

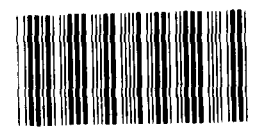
GAO

Report to Congressional Requesters

June 1987

SCHOOL LUNCH PROGRAM

Evaluation of Alternatives to Commodity Donations



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**Resources, Community, and
Economic Development Division
B-222207**

June 11, 1987

The Honorable William F. Goodling
House of Representatives

The Honorable William D. Ford
House of Representatives

The Honorable James A. McClure
United States Senate

As requested in your March 10, April 16, and August 4, 1986, letters, we examined the U.S. Department of Agriculture's (USDA) demonstration project, which tested the distribution of cash payments and commodity letters of credit (CLOC), in lieu of donated USDA commodities (foods), at selected school districts participating in the National School Lunch Program (NSLP). The CLOC system provides school districts with letters of credit equivalent to the USDA-assigned value of the donated commodities to which they are entitled. The NSLP provides school children nationwide with foods to safeguard their health while promoting the consumption of domestic foods. In subsequent discussions with your offices, we specifically agreed to determine the (1) appropriateness of the project methodology employed, (2) reliability of data supporting the project's findings, and (3) cost-effectiveness of implementing procedures.

The final evaluation report of the project demonstration compared the cash, CLOC, and commodity systems in various areas, such as operating costs, student participation, and the nutritional value of a school lunch. The report indicates that, generally, there were no or minor differences in these areas, regardless of the system of participation. However, our review showed limitations and weaknesses, some beyond USDA's control, in the demonstration project's methodology that significantly reduce the statistical validity and usefulness of the USDA data. While USDA maintains that, despite these limitations, it can generalize the results of the demonstration project, we believe that any generalization should be used with caution because the project's sample size was small and not randomly selected, and its design was flawed in other ways.

Further, USDA's decision to distribute commodities to the cash and CLOC participants made 1 year of the project's data unusable. The mixing of commodities with cash and CLOC resulted in data that could not provide clear answers about the effects of an all cash or all CLOC system. As a

result, the data from this school year were not a part of either evaluation report, and the project was extended an additional year.

Congressional Authority

The NSLP was authorized by the National School Lunch Act (1946), as amended (42 U.S.C. 1751 et seq.). School districts participating in the program receive two forms of federal support: (1) cash subsidies and (2) donated agricultural commodities from USDA purchased under price support and surplus removal legislation. During fiscal year 1985, participating schools served 3.9 billion meals to over 23 million schoolchildren, and they received federal cash support of \$2.2 billion and donated commodities valued at \$796 million. These donated commodities, purchased and distributed by USDA, were replaced by cash and CLOC for demonstration purposes. The demonstration's participants continued to receive the usual cash payments given under the NSLP.

In December 1980, the Congress enacted the Agriculture, Rural Development, and Related Agencies Appropriations Act for Fiscal Year 1981 (Public Law 96-528), which required USDA to implement a 3-year demonstration project to test the feasibility of replacing donated commodities with cash payments and CLOC. (For this report, we refer to the three systems tested during the demonstration as the cash, CLOC, and commodity systems.) The project was intended to provide the Congress and USDA with a year-to-year comparison of experiences at school districts testing an all cash payment or all CLOC system with school districts using the commodity donation system. During the project, USDA gave participating school districts cash payments and CLOC in amounts equal to the value, but in lieu, of donated commodities. The demonstration began with the 1981-82 school year, which was used to provide baseline data. In November 1983, the Congress extended the project and related evaluation an additional year, through the 1984-85 school year (Public Law 98-151). The demonstration project's total cost was \$26.7 million, about half of which would have been incurred under NSLP's usual donated commodity system.

Limitations of USDA Evaluations

USDA reported the results of its demonstration project in two reports, Evaluation of Alternatives to Commodity Donation in the National School Lunch Program, in March 1985 and May 1986. These reports contain data and information in seven areas of interest related to the demonstration: food acquisitions, nutritional implications, agriculture markets, program operating costs, student participation, administrative

feasibility, and consequences for other recipients of donated commodities. The reports indicated that generally there were no or minor differences found in the ways that the three systems affected the seven areas. USDA used the results generated by the demonstration project to draw conclusions about what would happen if the cash, CLOC, or commodity system was implemented nationally.

In reviewing USDA's methodology and supporting data for the demonstration, we found a number of limitations and weaknesses that significantly reduce the statistical validity and usefulness of the study results. Some of these limitations and weaknesses were inherent in the project and, we believe, could not have been eliminated by USDA; however, some of them could have been minimized had USDA taken the appropriate action.

First, the methodology used to select school districts to participate in the demonstration project limits the validity of the study results and does not provide for highly confident statistical generalizations. The sample size was legislatively set, requiring 60 cash and CLOC school districts, and the legislative history made it clear that USDA was to include additional school districts under the usual commodity system for comparison purposes. The actual sample totaled 96 school districts from 29 states. This sample size is small in relation to the 15,000 school districts nationwide. In addition, in selecting school districts to participate in the demonstration, USDA used a judgmental selection process, in lieu of a random process, for 27 of the 96 school districts. For example, of the 27 school districts, 20 were chosen from a group of volunteers and the other 7 either were allowed to choose the system they wanted to participate under or were purposely chosen by USDA to participate under a specified system. Selecting school districts in this manner does not constitute a random process. Thus, the judgmental selection process potentially reduces the validity of the study results.

Second, in the May 1986 evaluation report, USDA stated that the operating costs under the cash, CLOC, and commodity systems were essentially the same. Our review of the cost data, however, indicates that USDA may have overstated two major operating cost components—labor and storage—for cash and CLOC participants. USDA displayed storage cost under the heading of transportation and storage. The possible overstatement occurred because the cost estimates did not reflect cost reductions that participants could have achieved had they treated the demonstration as if it were a permanent program. The degree to which costs are overstated is unknown.

Furthermore, the 1981 appropriation law required USDA to implement a 3-year test of alternatives—all cash payment and all CLOC—to donated commodities in the NSLP. In January 1983, the middle of the 1982-83 school year, USDA distributed donated commodities to the all cash and all CLOC participating school districts. This donated commodity distribution made the resulting data unusable for evaluation purposes and caused an extension of the project by 1 year, the 1984-85 school year, at a cost of \$10.5 million. About half of this cost, however, would have been incurred under NSLP's usual donated commodity system in the absence of a demonstration project.

Conclusions

While the demonstration project's results tend to indicate that there are no overall discernible differences between the cash, CLOC, and commodity systems, we believe the limitations and weaknesses we identified in the methodology of this demonstration project reduce the statistical validity and usefulness of the project's data and results. USDA maintains that it can generalize the results of the demonstration project nationwide. We believe that such generalization cannot be made with high confidence based on the demonstration results and, therefore, the results should be used with caution.

Agency Comments

USDA pointed out the limitations imposed by the Congress and the difficulties experienced in meeting the study design criteria. Throughout our report we have recognized the limitations imposed upon USDA.

USDA took issue with our conclusions that the sample size and the method of sampling used reduced the validity of the study results and decreased the ability to generalize nationwide with a high degree of confidence. USDA stated that its sample resembled the national population of school districts and was large enough to detect differences in various important study features, such as the cost of a school lunch. We maintain that a larger sample of school districts than USDA used for the study could have disclosed greater variation in costs and other factors among the districts, which might have affected the study's conclusions.

