) verify that each school district on the list was participating in the NSLP, (b) provide the name, address, and telephone number of the school food director and information on the number and types of reimbursable meals served in October 1995 for each district, and (c) alert project staff to any special circumstances that should be considered in recruiting these districts to participate in the study. Of the 480 school districts in the sample, state CN Directors identified five districts that were not participating in the program in March 1996. This left 475 prospective participants in the sample.

Recruitment of participants got underway in May 1996, following approval of the study by the Office of Management Budget (OMB).¹ The 240 school districts selected for participation in the first two quarters of the school year – July-September and October-December, 1996 – were contacted first. A letter inviting their participation in the study and briefly describing its purpose and methodology was sent by mail. A 4-page description of the study and a copy of a letter from the Board of Directors of the American School Food Service Association endorsing the study were also enclosed. Addressees were notified that they would be contacted by telephone by a member of the project staff within the next few days to answer any questions they might have and to formally invite their participation in the study.

Within approximately 7 to 10 days of receipt of this letter, school food directors were contacted by telephone to seek their commitment to take part in the study. At the time of this call, they were also told of their eligibility to receive a small administrative allowance, should they agree to participate.² Names and addresses were also verified during this call.

Recruitment of school districts selected for third quarter (January-March, 1997) participation began in September, 1996 and recruitment of school districts selected for the fourth quarter (April-June, 1997) got underway in December, 1996. Most recruitment was completed by late February, 1997. Of the 475 school districts that were recruited, 381 (80.2 percent) initially agreed to take part in the study.

Recruitment of school districts to the study was conducted by a former school food director who had participated in a similar study while serving in that capacity. Beyond this experience, she had been active in professional organizations in school food service through which she had developed numerous professional contacts, particularly in her home state of California.

Despite the benefit of this experience (and the modest financial incentive that was being offered to participants), many school districts were either highly reluctant to participate or refused outright. While many reasons were given for this, the principal reason cited was the burden of collecting, copying, and forwarding procurement records for a three month period. For many

-
- 1/ As a condition of their approval, OMB required a fixed sample of 480 school districts rather than the original proposal to draw a sample of 400 with an additional 200 districts drawn as replacements for possible refusals. The sampling with replacement technique had been used in the 1984/85 study and was our first choice for use in this study as well.
 - 2/ Given the time and out-of-pocket expenses associated with assembling, copying, and mailing food procurement records, a payment of \$70 to \$270 was made to participating SFAs. The amount of the payment was based on the number of reimbursable lunches the district served in October 1995, with a minimum payment of \$70 and a maximum payment of \$270.

SFAs, this was viewed as a substantial burden. Among the other reasons mentioned were: (a) SFA displeasure over recent USDA policy, particularly as it related to the new menu planning requirements, (b) the policy of some food service management companies to not permit school districts under their supervision to share procurement information, (c) the absence of vendor cooperation in making available food purchase summaries, and (d) the inaccessibility of past procurement records.

Table A-1: Response Rates by Source of Data and by Quarter

Source of data	Data collection quarter				Total
	1	2	3	4	
	number of school districts				
<u>Procurement records:</u>					
School districts recruited	119	118	118	120	475
School districts that initially agreed to participate	100	97	89	95	381
Percent of those recruited	84.0	82.2	75.4	79.2	80.2
School districts that ultimately participated	87	88	74	75	324
Percent of those recruited	73.1	74.6	62.7	62.5	68.2
<u>Procurement practices survey:</u>					
Surveys sent	87	89	76	77	329
Surveys returned	87	89	76	76	328
Percent returned	100.0	100.0	100.0	98.7	99.7

Source: *School Food Purchase Study*, 1998.

2. Training

Food procurement invoices come to SFAs in different forms and levels of detail. Some invoices are for individual deliveries while others are for multiple deliveries across a given period of time,

usually monthly. Most school districts receive delivery from several vendors since these vendors commonly specialize in one of eight or nine food categories, such as dairy products or bakery products. The study conducted in 1984/85 found that SFAs used an average of 8.7 vendors.¹

Furthermore, the schedule and point and frequency of delivery vary among the food categories within a given school district. Highly perishable foods, such as fluid milk and bread, are often delivered directly to school cafeterias on a daily basis. For many school districts, the only records of these deliveries are the daily delivery statements collected by individual schools within a district. In contrast, staple foods are frequently received at a central delivery point and arrive weekly or every other week. USDA donated commodities are delivered to SFAs through a variety of different transport modes, depending on the size of the district and the type of distribution system used by the state.

At the time they agreed to participate in the study, each SFA was mailed a 13-page training document. This document briefly reviewed the background and purpose of the study, the role of SFAs participating in the study, and the major alternative ways of providing the requested food procurement data. SFA representatives were asked to review the document in advance of a follow-up telephone call from project staff.

Approximately one week after the training document was sent, training calls were made to the principal contact at each SFA. These calls averaged 20 to 30 minutes in length. They were made for three purposes. The primary purpose was to determine the most convenient form in which each SFA could provide its food procurement information. The options described in the training document were reviewed and discussed. The delivery and invoicing procedures of each district were discussed and recorded on a "vendor profile" form by the project representative. On the basis of this discussion, the SFA contact and the project representative identified an agreed-upon protocol for the SFA to follow in providing procurement information to the study.

A second purpose of the call was to review other key elements of the study and the nature of the SFA's involvement in it. This included discussion of the data summary sheet and the procurement practices survey (both are discussed below), the schedule for sending information, reimbursement procedures, and the availability of project staff to answer questions via a toll-free telephone line.

1/ *School Food Purchase Study: Final Report*, February 1986, p. 5.16.

A final purpose of the call was to collect general information about the SFA and its operating procedures. The names of individual vendors and the frequency of deliveries was obtained to help interpret the procurement records and to insure that a complete set of records was received.

Immediately following the training call, a letter summarizing the conversation and protocol that had been agreed to was sent to each SFA contact. These letters identified the period of time to be covered by these records and listed the vendors by food category for whom it had been agreed the records would be provided. Mailing labels to be used in sending records to the project were also included.

C. Valuing Donated Commodities

The valuation of deliveries of donated commodities to school districts taking part in the study required special consideration. Foods that are commercially purchased and contain no donated commodities are assigned a value by the vendor. For these foods there is no ambiguity with regard to their market value. The valuation of donated commodities and processed foods containing donated commodities is less straightforward. Commodities donated by the USDA are assigned dollar values by the Department based on what they pay, plus transportation charges. However, this value excludes some cost elements associated with the procurement, storage, and delivery of these foods to school districts and therefore underestimates their delivered market value.

In addition, some donated commodities are used as ingredients in foods that are processed expressly for schools participating in the NSLP. It was necessary to assign a value to these foods as well.

