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Evaluation

Factors Influencing School and Student Participation in the School Breakfast Program



ASERL

FACTORS INFLUENCING SCHOOL AND STUDENT PARTICIPATION
IN THE SCHOOL BREAKFAST PROGRAM 1977-78

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Office of Policy, Planning and Evaluation
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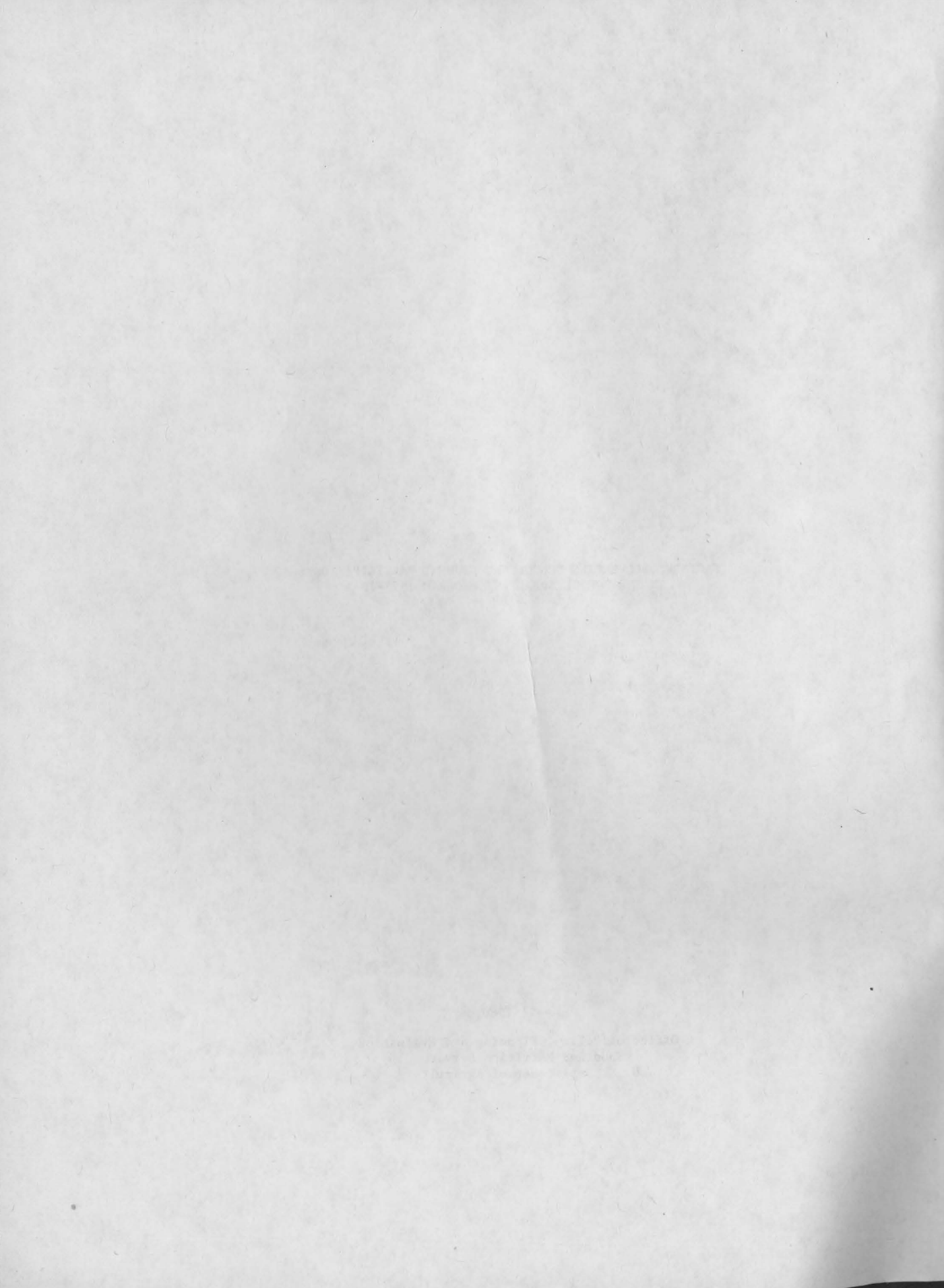