USDA stated that little evidence exists to suggest that any bias was introduced as a result of including 20 volunteer school districts. We maintain that the inclusion of 20 volunteer school districts in the sample does potentially introduce bias. These volunteers were not randomly selected, and therefore, they may not be representative of the 15,000 school districts nationwide.

USDA also disagreed that it had overstated the labor and storage costs for the cash and CLOC school district participants in its final report. USDA did not comment on our discussion of the transportation costs. USDA reported storage and transportation costs under one category. We believe that because USDA knew from interviews with cash and CLOC school districts that labor and storage costs could be less, it should have estimated these costs by designing an approach that would have enabled it to more accurately display these costs in its report.

For a detailed discussion of USDA's comments and our responses, see appendix II.

In conducting our work, we reviewed the methodology used to implement the demonstration project to determine if it met acceptable evaluation principles. We also reviewed the evaluations' implementation procedures and the supporting data for the reports' findings. We interviewed and obtained relevant documents from USDA's Food and Nutrition Service officials in Alexandria, Virginia, and its major project and evaluation contractors, Abt Associates, Incorporated, in Cambridge, Massachusetts, and Virginia Polytechnic Institute and State University in Reston, Virginia. We also spoke with responsible school officials from 16 of the participating school districts to learn their experiences with the project and their opinions of the project evaluations.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 2 days after its issue date. At that time, we will send copies of this report to appropriate House and Senate Committees; the Secretary of Agriculture; and the Director, Office of Management and Budget. Copies will also be made available to other interested parties upon request.

Major contributors to this report are listed in appendix VI.



Brian P. Crowley
Senior Associate Director

Contents

Letter		1
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Appendix I		8
Concerns About the	Concerns About Effectiveness of Commodity Donation	9
National School Lunch	System	
Program Led to	Demonstration Project to Study Alternatives to	10
Demonstration Project	Commodity Donation	
	USDA Conclusions	12
	Objectives, Scope, and Methodology	13
<hr/>		
Appendix II		15
Validity of Project	Method Used to Select School Districts Affects	15
Results Are Limited	Generalization and Validity of Study Results	
and Should Be Used	Method Used to Estimate Operating Costs May Have	19
With Caution	Caused Overstatement of Labor and Transportation	
	and Storage Cost Estimates	
	Conclusions	22
	Agency Comments and Our Evaluation	23
<hr/>		
Appendix III		27
Distribution of		
Commodities Caused		
Unusable Data and		
Additional Costs		
<hr/>		
Appendix IV		29
School Districts Whose		
Representatives Met		
With GAO		
<hr/>		
Appendix V		30
Comments From the	GAO Comments	33
Department of		
Agriculture		

Appendix VI		34
Major Contributors to This Report	Resources, Community, and Economic Development Division, Washington, D.C.	34
Table	Table I.1: Comparison of School Lunch Cost Components by System	12
Figure	Figure I.1: The Seven Service Regions With Participating School Districts	11

Abbreviations

CED	Community, and Economic Development Division
CLOC	commodity letters of credit
FNS	Food and Nutrition Service,
GAO	General Accounting Office
NSLP	National School Lunch Program
PAD	Program Analyst Division
RCED	Resources, Community, and Economic Development Division
USDA	U.S. Department of Agriculture
VPI	Virginia Polytechnic Institute and State University

Concerns About the National School Lunch Program Led to Demonstration Project

In the early 1930's, the U.S. Department of Agriculture (USDA) began accumulating large quantities of basic agricultural commodities in an effort to support commodity prices. To dispose of those commodities, USDA established the Commodity Donation Program, which had the dual objective of farm price and income support and food assistance to low-income groups. USDA donated some of the surplus food to schools to provide free or reduced priced lunches to needy children. This practice contributed to the nutritional well-being of needy children while benefiting the nation's farmers.

After World War II, the nation's agricultural production expanded while exports of agricultural commodities decreased, resulting in additional surplus commodities. Consequently, the Congress enacted the National School Lunch Act (1946), as amended (42 U.S.C. 1751 et seq.), which established the National School Lunch Program (NSLP), to safeguard the health and well-being of the nation's children and to encourage the domestic consumption of nutritious agricultural commodities. To meet the program's dual objectives, USDA, which administers the program, encourages the implementation of food service programs in elementary and secondary schools and, since fiscal year 1977, in residential child care institutions.

Currently, the NSLP is the largest of several federally funded child-feeding programs. The program provides two forms of assistance to schools: cash payments at a fixed rate based on actual meals served, and donated commodities purchased by USDA under price support and surplus removal legislation.¹ During fiscal year 1985, school districts participating in the NSLP served 3.9 billion meals to over 23 million children and received federal cash support of \$2.2 billion and donated commodities valued at \$796 million. The program operates in the 50 states, the District of Columbia, Puerto Rico, Guam, the U.S. Virgin Islands, and American Samoa.

¹There are two types of donated commodities—entitlements and bonuses—that USDA provides to schools. Entitlement commodities are donated foods for each reimbursable school meal served and generally consist of fruits, vegetables, red meat, chicken, turkey, and fish. Bonus commodities, which are subject to availability and can be requested by schools in amounts up to what can be used without waste, include dairy products such as cheese, dry milk, and butter.

Concerns About Effectiveness of Commodity Donation System

Over the last decade, there has been intense debate among farmers, food processors and distributors, and school food authorities about the effectiveness of the current federal commodity donation system in the NSLP. Advocates of the commodity donation system believe that it provides children with a wholesome and nutritious meal at less cost than locally purchased foods, and that it supports the American farmer by responding effectively to the wide swings in production characteristic of many segments of the farm economy. Critics of the commodity donation system believe that (1) the expense incurred by school districts to transport, store, and process commodities into usable products causes the cost of donated foods to be higher than locally bought food; (2) some donated foods are difficult to use because they are received in a form too large for immediate use (bulk form) and must be broken down by school district personnel into smaller quantities that can be more readily used; (3) uncertainty over delivery dates and bunching of deliveries overloads local schools' storage capacity, increases costs, and makes menu planning difficult; and (4) serving donated commodities lowers student participation and increases waste in the program because students do not always like the kinds of foods USDA donates.

These differing views on the effectiveness and efficiency of USDA-donated commodities has led to consideration of two alternatives to providing donated commodities: cash payments and commodity letters of credit (CLOC). A cash payment system would provide schools with the cash equivalent of the USDA-assigned value of the donated commodities to which they are entitled. Under this system, schools would use the cash to purchase food for use in the NSLP, but the schools would determine what foods to buy. A CLOC system provides schools with letters of credit equivalent to the USDA-assigned value of the donated commodities to which they are entitled. The letters of credit must be spent on the same domestically produced commodities that are donated by the USDA under the Commodity Donation Program. The letters of credit can be used to purchase the commodity locally, in a form best suited to the school's needs.