Given that neither USDA-assigned values nor processor prices for products containing commodity ingredients were considered reliable measures of market price, commercial prices of comparable foods were used in valuing these foods. This was done as follows:

1. Records of school district receipts were reviewed as they were received to determine if the district commercially purchased the same product during the quarter for which they submitted food purchase data.
2. If the district made a commercial purchase, the price paid for the commercial product was assigned to the value of the donated commodity.

3. If the district did not make a commercial purchase of the same product, other districts in the same region during the same quarter were examined for purchase of that product. To the extent more than one school district purchased this item during the quarter, a weighted average was calculated on the basis of volume of purchases.
4. If no school districts in the region purchased the product during the quarter in question, the search was extended to all districts in the quarter.
5. In those rare instances when no school district purchases occurred during the quarter, an estimated national average price based on published market price information was used.

D. Transcription and Processing of Raw Data

This study deviated in one important respect from the study conducted in SY 1984/85 with regard to data collection methodology. The earlier study provided participating school districts with ledger books that they were asked to use in recording their food acquisitions. Once completed, these ledger books were returned to the project staff for computer entry.

This approach to data collection was rejected for use in this study for two reasons. First, collecting, summarizing, and converting the requested data to a standardized form would have been enormously burdensome for the staffs of the participating school districts. (The project staff time required for transcribing data submitted to this study averaged approximately 38 hours per school district, and this was by trained transcribers who were supervised by managers with several years experience in working with school food acquisition records.) This level of burden might have further reduced the rate of participation in the study, a level already lower than desired.

A second reason for rejecting the approach used in the earlier study was the possible adverse effect on data quality. Since most school district personnel are unfamiliar with unit sizes and weights and are inexperienced in transcribing information from invoices to a standard form and in conducting edit checks, there would have been an increased opportunity for transcription errors.

For these reasons, a substantially different approach to data collection was used in this study. On the basis of telephone interviews with the principal contact for each participating district, the least burdensome, most cost-effective means of retrieving copies of existing procurement records from

school district archives were identified. The principal sources of this information were the following:

- *Vendor summaries.* Many vendors can provide summaries of purchases by month. This source was used whenever possible since these summaries generally provide a complete yet concise record. When vendor summaries were not on file but were thought to be available, school district contacts were encouraged to request them from their vendors. A form letter was provided for their use in making these requests.
- *Copies of invoices.* When vendors could not provide summaries, districts usually preferred to send copies of invoices. This required no knowledge on the part of the respondent of the foods acquired. SFA staff simply made copies of all invoices for the appropriate period and forwarded them to the study staff.
- *Tally sheets.* For food items such as bread, milk, and snack items, many districts preferred to send tally sheets compiled at the district. This method is generally quicker and more cost effective than copying invoices since there were generally few products, all at the same price and unit size, but many deliveries.
- *Bid specifications.* The quality of the data collected from invoices and tally sheets was greatly enhanced by reference to district bid specifications, when they were available. Although this form of documentation is not usually accurate enough for determining amounts of foods delivered, they were useful for providing more detailed information as to product specifications, e.g., the fat content of fluid milk or unit size and weight information.

Since data collection procedures were tailored to the particular situation of each school district, data arrived in a variety of forms. Data transcription, edit checks, reduction, and entry were conducted as follows:

1. Data were transcribed, in most cases, by vendor, by month for a given SFA. Then invoices for another vendor for the same month and same SFA. And so on until all vendors for that month for that SFA were done. The raw data were usually provided in more than one form including invoices, delivery slips, vendor summaries, bid specifications, and perpetual inventories.

2. Relevant data elements were copied from the SFA-provided document to a standard transcription form. One-by-one, information for all food items was similarly transferred. At this point, if any of the relevant data elements were found to be missing, an attempt was made to retrieve the missing information from vendor files, bid specifications, or whatever other SFA/vendor/processor-specific information had been provided. If necessary, phone calls were made to the SFA contact or the vendor (with SFA approval) to capture missing data elements. Food items that were missing weight/pack size information sometimes required additional research.

As a further source of information on USDA-donated commodities and processed foods containing donated commodities, State Distributing Agencies (SDAs) were asked to provide information from their records on deliveries to the SFAs in their states that were participating in the study. Many SDAs also provided information on commodities that were further processed under state processing agreements, which helped in the proper classification of these foods.

3. When a second purchase of the same product by the same SFA that month occurred, the purchase was added to the existing line for that product on the spreadsheet.
4. When all of the required information for a set of invoices had been transferred from the raw data sources to the standard transcription form, the entries on the spreadsheet were summed and entered onto the form as the total purchases of that product from that vendor for that month.
5. Transcription forms were clipped to the raw data set they represented and cued for review prior to data entry.
6. Manual reviews of the data sets were made just prior to data entry. Data sets were examined for completeness and accuracy. Spot checks were conducted to examine the overall quality of the transcription effort. Any discovered errors were corrected prior to data entry. Following and during data entry, other edit routines were performed, as described below.

E. Edit Checks

Given the large volume of highly detailed data, it was necessary to conduct several edit checks to help ensure the highest possible degree of accuracy. The following edit checks were made during and following data entry:

1. Several programmed edit checks were made during data entry. They included acceptable SFA identification number, acceptable food codes, acceptable standardized unit size descriptions, numerals only in numeric fields, and acceptable entries in the rebate/discount field.
2. Entered data were printed out and matched to the original transcription sheets. It was verified that all records were entered and that all records were entered as transcribed. Discrepancies between total cost values and the product of cost per case and number of cases were flagged by computer screening.
3. Prior to entering changes, first edits were reviewed by data supervisors. Food codes and unit size were manually checked for consistency at this time.
4. Following review, edits were entered and printouts were run a second time for those forms that required change. The new printouts were matched against the edits to confirm accurate entry.
5. Data were reorganized by SFA, by food code and printed as one file, including calculated cost per pound columns. Cost per pound calculations for the SFA were compared to cost per pound for the same food code from previously edited data for several SFAs. A manual comparison was made to identify deviations.
6. Following any edits required as a result of the cost per pound comparison, data were reorganized by food description and collapsed by food code for like unit sizes. A new list was generated and checked to ensure the correct entry of edits. Data supervisors traded edit responsibility so that edit checks for each SFA were divided between the two supervisors.

7. Following these edit checks, a data summary sheet was prepared for each SFA and returned to the principal SFA contact for review and confirmation of the accuracy of the data.

F. Derivation of Final Weights

Two sets of weights were derived for use with the survey observations, because the response rates were different for completing the survey questionnaire and providing food acquisition data. One set of final weights is called the "survey" weights while the other is called the "data" weights.

Both sets of final weights were derived from the draft weights that were created as part of the sample design. For each school district (SD) its draft weight is the inverse probability of being selected into the full, original, first-stage sample of 600 SDs. The original sample design provided for 400 of these SDs to become a primary sample, while 200 were to be assigned to a backup group to provide replacements for refusals. However, this full sample was not taken into the field, because OMB directed in its review that the target sample be reduced to 480 and that refusals not be replaced. At this point in the study, information on each of the 600 SDs had been collected from their administering State agencies. Rather than discard the original sample, we reduced the set of 600 to 480 by discarding one-fifth of the selected SDs. This random selection retained the distribution of the sample across SD enrollment sizes by sorting the SDs by enrollment, forming successive groups of about five SDs, and then selecting one SDs at random from each group to be discarded.¹

Both because of the second stage of sampling and because of the nature of the probability sampling procedure used in the first stage, the draft weights were correct only in relation to one another. The first stage was drawn with probability proportional to a non-linear function of enrollment, so the weighted total enrollment did not match the known total enrollment. In a long series of such draws, it would match only on average. With untransformed PPS sampling, the match would be exact every draw. The anticipated correction for this was calibration to the known enrollment totals to derive a scaling factor by which to adjust the weights uniformly.

Moreover, the calibration was applied for each set of weights in a region/quarter combination. In the initial sample design, about one-fourth of the SDs in each region were allocated to each quarter. This allocation was made so as to give each quarter within a region about the same

^{1/} The number of first-stage SDs per region was not always a multiple of five; so some groups of four and six had to be formed, too. When needed, these groups were placed at random in the sorted sequence of SDs.

average and standard deviation of assigned SD enrollments. Even so, it was not possible to assign exactly one-quarter of each region's weights to each quarter, so the calibration was required to provide weights that would yield unbiased national estimates in each quarter. This adjustment is particularly important for this application, because the purchases and consumption of many types of food vary significantly by quarter.

Finally, the weights were adjusted to account for unit non-response. Unit non-response is the refusal of the survey subject to participate at all, while item non-response is refusal to answer a particular question. Unit non-response was quite prevalent in this survey, but item non-response was not much of a problem. Unit non-response was found to vary significantly by size, but not in any systematic fashion and it did not vary uniformly by region. Therefore, the adjustment procedure we adopted was to assign SDs within a quarter and region to homogeneity response groups (HRGs)¹ and compute a non-response rate for each group to adjust the weights within the group uniformly. For the larger region/quarter combinations, groups were formed by taking the top third, middle third, and bottom third of SDs ranked by enrollment. Smaller sets of SDs were split into fewer subsets. Also, the boundaries between the groups were adjusted whenever a group was found that had no respondent. To keep the derivation as simple as possible, a single assignment of SDs to HRGs was found that could be used to compute both the survey and data response rates, but separate rates for each were computed.

For each HRG, the adjustments for data and survey non-response were obtained by computing the weighted average response rate as the sum of the student weights of the responding SDs over the sum of all student weights for the HRG. The final weights for each SD were then computed as the triple product of the SD's draft weight, its region/quarterly factor, and the inverse of the response rate in its respective HRG.

G. Standard Errors

The standard errors of population means and totals were estimated using a bootstrap or resampling technique that is becoming increasingly more popular in survey data analysis. The major steps in our bootstrap estimation procedure were as follows:

- The sample data and weights serve as a basis for resampling. Region by region, a new sample of school districts is drawn with probability proportional to the

1/ Sarndal, Swenson, & Wretman. *Model Assisted Survey Sampling*, New York: Springer-Verlag, 1992.

respective final weight of each district. As there were two sets of final weights, the set corresponding to the variable being analyzed was used. Each district in the sample is assigned the measure of size, student enrollment from QED, used in the sample design and the response that was actually obtained.

- By region, the new population was organized into a sampling frame just as the original population had been. Enrollment were transformed to the measure of size by raising to a beta power so that the target first-stage sample size could be drawn such that no SD had a probability of selection greater than one. The SDs were sorted by size, a skip interval was computed, and a total of 600 (for all regions) SDs were drawn with probability proportional to size.
- In the original sampling design we had intended to set aside one-third of the SDs as a replacement group and target a final sample size of 400, but as noted earlier, OMB required us to discard the replacement group, take 480 of the first-stage SDs to the field, and sample without replacement. The bootstrap program mimicked this step by assigning the first-stage SDs to groups of about five in sorted order and selecting about four SDs out of each group. This yielded a second-stage sample of 480 SDs in all regions.
- The second-stage SDs, still arrayed in sort order, were assigned to the same quarter of the year as the original SD. As the discussion above on the derivation of the final weights explained, each original second-stage SD was assigned after the survey to an HRG (homogeneity response group), so each artificial SD that fell into the same slot in sort order was assigned accordingly to its HRG within each region/quarter.
- Non-response was modeled by randomly selecting the number of cooperating respondents from each HRG that was actually obtained. The SDs in each HRG were selected with equal probability in this step, because (by definition) the response rate within an HRG is assumed to be constant among respondents. This yielded a third-stage set of SDs.
- The derivation of the final weights described above was mimicked using the third-stage SDs. These weights were then used to derive an estimate of the population total of the analysis variable for each iteration. The model performed 5000 such iterations, collected the results, and computed the standard deviation among those bootstrap estimates.

APPENDIX B

PROCUREMENT PRACTICES SURVEY

SCHOOL FOOD PURCHASE STUDY

PROCUREMENT PRACTICES SURVEY

This survey is being conducted for the Food and Consumer Service, U.S. Department of Agriculture as part of a study of school food systems of public school systems throughout the nation. The information gathered through this survey will be used to develop a national database of school food systems. Information collected over the past three months. All responses will be treated in strict confidence; only aggregated results will be reported.

To assist you in completing this survey, we have defined the terms that are used. They appear in shaded boxes like this throughout the survey. If you need help in answering any of the questions, please call us collect at (203) 739-5222 and ask for the School Food Study Project.

[Please return in the enclosed envelope by _____]

School District Name: _____

Date: _____

Name and address of
Food Service Director

Name: _____

Title: _____

Address: _____

Telephone: () _____

Name and address of person
filling out this survey if other
than Food Service Director

Name: _____

Title: _____

Address: _____

Telephone: () _____

OMB Clearance Number: 0584-0471

Expiration Date: 06/30/98

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, Room 404-W, Washington, D.C. 20250; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

1. SCHOOL DISTRICT CHARACTERISTICS



- 1.1 **Number of Schools.** How many schools are there in your school district and how many are participating in the National School Lunch Program (NSLP) and/or the School Breakfast Program (SBP) during the 1996/97 School Year? Please record separately for elementary and middle/secondary schools as defined above.