Several studies were conducted during the past decade to evaluate the most effective way to provide assistance to schools participating in the NSLP.² However, these studies do not provide conclusive evidence to

²Costs of Foods Purchased by USDA and Local School Systems, 1973-74, USDA Economics Research Service (Washington, D.C.: 1975). The National School Lunch Program—Is It Working? (PAD-77-6, July 26, 1977); A Study of Cash in Lieu of Commodities in School Food Service Programs, USDA, Food and Nutrition Service (Washington, D.C.: January 1980); More Can Be Done to Improve the Department of Agriculture's Commodity Donation Program. (GAO/CED-81-83, July 9, 1981). Erickson, D.B., Cost of producing school lunches using USDA-donated commodities vs. cash in lieu of commodities, School Food Service Research Review, 1982, 6(1), 26-31; Special Blue Ribbon Study Committee on the USDA Food Distribution Program, January 1982.

show that one system—donated commodities, cash, or CLOC—was superior to the others in terms of effectiveness and efficiency.

Demonstration Project to Study Alternatives to Commodity Donation

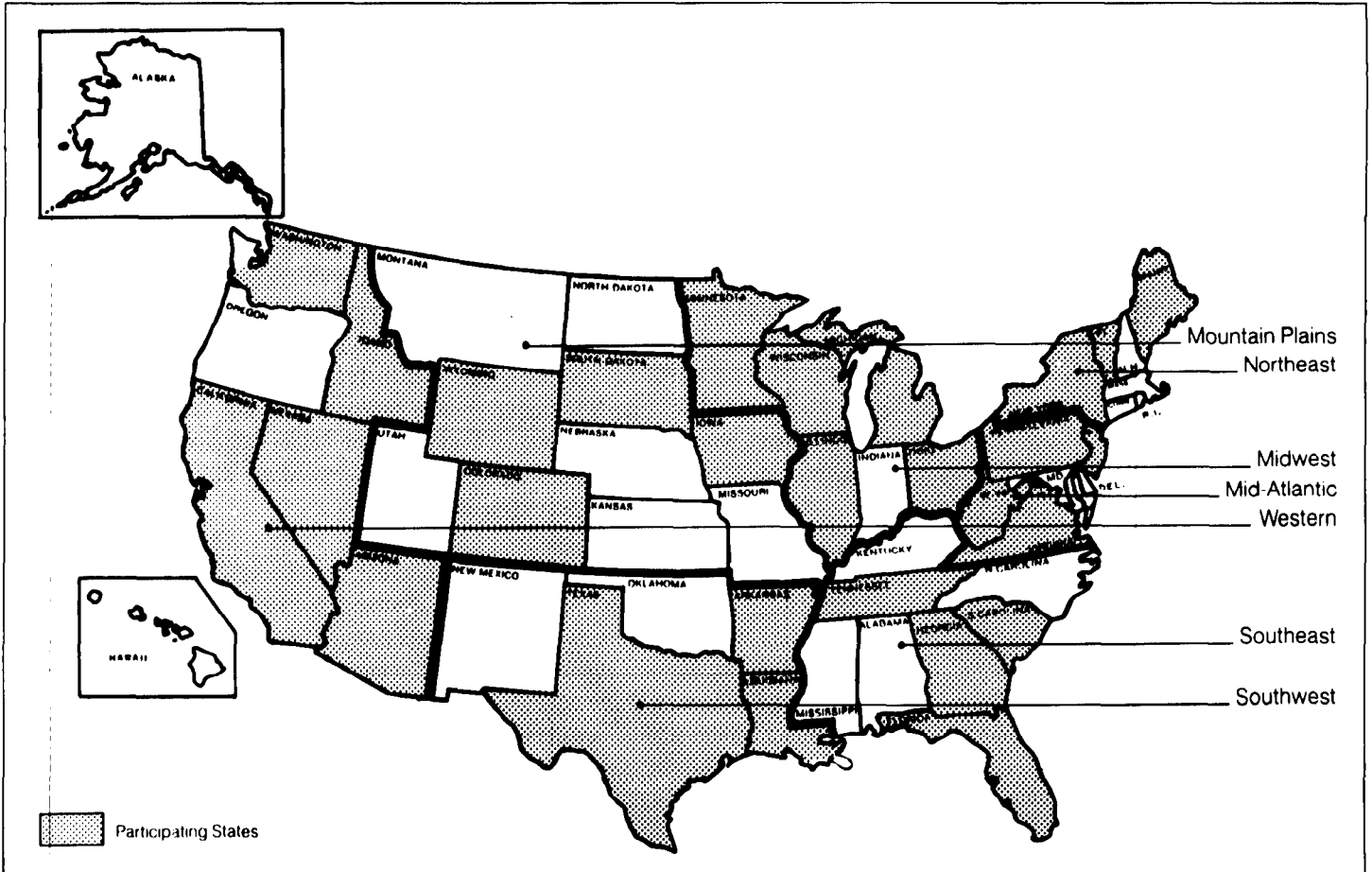
To determine whether a change was needed to the donated commodity system, the Congress in December 1980 included in the 1981 Agriculture, Rural Development, and Related Agencies Appropriations Act (Public Law 96-528) a provision authorizing a 3-year demonstration project to study the possible use of cash payments and CLOC rather than donated commodities. In November 1983, the Congress enacted the Further Continuing Appropriations Act for Fiscal Year 1984 (Public Law 98-151) to extend the project and related evaluation an additional year. The demonstration project for evaluation purposes began with the 1981-82 school year and ended at the conclusion of the 1984-85 school year. The 1981-82 school year provided baseline data for comparison with the results of the other test years.

USDA's Food and Nutrition Service (Service) had overall responsibility for managing the demonstration project and for producing the congressionally required evaluation reports. The Service contracted with the Virginia Polytechnic Institute and State University (VPI) in Reston, Virginia, to gather food acquisition data from all project participants and distribute CLOC subsidies to participating school districts. The Service also contracted with Abt Associates, in Cambridge, Massachusetts, to perform the evaluations and analyses of the school districts' experiences during the demonstration periods and prepare the evaluation reports.

The demonstration project involved 96 school districts in 29 states and included over 1,400 schools serving 825,000 children, or two percent of the country's schoolchildren. Figure I.1 indicates the states, by Service region, that contained school districts participating in the project. About two-thirds of the 96 school districts were assigned either to the cash payment or CLOC systems. The remaining one-third of the school districts continued to receive donated commodities under the conventional system to serve as a comparison group. The demonstration project's total cost was about \$26.7 million, about half of which cost would have been incurred under the NSLP's usual donated commodity system.

**Appendix I
Concerns About the National School Lunch
Program Led to Demonstration Project**

Figure I.1: The Seven Service Regions With Participating School Districts



The demonstration project evaluated the impacts of the three systems in seven areas: food acquisitions, nutritional implications, agriculture markets, program operating costs, student participation, administrative feasibility, and consequences for other recipients of donated commodities. More specifically, the project evaluated the effects of the three systems on the

- extent to which the cash and CLOC systems result in changes in the composition and/or quantity of food acquired by school districts;
- benefits accruing to farmers from the Commodity Donation Program and changes that might occur under the cash and CLOC systems;
- effects of the cash and CLOC systems on the cost of operating school lunch programs at the federal, state, and local levels;

- effects of the cash and CLOC systems on students, including changes in the nutritional content of the foods available for use in school feeding programs, and changes in level of student participation in the NSLP; and
- feasibility of administering and monitoring the cash and CLOC systems on a national basis, including the potential cost increases to other programs currently eligible to receive commodities (e.g. the Commodity Supplemental Feeding Program and charitable institutions).