	<u>Elementary</u>	<u>Middle/Secondary</u>	<u>Other*</u>	<u>Total</u>
Number of Schools				
Total Number	_____	_____	_____	_____
Number participating in NSLP only	_____	_____	_____	_____
Number participating in SBP only	_____	_____	_____	_____
Number participating in both NSLP and SBP	_____	_____	_____	_____
Number of SBP severe-need schools	_____	_____	_____	_____

*Briefly describe any "other" schools here: _____

- 1.2 **Student Enrollment.** Indicate total student enrollment, average daily attendance, and the number of students approved to receive free and reduced price meals as of October 31, 1996.

	<u>Elementary</u>	<u>Middle/Secondary</u>	<u>Other</u>	<u>Total</u>
Number of Students				
Total Student Enrollment	_____	_____	_____	_____
Average Daily Attendance	_____	_____	_____	_____
Number approved to receive:				
free meals	_____	_____	_____	_____
reduced price meals	_____	_____	_____	_____

Do any of the students included in "Total Student Enrollment" not have access to school lunches or school breakfasts (e.g. kindergartners who are not in session at meal time)?

YES _____

NO _____

If YES, indicate number of students who do not have access.

	<u>Elementary</u>	<u>Middle/Secondary</u>	<u>Other</u>	<u>Total</u>
NSLP	_____	_____	_____	_____
SBP	_____	_____	_____	_____

- 1.3 **Number of serving days/number of meals served.** Record the number of serving days and the number of student lunches and student breakfasts served, indicating whether they were full price, reduced price, or free. If your district operates under provisions 1, 2, or 3 of the NSLP regulations, you may indicate the number of meals claimed in each category. Please provide this information for School Year 1995/96 and for the period July-September, 1996.

	<u>School Year 1995/96</u>	<u>July-Sept. 1996</u>
Student Lunches		
Number of serving days*	_____	_____
Number of full price lunches served/claimed	_____	_____
Number of reduced price lunches served/claimed	_____	_____
Number of free lunches served/claimed	_____	_____
Student Breakfasts		
Number of serving days*	_____	_____
Number of full price breakfasts served/claimed	_____	_____
Number of reduced price breakfasts served/claimed	_____	_____
Number of free breakfasts served/claimed (include severe need)	_____	_____
Number of severe need breakfasts served/claimed	_____	_____

* If there are differences among schools within the school district, provide average number.

- 1.4 **Year-round schools.** Do any of the schools in your district that participate in the NSLP or SBP operate year round?

YES _____

NO _____

If YES, indicate the number of schools.

	<u>Elementary</u>	<u>Middle/Secondary</u>	<u>Other</u>	<u>Total</u>
Year-round schools	_____	_____	_____	_____

If YES, indicate the number of students included in "Total Student Enrollment" (Question 1.2) but not in session during July-September, 1996.

	<u>Elementary</u>	<u>Middle/Secondary</u>	<u>Other</u>	<u>Total</u>
Students not in session	_____	_____	_____	_____

- 1.5 **Meal Prices.** As of October 31, 1996, what prices were charged to students for full price and for reduced price lunches and breakfasts in your school district by level of school? For full price lunches and breakfasts, we have provided space for more than one price if multiple prices were offered (e.g. higher price for larger portions or discount for weekly meal ticket). If you indicate more than one charge for full price meals, please indicate the share of meals sold at each price.

	<u>Elementary</u>	<u>Share of Full Price Meals</u>	<u>Middle/Secondary</u>	<u>Share of Full Price Meals</u>
Student Lunch Prices				
Full price lunch	\$ _____	_____ %	\$ _____	_____ %
	\$ _____	_____ %	\$ _____	_____ %
Reduced price lunch	\$ _____		\$ _____	
Student Breakfast Prices				
Full price breakfast	\$ _____	_____ %	\$ _____	_____ %
	\$ _____	_____ %	\$ _____	_____ %
Reduced price breakfast	\$ _____		\$ _____	

- 1.6 **Kitchen Types.** How many of each of the following types of kitchens does your school district currently operate? Each type is briefly described. If you have kitchen types not described here, please record under "Other" and provide a brief description.

Type	Number of Kitchens
Central Kitchens where meals are prepared for serving at receiving or satellite schools. No student meals are served on-site at a central kitchen.	_____
Base Kitchens where meals are prepared for serving on-site and for shipment to other locations (including multiple locations within the same school).	_____
Receiving or satellite kitchens which obtain partially or fully prepared meals from base or central kitchens or an outside vendor. Other than re-heating or refrigeration, no food preparation occurs at a satellite kitchen.	_____
Combination kitchens in which some food is prepared for on-site consumption and some food is received fully or partially prepared from a central or base kitchen.	_____
On-site kitchens where all meals served are prepared at the facility in which the kitchen is located.	_____
Other (describe) _____ _____ _____	_____ _____ _____
Total number of Kitchens	_____

- 1.7 **A la carte food sales.**



Do any of the schools in your school district offer foods on an a la carte basis?

YES _____
NO _____

If YES, what was the total dollar amount of receipts from a la carte sales for the entire 1995/96 School Year? What were receipts from a la carte sales for the period July-September, 1996?

A la carte sales receipts

1995/96 School Year: \$ _____

July-Sept. 1996: \$ _____

If YES, list the 10 top-selling a la carte foods for elementary and middle/secondary schools. Describe in general terms (e.g. hamburgers, french fries, potato chips, milk, ice cream, cookies, etc.). If possible, base your response on dollar sales for the period October-December 1996, ranked from largest to smallest. If that is not possible, please give us your best judgement as to what were the leading a la carte foods during this period.

For each item you list, please estimate the percentage share of total dollar sales of that item that was from a la carte sales for this same period. For example, if pizza is listed and approximately one-third of all pizza sales during this 3-month period were a la carte, record "33" in the appropriate column. Since most of the items included on this list will represent aggregations of several individual food products (e.g. "cookies" might include 10 or 20 different types, package sizes, flavors, etc.), record the percentage share that applies to the entire group of products.

Leading A La Carte Items

Elementary		Middle/Secondary	
Name of item	Percent of total sales of item a la carte	Name of item	Percent of total sales of item a la carte
1. _____	_____	1. _____	_____
2. _____	_____	2. _____	_____
3. _____	_____	3. _____	_____
4. _____	_____	4. _____	_____
5. _____	_____	5. _____	_____
6. _____	_____	6. _____	_____
7. _____	_____	7. _____	_____
8. _____	_____	8. _____	_____
9. _____	_____	9. _____	_____
10. _____	_____	10. _____	_____

- 1.8 **Number of schools offering food service options.** How many of the schools in your school district currently offer the following options to your students?