USDA issued two summary evaluation reports on the demonstration project. The first report, issued in March 1985, evaluated the project results for the 1983-84 school year. The second report, issued in May 1986, evaluated the project results for the 1984-85 school year (as well as the results for the 1983-84 school year.) Data from the 1981-82 school year provided baseline data for comparison purposes. Data from the 1982-83 school year were not included in the 1985 or 1986 evaluation reports because USDA officials considered this school year a "start-up year" and thus not a typical year. (See app. III.)

USDA Conclusions

The evaluation reports indicate that, generally, there were no discernible statistical differences between the cash, CLOC, and commodity systems in four of seven areas of interest—program operating costs, food acquisitions, agriculture markets, and student participation. In the remaining three areas—nutritional implications, administrative feasibility, and consequences for other recipients of donated commodities—the evaluation reports discuss potential impacts that could occur. However, these impacts are minor and based primarily upon empirical information or observations, not statistical data or information obtained from the project participants.

Of the four areas of interest where no discernible statistical differences were found, minor differences did occur within certain components of the operating costs and food acquisitions areas. Table I.1 shows the major cost components of a school lunch by type of system.

Table I.1: Comparison of School Lunch Cost Components by System

Type of operating cost	Type of System		
	Commodity	Cash	CLOC
Labor	\$.540	\$.540	\$.540
Transportation/ storage	.030	.013	.015
Miscellaneous	.090	.090	.090
Food acquisitions ^a	.710	.690	.690

^aFood is expressed in terms of market value rather than estimated cost.

As table I.1 indicates, the transportation and storage costs, which are a portion of overall operating costs, were found to be over \$.01 per lunch greater for commodity than for cash and CLOC systems. In addition, it also shows the market value of food acquired under the conventional commodity donation system is about \$.02 higher per lunch than under the cash and CLOC systems. The USDA study found these cost differences to be statistically significant. However, when total costs were analyzed, USDA could not discern any statistically significant difference between the commodity, the cash, and CLOC systems.

The evaluation reports also indicate that replacing donated commodities with cash and CLOC in the NSLP would not greatly affect the nation's agricultural markets. The reports note that "for most agricultural commodities total school lunch demand is small in relation to total production, on average less than one percent."

Objectives, Scope, and Methodology

In a March 10, 1986, letter, Congressman William F. Goodling, asked us to examine the USDA's March 1985 evaluation report addressing the use of alternatives to commodities in the NSLP. Subsequently, in letters dated April 16 and August 4, 1986, Congressman William D. Ford and Senator James A. McClure, respectively, requested that they be associated with Congressman Goodling's request. In discussions with the requesters' offices, we agreed to examine the (1) appropriateness of the project methodology employed, (2) reliability of the data supporting findings contained in the project evaluations, and (3) effectiveness of implementing procedures. In addition, we agreed to examine the USDA's 1986 evaluation report, as well as the 1985 report, and to indicate how much confidence can be placed in both reports as informational tools for deciding which system to use in the NSLP.

We interviewed and obtained relevant documents from USDA's Food and Nutrition Service officials in Alexandria, Virginia, and its major project and evaluation contractors, Abt Associates, Incorporated, in Cambridge, Massachusetts, and VPI in Reston, Virginia. We met with school food authorities from 16 school districts while they were in Washington, D.C., for hearings concerning possible alternatives to the donated commodities in the NSLP. These 16 school districts officials, whose districts were in the demonstration project, discussed with us their project experiences and views on the use of cash and CLOC. (See app. IV for a list of their school districts.) We also reviewed pertinent laws, regulations, policies, and procedures applicable to the USDA's implementation of the demonstration project.

To determine the appropriateness of the methodology and approaches used in the demonstration project, we reviewed the method of selecting participating school districts and analyzed and compared it with widely accepted study design principles. From this information, we determined whether the sampling procedures used to select participating schools ensured that schools were selected in accordance with accepted statistical principles that define a random selection process and in sufficient number to permit USDA to project or generalize the evaluation results nationwide with a high degree of confidence.

To determine the adequacy of supporting data for the evaluation reports' findings and the effectiveness of USDA implementation procedures, we held discussions with and obtained documents from officials of USDA, Abt Associates, VPI, and the 16 participating school districts. Specifically, we analyzed the distribution of cash payments, CLOC, and donated commodities for the school years 1981-82 through 1984-85 to determine the procedures used to provide benefits to the participating schools during the demonstration. From our analysis, we determined the adequacy of supporting data for the evaluation findings. In addition, we determined the effectiveness of the procedures used by USDA to produce useful data over the life of the demonstration.

Our work was performed between March 16, 1986, and January 31, 1987, in accordance with recognized government audit standards.

Validity of Project Results Are Limited and Should Be Used With Caution

While the demonstration project's results tend to indicate that there are no discernible differences between the cash, CLOC, and commodity systems overall, limitations and weaknesses in the demonstration's sample size and selection significantly reduce the statistical validity and usefulness of these results. The size of the school district sample and the sample selection method do not allow for generalizing the study results nationwide with a high degree of confidence. In addition, the method USDA used to estimate operating costs may have resulted in overstating labor, transportation, and storage cost estimates. In light of these limitations and weaknesses, of which some were inherent in the project and others could have been minimized, we believe USDA's generalization should be used with caution because the project's sample size was small and not randomly selected and its design was flawed in other ways.

Method Used to Select School Districts Affects Generalization and Validity of Study Results

The methodology used to sample school districts to participate in the demonstration does not provide for highly confident statistical generalizations and limits the validity of the study results. The sample size was legislatively set, requiring 60 cash and CLOC school districts, and the legislative history made it clear that USDA was to include an additional 30 school districts to participate under the usual commodity system for comparison purposes. This sample size is, however, small in relation to the 15,000 school districts nationwide. In addition, in selecting school districts to participate in the demonstration, USDA used a judgmental process, in lieu of a random selection process, for 27 of the 96 school districts. A judgmental selection process means that USDA decided to select participants using a process other than a random process. Thus, the small sample size precludes generalizing the study results nationwide with a high degree of confidence and the judgmental selection process reduces the validity of the study results.

Sample Size Limits Generalizing Study Results

The 1981 appropriation law specified that USDA was to include 60 cash and CLOC school districts in the demonstration project. In addition, the legislative history made it clear that USDA was to have 30 school districts under the commodity system for comparison purposes.

USDA's sample consisted of a total of 96 school districts. These districts were divided into three groups—33 school districts designated to operate under the cash system, 31 under the CLOC system, and 32 under the conventional commodity system. This sample size is relatively small (0.6 percent) in relation to the 15,000 school districts nationwide. Consequently, the small sample size impacts the degree of confidence that can

be placed on any conclusions or generalizations made nationwide from the study results.

USDA recognized that the small sample size would have an impact on the projectability of the study results statewide. In the 1986 evaluation report, it said that

"having only one or two [school districts] receiving cash or letters of credit in each state does not allow conclusions to be drawn about the effectiveness of those systems statewide; to do that for a given state would require a larger number of [school districts] in each of the three systems within that state."

However, USDA used the results generated by the demonstration project to draw conclusions about what would happen if a cash, CLOC, or commodity system was implemented nationally. In the 1986 evaluation report, USDA stated that

"a sample of only a few [school districts] per state does allow conclusions to be drawn at the national level by averaging across all states."

We believe that USDA's sample of 96 does not constitute the statistically valid sample that would be needed to draw conclusions or make generalizations with a high degree of confidence. To provide highly confident, statistically valid results, the number of participating school districts in the demonstration would need to include 700 to 1,200 school districts. A sample size in this range would detect nearly all the differences that may exist between systems. For example, this sample size would provide a greater variety of school lunch costs than would be provided by a sample of 96. In addition, the results of a larger sample could provide an estimated maximum sampling error range of about 3.8 percent at the 95 percent confidence level.

We recognize that USDA had little control over determining the sample size of the demonstration project. The sample size was restricted by the Congress, and increasing the sample to include 700 to 1,200 school districts was not feasible because of resource constraints. Consequently, we are not advocating that USDA should have included a larger number of school districts in its sample. We are pointing out, however, that on the basis of this demonstration's sample size, national conclusions or generalizations cannot be made with a high degree of confidence.

Sample Selection
Methodology Limits
Validity of Study Results

USDA was instructed, through the conference report to the 1981 appropriation law, to select sample school districts by a stratified random selection process. Stratified random samples are developed by dividing the universe into two or more groups or strata. From each stratum, a random sample is selected. To be random, a selection is made in such a way that every possible school district that could be selected has the same probability of being selected. Each group is then weighted in relation to the percentage it comprises of the total universe. The results of a stratified random sample can then be projected to the universe.

The methodology USDA used to select the 96 school districts to participate in the demonstration project was not in full compliance with accepted random selection principles. USDA developed the sample by first selecting 29 states, with at least 3 states within each of the Service's 7 regions. The states were also selected because they exhibited diversity with respect to access to national agricultural markets, within-state sophistication of transportation and distribution systems, and prominence of agriculture as a major within-state industry.

Next, in a June 9, 1981, Federal Register notice, USDA asked school districts nationwide to volunteer to participate in the demonstration. From this notice, 194 school districts volunteered. Another 174 school districts were identified by USDA for possible selection because they were located within the 29 states and had certain common characteristics, such as size, poverty level of the area served by the school district, and child participation rate. From these two groups of school districts, 368 in all, USDA began contacting school districts within each of the 29 states to obtain agreements to participate in the project. During this process, 124 school districts declined to participate for a variety of reasons, including not wanting to operate under the system designated by USDA, or believing there would be too much of a paperwork burden.

Ultimately, USDA obtained agreements from 87 school districts. Twenty of these school districts were selected from the volunteer group. Another seven of these school districts either were allowed to choose the system under which they wanted to participate or were assigned to a specific system by USDA to ensure that each state had at least one school district participating under each of the three systems. An additional 9 school districts were chosen from a group of large school districts (more than 25,000 children) in the 29 states. These 9 large school districts,

plus the 87 that agreed to participate, brought the total number of school districts to 96.¹

The judgmental method used to select 27 school districts potentially introduces bias into the study results that reduces the validity of the overall demonstration results. (Bias, as used in this report, means a concern that participants may not adequately resemble the larger population.) Specifically, the selection of the 20 school districts that volunteered for the demonstration potentially biases the sample because these volunteers were not randomly selected and therefore may not be representative of school districts nationwide. Further, USDA potentially biased the sample either by allowing seven school districts to choose the system under which they wanted to participate or by specifying that a school district would have to participate under a specific system. For example, the Hampshire County Schools (District) in West Virginia were initially selected to participate under the cash system but insisted on participating under the commodity system. USDA agreed to this preference and consequently reassigned the Pendleton County School District in West Virginia from its originally assigned commodity system to the CLOC system so that all three systems were included in West Virginia. USDA made similar switches in other states to ensure that each of the 29 states in the demonstration had at least 3 school districts participating within each state and that the 3 school districts were participating under 1 of the 3 systems being tested.

USDA reported that it was not possible to require school districts to take part in the demonstration. Therefore, it had to allow some school districts the opportunity to switch systems. However, because 124 school districts declined to participate and 7 were allowed to switch their system of participation or were purposely selected by USDA to participate under a specific system, the evaluation reports recognize the possibility that selection bias was introduced into the sample.

Although it was not recognized in the evaluation reports, we believe that the 20 school districts that were selected from the volunteer group also introduce potential bias into the demonstration results. In the evaluation

¹The 1986 evaluation report notes that the initial sample of 96 school districts is greater than the sample that was actually used in the analysis presented in the evaluation reports. This is because one school district dropped out of the study during the 1981-82 school year, citing overly complex reporting requirements for the evaluation as the reason, and two others dropped out at the end of the 1983-84 school year. One of these was dropping the school lunch program altogether, and the other was simply not interested in continuing in the study. A few other school districts were dropped from selected analyses because of data problems, so that the sample size for the analyses in the evaluation report for 1986 is about 90.

report, USDA states that little bias was introduced into the study because some invited school districts declined to participate and that the potential for some bias would be small for the school districts that were allowed to switch their originally designated system. The report, however, does not address the potential bias that the 20 volunteer school districts could also introduce into the study results.

We were unable to determine the magnitude of the bias that this selection process may have created in the study results because sufficient information was not available for such an analysis. However, we believe the potential for bias did exist and could have affected the validity of the study data and results. Consequently, the results of the study should be used with caution.

Method Used to Estimate Operating Costs May Have Caused Overstatement of Labor and Transportation and Storage Cost Estimates

The USDA was required, as part of the 1981 appropriation law, to conduct a study comparing the effectiveness and efficiency of the three systems on the cost of operating a school lunch program. In the final evaluation report, USDA reported that the operating costs under the cash, CLOC, and commodity systems were essentially the same. (See app. I.) Our review of the cost data, however, indicates that USDA may have overstated two major operating cost components—labor and transportation and storage—for cash and CLOC participants. The possible overstatement may have occurred because data necessary to calculate these cost estimates either were not available or, when available, did not reflect cost reductions that participants might have achieved had they treated the demonstration as if it were a permanent program.

Labor Costs May Be Overstated

The 1986 USDA evaluation report states that labor accounts for about \$.54 of the total average cost to prepare a school lunch under all three systems. Labor costs are those costs associated with the handling, preparing, and serving of foods for school lunches. Labor also includes related administrative costs, such as the cost of record-keeping. Abt and USDA officials assumed that labor costs in cash and CLOC districts would be less than labor costs at commodity districts because those sites purchase more prepared and processed foods requiring less labor than donated commodities. This assumption was based on school district officials' views that USDA commodity donations were time-consuming (labor-intensive) because of the form in which the commodities were received—such as whole chickens and turkeys, large wheels of cheese, and bulk ground beef—which required additional handling before use.

To obtain the labor cost, USDA asked school districts to provide their costs of handling, preparing, and serving foods. School districts submitted data, which were checked and found quite reliable. The data from cash and CLOC school districts participating in the demonstration indicated there were no discernible differences in labor cost compared to the labor cost of school districts receiving USDA-donated commodities.

To investigate this lack of difference in labor costs, Abt officials contacted school districts participating in the cash and CLOC systems. Cash and CLOC school district officials stated that labor contracts, loyalty to staff, and the potential return to a commodity system all worked to prevent staffing changes during the demonstration. For example, some school district officials indicated that since the study was a "demonstration" and not a permanent program, it would not be cost-effective for them to make substantial modifications to their staff. While the USDA evaluation reports do acknowledge the reluctance of cash and CLOC school districts to change their labor force, no adjustments were made in the evaluation to reflect this condition.