	<u>Number of Schools</u>			
	<u>Elementary</u>	<u>Middle/Secondary</u>	<u>Other</u>	<u>Total</u>
A la carte items during breakfast	_____	_____	_____	_____
A la carte items during lunch	_____	_____	_____	_____
More than one NSLP entree	_____	_____	_____	_____
Offer vs. serve	_____	_____	_____	_____
Open campus at lunch time	_____	_____	_____	_____
Vending machines	_____	_____	_____	_____
Snack bars	_____	_____	_____	_____
Electronic debit cards	_____	_____	_____	_____
Student stores	_____	_____	_____	_____

- 1.9 **Other food programs served.** Some school districts use their facilities to prepare foods for purposes other than breakfasts and lunches for students in their school system. Some examples are listed below. Please indicate with a check (✓) which, if any, of these purposes you are currently providing meals or food to.

Check (✓) all that apply

School staff meals	_____
Head Start	_____
Elderly Feeding	_____
Child and Adult Care Feeding	_____
Other day care	_____
Summer Food Service Program	_____
Other schools or school systems	_____
Disaster Feeding	_____
School related events (e.g. athletic events, PTA meetings)	_____
Public catering	_____
Other (specify) _____	_____

- 1.10 **Other food program sales.** If your school district had other food program sales (as noted in response to Question 1.9) during July-September 1996, are the foods used for any of these other programs included among the food purchase information you provided?

YES _____

NO _____

If YES, for those programs included in the food purchase data you submitted, please indicate separately the dollar amount of receipts for (a) those "other programs" that are provided on a per meal basis (e.g. Summer Food Service or food for other school systems), (b) those "other programs" that are provided on a non-meal basis (e.g. disaster feeding or catering), and (c) the total for both. If your response is an estimate, indicate with a check (✓) in the space titled "estimate."

Receipts from other food program sales:

	School Year 1995/96	Estimate	July-Sept. 1996	Estimate
(a) Meal basis	\$ _____	☐	\$ _____	☐
(b) Other than meal basis	\$ _____	☐	\$ _____	☐
(c) Total	\$ _____	☐	\$ _____	☐

For those other food programs provided on a per meal basis and included in the response on row (a) above, please indicate the number of meals served. If your response is an estimate, indicate with a check (✓) in the space titled "estimate."

Number of other food program meals:

	Estimate
School Year 1995/96 _____	☐
July-Sept. 1996 _____	☐

- 1.11 **Total food expenditures.** What was the school district's total expenditure for food during the 1995/96 School Year and during the July-September 1996 period? Do not include expenditures for nonfood supplies. If your response is an estimate, indicate with a check (✓).

Estimate

Total Food Expenditures:

School Year 1995/96	\$ _____	☐
July-Sept. 1996	\$ _____	☐

- 1.12 **Number of schools using menu planning.** How many of the schools in your school district use each of the following methods in planning their lunch menus?



	Elementary	Middle/Secondary	Other	Total
Number of Schools				
Nutrient Standard Menu Planning	_____	_____	_____	_____
Assisted Nutrient Standard Menu Planning	_____	_____	_____	_____
Food-Based Menu Planning	_____	_____	_____	_____
Traditional Meal Patterns	_____	_____	_____	_____

- 1.13 **Waiver for implementation of nutrient standards.** Has your school district applied for a waiver to postpone implementation of nutrient menu planning beyond School Year 1996/97?

YES _____

NO _____

If YES, has your application been approved?

YES _____

NO _____

2. PROCUREMENT PRACTICES AND PROCEDURES



- 2.1 Vendor selections. Who in your school district has primary responsibility for determining where foods are purchased, i.e. which vendors are selected? (If this person has more than one position or if more than one person is responsible, please select the position that best describes the person's duties.)

Check (✓) one

District Food Service Director/Manager	_____
Business Office/Purchasing Department	_____
Nutritionist	_____
Kitchen Manager/Head Cook	_____
School Board	_____
Other (specify)_____	_____

- 2.2 Food selection. Who in your school district has primary responsibility for determining which foods are purchased? (Again, if more than one person or position is involved, select the one that best describes the person's duties.)

Check (✓) one

District Food Service Director/Manager	_____
Business Office/Purchasing Department	_____
Nutritionist	_____
Kitchen Manager/Head Cook	_____
School Board	_____
Other (specify)_____	_____

2.3

Food service management companies. Is your food service operation currently under the direction of a private food service management company?

YES _____

NO _____

IF YES:

How long has it been under the management of a food service management company (in years)?

_____ years

Is the food service management company responsible for determining where foods are purchased (i.e. vendor selection)?

YES _____

NO _____

Is the food service management company responsible for determining which foods are purchased (i.e. food selection)?

YES _____

NO _____

Branded products. Do you feature branded products (either in-house or national brands in your school food program)?

Note: In-house brands can include brands developed for use by more than one school district.

YES _____

NO _____

If YES, in how many schools are in-house and national brands featured?

	<u>Elementary</u>	<u>Middle/Secondary</u>	<u>Other</u>	<u>Total</u>
Number of Schools				
In-house	_____	_____	_____	_____
National	_____	_____	_____	_____

If YES, what types of branded products do you sell?

In-house

National

Check (✓) all that apply

Hamburgers/cheeseburgers

Pizza

Subs/Sandwiches

Tacos/burritos

Desserts

Fruit products

Vegetable products

If YES, how does the vendor supply the product?