Consequently, for the demonstration, \$.54 was used constantly as the labor cost for cash, CLOC, and commodity school district participants. However, assuming that cash and CLOC school district officials are correct in indicating that the labor cost could be less under these systems, the use of a constant labor cost estimate may not be accurate. While we are unable to state how much reduction the cash and CLOC sites would incur, we believe the labor cost for cash and CLOC sites probably would be less than the estimated cost for commodity sites. As a result, the labor cost figures presented in the evaluation reports for cash and CLOC sites are probably overstated.

Transportation and Storage Costs May Be Overstated

Transportation and storage cost estimates are those costs specifically associated with the movement and storage of USDA-donated commodities and are incurred by both USDA and school districts. For example, when USDA purchases commodities, it usually requires, as part of the purchase price, that the seller of the commodities deliver them to specified points of delivery, such as state distribution centers. Consequently, transportation charges are generally included in the purchase price of the commodities. State distribution centers provide the link between USDA and the 15,000 school districts across the nation.

Once commodities are delivered to a state distribution center or other designated drop point, the transportation cost to get the commodities to

a specific school in the district is generally incurred by the school district. However, some states provide the transportation and thus incur the cost of delivering commodities to school districts. State distribution centers also incur the cost of storing commodities not immediately distributed to school districts. School districts incur the cost of storing commodities they receive and cannot use immediately.

To determine the costs of storage and transportation under the three systems, USDA asked participating school districts to provide data on their transportation and storage costs. However, according to the evaluation reports, only 50 percent of the school districts could give an estimate of their storage costs, and these data were not reliable. Similar data problems occurred for school districts' transportation costs. According to USDA's reports, data problems occurred because

- storage costs were not always charged to and recorded by the school districts;
- schools used an empty classroom or space adjacent to the cafeteria, which was reported as having zero cost; and
- transportation was often provided by vehicles that were used for other transportation activities; transportation cost for these other activities were not broken down by function and recorded separately.

As a result of these data problems, USDA used school districts' inventories to determine the estimated cost of transportation and storage. These inventory data indicated that cash and CLOC sites received and stored fewer USDA-donated commodities compared with the baseline year (1981-82) data, which reduced transportation and storage costs associated with receiving donated commodities. In comparison, the commodity sites' inventories were also reduced, but the reductions resulted in less change to transportation and storage costs than for the cash and CLOC sites. Thus, transportation and storage costs were estimated to be about \$.03 per lunch for school districts participating under the commodity systems and just over \$.01 per lunch for the school districts participating under the cash and CLOC systems.

As reported by USDA, the \$.01 cost estimate for cash and CLOC sites was determined by combining inventory data for the 1983-84 and 1984-85 school years. Because the cash and CLOC sites received commodities during the 1983-84 school year and some of those commodities were still in inventory during the 1984-85 school year, some storage costs were incurred. However, this estimate may reflect costs that cash and CLOC sites would not incur under pure (all cash and all CLOC) systems.

USDA recognizes that the estimated transportation and storage costs for cash and CLOC sites contain costs associated with donated commodities. Specifically, USDA states in its May 1986 report that, in the long run, additional savings for cash and CLOC sites could occur, provided bonus commodities are no longer donated. The report continues, "Under the assumption of no bonus commodity donations, transportation cost would be zero, and storage costs for commodities would eventually drop to zero as these inventories are exhausted." However, USDA did not make adjustments in its estimate to reflect all cash and all CLOC systems, systems that would not incur those costs associated with donated commodities. Therefore, USDA's reported estimated costs for transportation and storage for cash and CLOC sites may be overstated.

Conclusions

Our analysis of the demonstration project indicates that limitations and weaknesses in its methodology significantly reduce the statistical validity and usefulness of the study results. Many of these limitations and weaknesses were inherent in the project and, we believe, could not have been eliminated by USDA. For example, the small sample size in relation to the universe of school districts was legislatively restricted at that level because of resource constraints. The judgmental way that USDA selected some school districts occurred primarily because USDA could not require randomly selected school districts to participate in the demonstration.

Other problems that affected the usefulness and accuracy of the study results, however, could have been minimized had USDA taken the appropriate action. For example, USDA could have provided estimates of labor and storage costs to reflect possible savings that might be achieved, as indicated by school districts. Although we did not attempt to determine the amount of savings, it is reasonable to expect, on the basis of the school districts' responses, that savings may be achieved.

In summary, while the demonstration project's results tend to indicate that there are no overall discernible differences between the cash, CLOC, and commodity systems, we believe the limitations and weaknesses we identified in the methodology of this demonstration project reduce the statistical validity and usefulness of the project's data and results. USDA maintains that it can generalize the results of the demonstration project nationwide. We believe that such generalization cannot be made with a high degree of confidence on the basis of the demonstration's results and, therefore, the results should be used with caution.

Agency Comments and Our Evaluation

In commenting on a draft of this report (see app. V), USDA recognized the limitations imposed by the Congress and the difficulties experienced in meeting the study design criteria. USDA stated that these specifications and constraints made implementing the demonstration difficult. USDA commented that the sample size was limited by the Congress. In addition, while USDA sought to select participating school districts randomly, it selected school districts using a process that is as close to random as can often be accomplished in social experiments. Throughout our report we have recognized the limitations imposed upon USDA.

USDA took issue with our conclusions that its sample size and the method of sampling reduced the validity of its study results and decreased the ability to generalize nationwide with a high degree of confidence, and labor and storage costs displayed in its study were overstated. The following discusses USDA's position on these issues and our responses. USDA's comment that we needed to qualify the total cost of the demonstration project has been incorporated in this report where appropriate.

Sample Size

USDA stated that our conclusion that the sample size was not sufficiently large to provide highly confident, statistically valid results was overstated. USDA stated that its sample size of about 30 school districts in each system—cash, CLOC, and commodity—resembled the national population of school districts. USDA noted in its comments that its sample size allowed for detection of differences that are clearly important. USDA added that the statistical tests used in its analysis have quite high power, which allowed extrapolation of findings to the population of all school districts in the NSLP.

We disagree that USDA can generalize the results of the study to school districts nationwide with a high degree of confidence. The small sample size does not constitute a probability sample, which allows sample results to be generalized nationwide with a high degree of confidence. As we stated earlier, to provide highly confident, statistically valid results, the demonstration would have had to include 700 to 1,200 school districts. A sample size in this range would provide, for example, a greater variety of school lunch costs than did the 96. Thus, this larger sample may result in widely different costs and indicate discernible differences that the 96 did not, as stated in USDA's report. The larger sample could detect nearly all the differences between systems, not just those large differences that USDA believes are clearly important. A sample of 700 to 1,200 school districts, if randomly selected, would also

allow correspondingly high confident generalizations nationwide, a statistical feature that USDA's sample cannot provide. The larger sample would have provided an estimated maximum sampling error range of about 3.8 percent at the 95 percent confidence level.

USDA noted the limitation of its sample by stating that "it is true that the sample is not a national probability sample." We maintain that, on the basis of the sample size of this demonstration, national conclusions or generalizations cannot be made with a high degree of confidence.

Sample Selection

USDA took issue with our assertion that the selection of 20 volunteer school districts in the sample potentially introduced bias that reduced the validity of the study substantially and decreased the ability to make generalizations with a high degree of confidence.