In-house

National

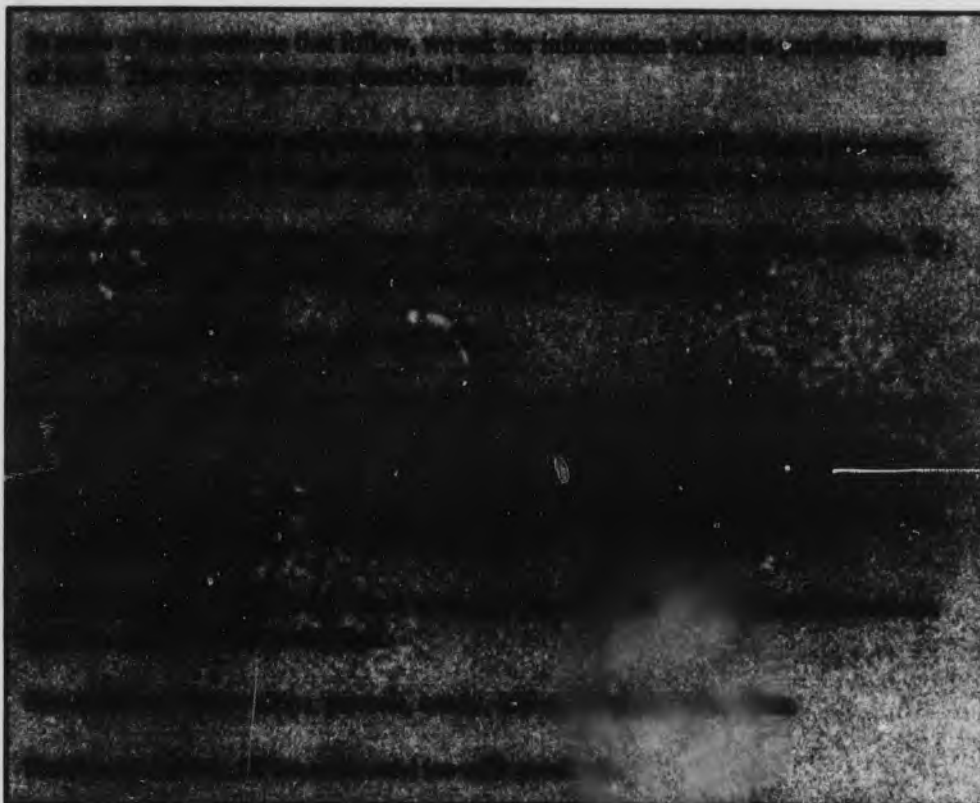
Check (✓) all that apply

As ingredients, school prepares

As cold product, school heats

As finished item, delivered to school

Other (describe) _____



- 2.5 Level of purchasing. Are food **purchase decisions** (not orders) made at the level of the school district (centralized), at the level of the individual school (decentralized), or some combination of the two?

Check (✓) one

Centralized (school district)

Decentralized (schools)

Combined centralized/decentralized

- 2.6 **Level of ordering.** Are food orders by your system made at the level of the school district (centralized) or at the level of the individual school (decentralized)? Check (✓) one space for each type of food.

	Dairy	Bread	Fresh Produce	Canned/ Staples	Frozen Foods	Fresh Meats	Snack Items	Ice Cream
Centralized	_____	_____	_____	_____	_____	_____	_____	_____
Decentralized	_____	_____	_____	_____	_____	_____	_____	_____

- 2.7 **Selecting vendors.** In selecting a food vendor, do you subject the vendors' products to any of the following tests or requirements?

Check (✓) all that apply

Can cutting	_____
Taste testing	_____
Cooking tests	_____
Availability of nutrient analysis profile	_____
Availability of CN labels	_____
Other (specify) _____	_____
_____	_____
None of the above	_____

- 2.8 **Product specifications.** In purchasing individual food items, do you use product specifications to describe the product?

YES _____

NO _____

If YES, which of the following specifications do you use? Check (✓) all that apply.

Official quality/grade standards (e.g. Grade A)	_____
Style/variety of product (e.g. sliced cling peaches)	_____
Brand name	_____
Container weight	_____
Fat content	_____
Overall nutritional composition of the product	_____
Origin (where produced)	_____
Packaging unit (e.g. case of 6-#10 cans)	_____
Condition (e.g. temperature or evidence of spoilage)	_____
Use of Child Nutrition (CN) labels that identify contribution toward meal pattern requirements	_____
Official standards of identity	_____

3. FOOD DELIVERY PRACTICES



3.1 Receiving locations. What type of receiving locations do vendors ship their products to? Check (✓) all that apply for each food type. (See Question 1.5 for descriptions of kitchen types)

	Fresh	Canned/	Frozen	Fresh	Snack	Ice		
	<u>Dairy</u>	<u>Bread</u>	<u>Produce</u>	<u>Staples</u>	<u>Foods</u>	<u>Meats</u>	<u>Items</u>	<u>Cream</u>
School District Central Warehouse	_____	_____	_____	_____	_____	_____	_____	_____
Commercial Warehouse	_____	_____	_____	_____	_____	_____	_____	_____
Central Kitchens	_____	_____	_____	_____	_____	_____	_____	_____
Base Kitchens	_____	_____	_____	_____	_____	_____	_____	_____
Receiving or Satellite Kitchens	_____	_____	_____	_____	_____	_____	_____	_____
Combination Kitchens	_____	_____	_____	_____	_____	_____	_____	_____
On-Site Kitchens	_____	_____	_____	_____	_____	_____	_____	_____

3.2 Frequency of delivery. In general, how often do vendors deliver food? Check (✓) one item for each type of food that most closely reflects the actual delivery schedule.

	<u>Dairy</u>	<u>Bread</u>	<u>Fresh Produce</u>	<u>Canned/ Staples</u>	<u>Frozen Foods</u>	<u>Fresh Meats</u>	<u>Snack Items</u>	<u>Ice Cream</u>
Daily	_____	_____	_____	_____	_____	_____	_____	_____
More than once a week	_____	_____	_____	_____	_____	_____	_____	_____
Weekly	_____	_____	_____	_____	_____	_____	_____	_____
Every other week	_____	_____	_____	_____	_____	_____	_____	_____
Monthly	_____	_____	_____	_____	_____	_____	_____	_____
Quarterly	_____	_____	_____	_____	_____	_____	_____	_____
Other (specify) _____	_____	_____	_____	_____	_____	_____	_____	_____

3.3 Delivery times. Are there set time periods or restrictions on when vendors can deliver foods (e.g., before 11:00 a.m.)?

YES _____

NO _____

If YES, indicate with a check (✓) who specified the delivery period.

Vendor _____

District _____

3.4 Warehouse storage. Do you use a central or public warehouse to store commercial foods?

YES _____

NO _____

If YES, how often are foods generally delivered from the warehouse(s) to preparation sites? Check (✓) one for each kitchen type.

	<u>Central Kitchens</u>	<u>Base Kitchens</u>	<u>Combination Kitchens</u>	<u>On-site Kitchens</u>
Daily	_____	_____	_____	_____
More than once a week	_____	_____	_____	_____
Weekly	_____	_____	_____	_____
Every other week	_____	_____	_____	_____
Monthly	_____	_____	_____	_____
Other (specify) _____	_____	_____	_____	_____

If YES, whose delivery vehicles are used to transport food from warehouse to preparation sites?

Check (✓) all that apply

School district vehicles	_____
Contract hauler	_____
Other (describe) _____	_____

If YES, what was the cost of transporting food from warehouse to preparation sites in School Year 1995/96. If this is an estimate, check (✓) box.

Estimate

District transportation cost in 1995/96 \$ _____

☐

3.5 USDA donated commodities. How do USDA donated commodities reach your school district?

Check (✓) all that apply

Commercial foodservice distributor	_____
Commercial trucking company	_____
State delivery	_____
Direct delivery by USDA	_____
School district pick-up	_____
Other (describe) _____	_____

4. VENDOR INFORMATION

- 4.1 Number of vendors. How many separate vendors do you currently use for each of the following food types? How many vendors serve your area and are willing to meet your food purchase requirements? If a vendor supplies more than one type of food, count it separately in each appropriate category. (If you don't know the number of vendors in the area, please make an estimate and indicate with a check (✓).)