USDA stated that its analysis of the 20 volunteer school districts included in its study indicated that their characteristics are not different from other school districts selected. The volunteer school districts, according to USDA, were randomly assigned a system (cash, CLOC, or commodity) rather than allowed to select the system. Since volunteer school districts participated under all three systems and their characteristics within the systems are similar, USDA stated that little evidence exists to suggest that any bias was introduced as a result of including volunteer school districts in the sample.

The inclusion of 20 volunteer school districts in the study does potentially introduce bias because these volunteers were not randomly selected and therefore may not be representative of the 15,000 school districts nationwide. Volunteers are more willing to participate than randomly selected school districts. USDA noted in its study, and we agree, that bias was already potentially introduced into the study results by seven school districts that were allowed to choose the system under which they wanted to participate or were told by USDA to participate under a specific system. Consequently, we believe the judgmental method used to select 27 school districts potentially introduces bias into the study results that reduces the validity of the overall demonstration results.

USDA also disagreed that bias was potentially introduced into the study by 124 school districts that declined to participate. USDA stated that the demonstration sample did not appear to be biased since very few school

districts declined because they did not want to use the system of participation that was selected for them. USDA contacted 107 of these 124 by telephone; 14 of these 107 said that they declined because of the system selected. USDA stated it is confident that the school districts selected have characteristics similar to the national population of school districts and, therefore, the results from the sample are generalizable to the nation.

We believe that bias was potentially introduced into the study. As noted, 107 of the 124 school districts that declined to participate were contacted. The remaining 17 school districts were not contacted by USDA and, therefore, their reasons for declining were unknown. Of these 107 contacted, 14 stated they declined because of the system selected for them. We believe that 14 of 107 (13 percent) was sufficient to potentially introduce bias into the sample.

Finally, USDA commented that the process used to select the sample was as close to random as can be typically accomplished in field experiences. USDA stated that it had to select volunteer school districts to satisfy a congressional request and allow others to switch from the system initially assigned.

USDA did have difficulty in obtaining school districts to participate in the demonstration. However, USDA did not fully meet the requirements necessary for a random selection. As noted earlier in this report, USDA used a judgmental selection process for 27 of the 96 school districts participating in the demonstration. As a result, the selection process used by USDA was not random, which reduced the validity of the study results and decreased the ability to make generalizations with a high degree of confidence.

Labor and Storage Costs

USDA disagreed with our conclusion that it had overstated labor and storage costs in its final report. USDA noted that where there were indications that effects on certain areas such as labor cost might change under permanent cash or CLOC system implementation, the report speculated on what these long-run effects might be. USDA also commented that no evaluation can adequately anticipate what the effect on costs might be; it would be purely speculative for it to make adjustments to the estimated costs and require assumptions that may not be correct.

USDA's study report acknowledged the difficulty it had in determining labor and storage costs under a demonstration of cash and CLOC systems.

**Appendix II
Validity of Project Results Are Limited and
Should Be Used With Caution**

However, USDA knew, after interviewing cash and CLOC school districts, that their labor cost could be reduced and their storage cost associated with USDA commodities would be eliminated under a permanent cash and CLOC system. With this knowledge, USDA, for study purposes, should have estimated these costs by designing an approach that would have enabled it to more accurately display the labor and storage cost for cash and CLOC participants in its reports. As a result, we maintain that the labor and storage cost displayed in USDA's reports may be overstated.

Distribution of Commodities Caused Unusable Data and Additional Costs

During the implementation phase, USDA's distribution of commodities to the cash and CLOC participating school districts in January 1983 caused the data for the 1982-83 school year to be unusable for evaluation purposes, which in turn caused the Congress to extend the demonstration an additional year.

The 1981 appropriation act required USDA to implement a 3-year test of alternatives—all cash payment and all CLOC—to donated commodities in the NSLP. The demonstration project began during the 1981-82 school year by providing baseline data on the donated commodity system at each participating school district. Actual implementation of the all cash or all CLOC system for selected school districts began in the 1982-83 school year.

Initially, cash payments or letters of credit were given to the participating cash and CLOC school districts for both entitlement and bonus commodities. However, in letters dated January 7, 1983, to the Chairmen of the House and Senate appropriations committees, the Secretary of Agriculture said that the Department planned to change the demonstration methodology by providing bonus commodities to the cash and CLOC school district participants beginning in the middle of the 1982-83 school year (January 1983). The Secretary stated that this change was necessary to save the Department almost \$4.2 million over the balance of the demonstration, as well as to provide additional outlets for the Department's supplies of surplus butter, cheese, and nonfat dry milk. This change made it impossible for USDA to evaluate the data resulting from the demonstration and, thus, the 1982-83 school year is not included in USDA's evaluation reports.

The Abt project director, responsible for evaluating the demonstration results stated, in a January 14, 1983, memorandum to USDA officials that

"It is important to restate that the demonstration and evaluation would be best served if this change did not occur . . . changing the cash and CLOC treatments in the middle of the 1982-83 school year means that the evaluation will be impacted in several ways."

The Abt official continued, "The key impact of the change in how bonuses are handled is to alter the nature of the treatments from what was intended by the Congress." The Abt official concluded, assuming that commodities would be given to cash and CLOC sites for bonuses, "we

will have difficulty providing convincing answers for many of the evaluation questions for pure systems." (Pure systems refers to all cash or an all CLOC system.)

Bonus commodities were distributed to cash and CLOC participating school districts in January 1983 as planned. As a result of mixing bonus commodities with cash and CLOC distributions, the demonstration results for the 1982-83 school year were not evaluated because the resulting data were unusable. In a December 6, 1983, letter to USDA the Abt project director stated,

"There is no doubt that the first year [1982-83] is a problem in terms of providing clear answers about the effects of cash and CLOC, and so we will be better off if we treat it as a start-up year."

The March 1985 and 1986 evaluation reports discuss the 1982-83 school year as a start-up year that provided time for school districts to learn how to implement the cash and CLOC procedures and record and maintain data.

For the 1983-84 school year, bonus commodities were again given to cash and CLOC school districts. The commodity distributions were made because USDA believed, and assured the Congress, it could account for the value of the bonus commodities it distributed to cash and CLOC sites without altering the demonstration any further. USDA states in its May 1986 report that it used a statistical technique that enabled it to account for the bonus commodities given to cash and CLOC system participants. The results of this school year (1983-84) are the basis for USDA's March 1985 report, and the 1983-84 school year is also 1 of the 2 years used as the basis for USDA's 1986 report.

The 1984-85 school year, which was an extension of the demonstration authorized by the Congress in November 1983, was the last year for evaluating the effects of cash and CLOC systems. The Congress authorized this additional year, in part because of the problems experienced during the 1982-83 school year. For the final year, school districts participating under an all cash or all CLOC system were given both entitlements and bonuses in the form of cash or CLOC. Although this additional year increased the demonstration's cost by \$10.5 million, it did provide USDA a year to implement an all cash and all CLOC system. It should be noted, however, about half of this cost would have been incurred under NSLP's usual donated commodity system in the absence of a demonstration project.

School Districts Whose Representatives Met With GAO

State	School District
California	Gilroy Unified School District Huntington Beach City School District
Connecticut	Greenwich Public Schools
Iowa	Parkersburg Community Schools
Louisiana	Caddo Parish School District, Shreveport Iberville Parish School District
Maine	Portland Public Schools
Pennsylvania	Indiana Area School District Lancaster School District
South Carolina	Edgefield County School District Lexington County District #3 Schools
Tennessee	Loudon County School District
Virginia	Fairfax County Public Schools
Washington	Bremerton School District 100-C Shoreline School District, Seattle

Comments From the Department of Agriculture



United States
Department of
Agriculture

Food and
Nutrition
Service

3101 Park Center Drive
Alexandria, VA 22302

Mr. Jerry Killian
Food Assistance Group Director
Resources, Community, and
Economic Development Division
General Accounting Office

Dear Mr. Killian:

Thank you for the opportunity to review and comment on your draft report entitled School Lunch Program: Evaluation of Alternatives to Commodity Donations (GAO/RCED-87-113). The major conclusion of this General Accounting Office (GAO) report is that limitations and weaknesses identified in the demonstration project methodology, specifically the sample size and selection process, reduce the statistical validity and the usefulness of the project's findings. In addition, the GAO report indicates that because of the non-permanent nature of the demonstration the operating costs of two components--labor and transportation/storage--for the cash and Commodity Letter of Credit (CLOC) systems may be overstated. These two issues are addressed separately.

With regard to statistical validity, a well-designed demonstration that is properly conducted will result in adequate experimental validity. Although experimental designs in social science research are seldom perfect, it is through these designs that we seek to attain sufficient control to have confidence in the results within the sample (internal validity) while maintaining enough representativeness and size so that the results can be generalizable to a larger population (external validity).

Congress set forth some basic parameters for selecting the sample by limiting the sample size of the study to 90 school districts (30 in each treatment). In addition, the school districts were to be selected using a "stratified random sample to represent a nationwide variety." However, Congress also specified that school districts were to be allowed to volunteer for participation in the demonstration by responding to a notice in the Federal Register. Given this set of specifications and constraints, the Food and Nutrition Service (FNS) sought to develop a study design that would allow valid comparisons among the three treatment groups and that would allow generalization of the findings of this study to the Nation as a whole. FNS adopted the strategy of selecting 29 States to achieve the broadest possible geographic representation. Within each State the school districts were selected using a process that is as close to random as can often be accomplished in social experiments. The sample selection process is described in detail in Appendix A.

During the baseline year (SY 1981-82) data were collected on over 100 operational characteristics of the school districts participating in the demonstration project. These characteristics included general background

See comment 1.

Mr. Jerry Killian

2

information, meal program characteristics, staffing and productivity, labor utilization, purchasing practices, participation, lunch characteristics, meal prices and food usage. The operational characteristics of the sample were compared with similar characteristics of school districts that participated in the National Evaluation of School Nutrition Programs. In addition, these characteristics were examined for comparability across treatment groups. Analysis of the data allows two important conclusions to be drawn. First, the sample of school districts resembles the national population of school districts participating in the National School Lunch Program (NSLP). This is important in that it allows extrapolation of findings from the sample of school districts to the population of all school districts in the NSLP. Second, the school districts participating in the three alternatives resembled each other with respect to most factors that would be expected to influence the operation of the commodity system or of either the cash or CLOC system. This is important in that it facilitates the control of extraneous variables that might otherwise cloud the interpretation of study results.

GAO's contention that the sample size of this demonstration is not sufficiently large to provide highly confident, statistically valid results is overstated. Given that the primary purpose of this demonstration was to assess the relative effectiveness of the cash, CLOC, and commodity systems on a variety of outcome measures, it was determined that the sample size of about 30 in each group allows for detection of differences that are clearly important. Generally, the statistical tests used in these analyses have quite high power (over 90 percent) to detect effects of about .50 standard deviations. We are confident that the internal validity of this demonstration evaluation is extremely high and that differences observed between the three treatments can be attributable to the treatments themselves.

We also take issue with GAO's assertion that the method of sampling utilized in this study reduces the validity of the study substantially and decreases the ability to make generalizations with a high degree of confidence. While it is true that the sample is not a national probability sample, the process used to select the sample was as close to random as can be typically accomplished in field experiments. In fact, we believe we took extraordinary steps to ensure randomness in selection and assignment. Every school district within each State classification scheme had an equal chance of being selected into the original invited pool of school districts.

To be responsive to the congressional request for inclusion of some volunteers in the sample, the within-State pools of randomly selected school districts were augmented with a small number of volunteers that had sampling characteristics similar to those school districts already in the within-State pool. The random selection of school districts from this expanded pool did not guarantee inclusion of all volunteers into the final sample. While the inclusion of 20 volunteer sites has the potential to introduce some bias into the study results, our analysis indicates that these volunteer school districts are not different from the others selected. If these volunteers were automatically assigned the treatment they requested, then the potential

Appendix V
Comments From the Department
of Agriculture

Mr. Jerry Killian

3

for selection bias would be increased. However, this was not the case since each volunteer site was randomly assigned a treatment. Since these volunteers were found in all three treatment groups and the characteristics of the three treatment groups were similar during the baseline year, there is little to suggest that any bias was introduced.

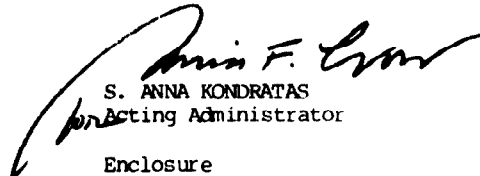
In order to assess the potential for sample bias caused by the fact that several school districts declined to participate in the demonstration, telephone calls were made to representatives of these school districts. Results of this telephone survey indicated that school districts that declined to participate were quite comparable with the demonstration sites. In addition, the demonstration sample does not appear to be biased since very few (14 out of 107) school districts declined for treatment-related reasons. We are confident that the final sample selected provides a wide representation of school districts that have characteristics similar to the national population of school districts participating in the NSLP. It is, therefore, our opinion that the results from this sample are indeed generalizable to the Nation.

The final report stated that because of the non-permanence of the treatments, the effects observed in the evaluation are basically short-run, "demonstration" effects. If there was some indication that effects on certain areas such as labor costs might change under permanent implementation, the report has speculated on what these long-run effects might be. No evaluation can adequately anticipate what the effect on costs might be. Any adjustments, whether for storage or labor savings, would be purely speculative and would require some assumptions as to how a national program would be implemented--assumptions that might not be correct.

It should also be noted that GAO has qualified the cost of the additional year (\$10.5 million) by stating that about half of this cost represented commodity entitlements given to cash and CLOC districts. Had these sites returned to the commodity program these costs would still have been incurred under NSLP's usual donation system. A similar qualification statement should accompany the reported total cost (\$26.7 million) of the demonstrated project. Almost \$14.7 million of this total represented commodity entitlements given to cash and CLOC sites over 3 years, so the net cost was about \$12 million.

Given the constraints imposed on the study design, it is our best judgment that: 1) the treatment effects found in this study are clearly due to the treatments conditions and not extraneous variables, and 2) these results are generalizable to the population of school districts participating in the NSLP.

Sincerely,


S. ANNA KONDRATAS
Acting Administrator
Enclosure

**Appendix V
Comments From the Department
of Agriculture**

The following are GAO's comments on the Department of Agriculture.

GAO Comments

1. The sample selection process flow chart provided by the agency was not legible enough to be reproduced.

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