	<u>Dairy</u>	<u>Bread</u>	<u>Fresh Produce</u>	<u>Canned/ Staples</u>	<u>Frozen Foods</u>	<u>Fresh Meats</u>	<u>Snack Items</u>	<u>Ice Cream</u>
<u>Number of vendors used</u>	_____	_____	_____	_____	_____	_____	_____	_____
<u>Number serving area</u>	_____	_____	_____	_____	_____	_____	_____	_____
Estimate?	☐	☐	☐	☐	☐	☐	☐	☐

- 4.2 Total number of vendors. What is the total number of vendors from whom you currently purchase food?

Number of vendors _____

- 4.3 Vendor selection criteria. Which factors influence your selection of food vendors? Check (✓) all that apply

Price	_____
Brands	_____
Service after sale	_____
Dependability	_____
Location	_____
Flexibility	_____
Food quality	_____
Delivery schedules	_____
Promotion programs	_____

4.4 **Procurement methods.** Indicate principal method you use to purchase each type of food. Check (✓) one for each food type.

	<u>Dairy</u>	<u>Bread</u>	<u>Fresh Produce</u>	<u>Canned/ Staples</u>	<u>Frozen Foods</u>	<u>Fresh Meats</u>	<u>Snack Items</u>	<u>Ice Cream</u>
Formal line item bids (Items individually priced.)	_____	_____	_____	_____	_____	_____	_____	_____
Formal lump sum bids (Items priced in combination.)	_____	_____	_____	_____	_____	_____	_____	_____
Telephone bid/quote	_____	_____	_____	_____	_____	_____	_____	_____
Sales representative visits	_____	_____	_____	_____	_____	_____	_____	_____
Other (specify) _____	_____	_____	_____	_____	_____	_____	_____	_____

4.5 **Cooperative buying.** Are you participating with other school districts in the cooperative purchasing of food?

YES _____

NO _____

If YES, how long have you participated in a cooperative buying program (in years)?

_____ years

If YES, how many other school districts participate in the cooperative?

If YES and you participated in a cooperative buying program in School Year 1995/96, please estimate the share of total food purchases by the school district in School Year 1995/96 that were purchased cooperatively (in percent).

_____ %

If YES, indicate with a check (✓) the foods you used in School year 1995/96 that were purchased through a cooperative buying program.

	<u>Dairy</u>	<u>Bread</u>	<u>Fresh Produce</u>	<u>Canned/ Staples</u>	<u>Frozen Foods</u>	<u>Fresh Meats</u>	<u>Snack Items</u>	<u>Ice Cream</u>
Purchased through cooperative program	_____	_____	_____	_____	_____	_____	_____	_____



4.6 **Product pricing.** For each food type below, indicate whether you have a formal agreement (contract) or an informal agreement with your major vendor. Within the category selected, check (✓) the one approach to pricing that best describes how your food purchase prices are determined.

	<u>Dairy</u>	<u>Bread</u>	<u>Fresh Produce</u>	<u>Canned/ Staples</u>	<u>Frozen Foods</u>	<u>Fresh Meats</u>	<u>Snack Items</u>	<u>Ice Cream</u>
<u>A. Formal Agreement</u>								
Fixed price contract	_____	_____	_____	_____	_____	_____	_____	_____
Fixed price with escalator clause (e.g., increase based on specific condition such as inflation rate).	_____	_____	_____	_____	_____	_____	_____	_____
Formula price (list plus fixed amount or percentage)	_____	_____	_____	_____	_____	_____	_____	_____
Cost-based price	_____	_____	_____	_____	_____	_____	_____	_____
<u>B. Informal Agreement</u>								
Bid or quote price (not contract)	_____	_____	_____	_____	_____	_____	_____	_____
Retail price	_____	_____	_____	_____	_____	_____	_____	_____
Mutually accepted discount rate	_____	_____	_____	_____	_____	_____	_____	_____
Other (specify) _____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

4.7 Which of the following services do your major vendors supply. Check (✓) all that apply.

Advice on purchasing	_____
Unloading at dock/school	_____
Placing packages in coolers/storage area	_____
Shelving delivered foods	_____
Inventory updating	_____
Summary of purchases on a monthly or quarterly basis	_____
Menu planning	_____
Delivery of USDA donated commodities	_____
Storage of USDA donated commodities	_____
Processing of USDA donated commodities	_____

Thank you for completing the survey and for taking part in the study. Once all the data have been tabulated and the analysis completed, we will send you a copy of the results.

Please make a copy of the completed survey for your file (in the unlikely event that the original is lost in the mail) and send the original to us in the enclosed envelope.

APPENDIX C

**Table C-1: Top Fifty Foods Purchased by Public Unified NSLP School Districts
in SY 1996/97, Estimated Value and Volume of National Purchases**

Food code	Food description	Value (dollars)	Volume (pounds)
500959	Milk, flavored, lo fat, 1%	225,281,321	770,347,867
501255	Milk, flavored, lo fat, fat solids unknown	105,263,661	363,372,448
500059	Milk, whole	99,398,321	320,405,060
500455	Milk, lo fat, 2%	97,286,128	331,730,128
457357	Hamburger and hot dog buns/steak and sub roll	96,213,128	124,426,923
370535	Potatoes, french fries/wedges, frozen	93,421,009	216,116,282
280274	Fruit drinks, individual	73,462,574	189,084,535
233171	Orange juice, individual	71,620,239	162,700,311
459477	Cereals, individual	66,648,582	18,901,110
500257	Milk, lo fat, 1%	64,099,295	217,764,144
903054	Pizza, w/real cheese	50,247,177	30,302,251
503152	Ice cream/ice milk novelties	50,025,696	45,916,013
903351	Pizza, sausage w/cheese blend	49,461,492	40,288,647
152157	Chicken, patties, white meat	47,458,699	26,977,177
904259	Pizza, pepperoni w/cheese blend	45,860,448	34,854,263
153155	Chicken, nuggets, white meat	43,000,672	25,793,249
458074	Cookies individual	40,597,344	20,336,272
153254	Chicken, nuggets, white/dark mix unknown	40,433,749	23,489,356
410654	Chips, tortilla/corn	40,306,708	25,440,733
500851	Milk, flavored, lo fat, .5%	39,600,465	126,190,739
501354	Milk, flavored, skim/nonfat	38,610,815	130,917,054
457753	Donuts/churns/honey bun/cinnamon rolls	38,223,418	24,103,810
200279	Apple juice, individual	34,835,918	77,883,639
506056	Cheese, American/processed	33,852,172	20,472,082
370659	Chips, potato or potato sticks	32,731,677	14,497,708
904151	Pizza, pepperoni w/real cheese	32,466,265	18,706,639
140351	Beef, patties cooked	32,346,516	19,447,408
200015	Apples, fresh	31,682,277	75,372,761
903459	Pizza, cheese, type unknown	30,377,056	20,888,797
903153	Pizza, cheese blend	29,979,931	23,090,172
370139	Potatoes, formed, frozen	29,530,001	67,830,866
601352	Sodas, carbonated	28,866,457	79,154,808
500554	Milk, lo fat, fat solids unknown	26,928,630	84,871,418
378470	Catsup, individual pack	26,503,451	37,203,271
458053	Bread, white	26,136,548	42,672,153
234228	Peaches, canned, light syrup	24,581,290	41,388,208
152256	Chicken, patties, white/dark mix unknown	24,446,484	14,345,796
904655	Pizza, pepperoni, cheese unknown	23,858,684	16,849,288
455559	Cookie dough	23,796,681	16,330,840
233015	Oranges, fresh	21,169,604	58,332,320
144154	Beef, breaded patties/nuggets	20,876,281	14,700,141
281222	Mixed fruit, canned, light syrup	20,196,615	30,440,697
340018	Lettuce, heads	19,235,979	60,660,476
280034	Fruit juice, bars, frozen	19,125,544	22,251,706
100157	Fish, nuggets/patties, breaded	18,910,901	11,234,766
457258	Biscuits and rolls	18,871,624	18,710,411
378017	Tomatoes, fresh	18,809,593	30,593,807
500752	Milk, flavored, whole	18,361,466	60,999,358
458272	Cakes/brownies, prepared, individual pack	17,707,014	11,950,840
900654	Meat filled pastry (includes Hot Pockets)	17,456,784	9,738,416

Source: School Food Purchase Study, 1996.

APPENDIX D

**Table D-1: Classification System Used in Coding
A La Carte Food Items**

Code	Description	Code	Description	Code	Description
101	milk	121	nachos	141	corn dog
102	beverages-fruit drinks	122	water	142	milkshake
103	pizza	123	fruit roll-ups	143	string cheese
104	french fries	124	candy	144	potato items
105	soft drinks	125	donut	145	baked potatoes
106	hamburgers	126	chicken nuggets	146	frozen fruit bars
107	cheeseburgers	127	chicken strips	147	vegetables
108	snack chips	128	pickles	148	hot chocolate
109	burritos	129	salet	149	cheese sticks
110	sandwiches	130	entree items ²¹	150	rice
111	ice cream	131	meat snacks	151	collage cheese
112	hot dogs	132	yogurt	152	sunflower seeds
113	cookies	133	pudding	153	peanuts
114	pretzels	134	snack crackers ²²	154	cereals
115	snack cakes ²¹	135	egg roll	155	fruit snacks/dried fruit
116	popcorn	136	granola bars	156	onion rings
117	bagels	137	breadsticks/bread/rolls	157	desserts/baked goods
118	soup	138	mashed potatoes	158	chicken fillet
119	fruit	139	hot wings	159	misc. pockets sandwiches
120	tacos	140	tea	160	chicken sandwiches
				161	other

²¹ Snack cakes include: pastry, turnovers, whoopie pies, brownies, cup cakes, little debbies, honey buns, danish sweet buns, rice krispie treats, muffins, and churros.

²² Entree items include: breaded ravioli, turkey and stuffing, chicken gravy & biscuits, veg. pasta, fried chicken, breaded chicken, tenderloin, spaghetti, chicken fried steak, chili, chimichanga, and pickled sausage.

²³ Snack crackers include: goldfish, cheese and crackers, graham crackers, teddy grahams, and crackers w/peanut butter.

Sources: School Food Purchase Study, 1998.

APPENDIX E

**Table E-1: Top Fifty Foods Purchased by Public Unified NSLP School Districts
in SY 1996/97, by Assigned Product Category**

Food code	Food description	Product category
100157	Fish, nuggets/patties, breaded	Frozen foods
140351	Beef, patties cooked	Frozen foods
144154	Beef, breaded patties/nuggets	Frozen foods
152157	Chicken, patties, white meat	Frozen foods
152256	Chicken, patties, white/dark mix unknown	Frozen foods
153155	Chicken, nuggets, white meat	Frozen foods
153254	Chicken, nuggets, white/dark mix unknown	Frozen foods
200015	Apples, fresh	Fresh produce
200279	Apple juice, individual	Canned/staples
233015	Oranges, fresh	Fresh produce
233171	Orange juice, individual	Canned/staples
234228	Peaches, canned, light syrup	Canned/staples
260034	Fruit juice, bars, frozen	Frozen foods
260274	Fruit drinks, individual	Canned/staples
261222	Mixed fruit, canned, light syrup	Canned/staples
340018	Lettuce, heads	Fresh produce
370139	Potatoes, formed, frozen	Frozen foods
370535	Potatoes, french fries/wedges, frozen	Frozen foods
370659	Chips, potato or potato sticks	Snack items
378017	Tomatoes, fresh	Fresh produce
378470	Catsup, individual pack	Canned/staples
410654	Chips, tortilla/corn	Snack items
455559	Cookie dough	Snack items
458053	Bread, white	Bread
457258	Biscuits and rolls	Bread
457357	Hamburger and hot dog buns/steak and sub roll	Bread
457753	Donuts/churros/honey bun/cinnamon rolls	Snack items
458074	Cookies individual	Snack items
458272	Cakes/brownies, prepared, individual pack	Snack items
459477	Cereals, individual	Canned/staples
500059	Milk, whole	Dairy
500257	Milk, 1% fat	Dairy
500455	Milk, 2% fat	Dairy
500554	Milk, fat solids unknown	Dairy
500752	Milk, flavored, whole	Dairy
500851	Milk, flavored, 1% fat	Dairy
500959	Milk, flavored, 1% fat	Dairy
501255	Milk, flavored, fat solids unknown	Dairy
501354	Milk, flavored, skim/nonfat	Dairy
503152	Ice cream/ice milk novelties	Ice cream
508056	Cheese, American/processed	Canned/staples
601352	Sodas, carbonated	Snack items
900654	Meat filled pastry (includes hot pockets)	Frozen foods
903054	Pizza, w/real cheese	Frozen foods
903153	Pizza, cheese blend	Frozen foods
903351	Pizza, sausage w/cheese blend	Frozen foods
903459	Pizza, cheese, type unknown	Frozen foods
904151	Pizza, pepperoni w/real cheese	Frozen foods
904259	Pizza, pepperoni w/cheese blend	Frozen foods
904855	Pizza, pepperoni, cheese unknown	Frozen foods

Source: School Food Purchase Study, 1996.