TABLE OF CONTENTS

| | |
|---------------------|---|
| ACKNOWLEDGEMENTS | 1 |
| TABLE OF CONTENTS | 1 |
| LIST OF TABLES | 1 |
| STATISTICAL SUMMARY | 1 |

CHAPTER I

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Many people contributed to the successful completion of this study.

CHAPTER II

- . The principals and school foodservice managers of the 515 schools in the sample responded to the survey and the follow-up contacts of FNS.
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- . Ann Kilroy prepared the tables for the report.
- . Beatrice Rogers and Frances Zorn analyzed the data and authored the report.
- . Frances Zorn was the project director of the study.

CHAPTER III

TABLE OF CONTENTS

| | <u>Page</u> |
|---|-------------|
| ACKNOWLEDGEMENTS | i |
| TABLE OF CONTENTS | iii |
| LIST OF TABLES | v |
| EXECUTIVE SUMMARY | vii |
| CHAPTER I | |
| INTRODUCTION | 1 |
| OBJECTIVES | 1 |
| SAMPLING AND METHODOLOGY | 3 |
| STATISTICAL TREATMENT | 3 |
| CHAPTER II | |
| DESCRIPTION OF SURVEY RESULTS | 5 |
| CHARACTERISTICS OF BREAKFAST AND NON-BREAKFAST SCHOOLS | 5 |
| Grade Level | 5 |
| Economic Need | 5 |
| Public Vs. Private Schools | 5 |
| School Enrollment | 5 |
| Attendance | 8 |
| Facilities | 8 |
| Logistics | 10 |
| Competitive Foodservice | 10 |
| School Breakfast and Other School Feeding Programs | 11 |
| Combined Effects of School Participation in the SBP | 15 |
| STUDENT PARTICIPATION IN THE BREAKFAST AND LUNCH PROGRAMS | 17 |
| Grade Level | 17 |
| Economic Need | 19 |
| Meal Price | 19 |
| School Enrollment | 19 |
| Facilities | 19 |
| Competitive Foodservice | 22 |
| Logistics | 25 |
| Combined Effects of Student Participation in the SBP and the NSLP | 25 |
| Breakfast Participation and Special SBP Program Characteristics | 30 |
| NON-BREAKFAST SCHOOLS | 30 |
| Prior Participation | 30 |
| Reasons for Non-Participation | 30 |
| CHAPTER III | |
| APPENDIXES | 35 |
| SURVEY INSTRUMENT | 35 |
| SELECTED BIBLIOGRAPHY ON THE SCHOOL BREAKFAST PROGRAM | 53 |

LISTS OF TABLES

| | | <u>Page</u> |
|----------|---|-------------|
| Table 1 | Proportion of Meals Served Free and at a Reduced Price in the School Breakfast Program and the National School Lunch Program by Fiscal Year | 2 |
| Table 2 | Percent of Breakfast and Non-Breakfast Schools by Grade Level | 6 |
| Table 3 | Percent of Needy Students in Breakfast and Non-Breakfast Schools. | 6 |
| Table 4 | Average Enrollment of Breakfast and Non-Breakfast Schools. | 7 |
| Table 5 | Average Enrollment by Economic Need in Breakfast and Non-Breakfast Schools. | 7 |
| Table 6 | Average Daily Attendance in Breakfast and Non-Breakfast Schools. | 9 |
| Table 7 | Percent of Students Using Different Methods of Transportation to Breakfast and Non-Breakfast Schools. | 9 |
| Table 8 | Percent of Schools at Each Grade Level Which Have Competing Food Service | 12 |
| Table 9 | Percent of Schools Having Open Campus by Grade Level | 12 |
| Table 10 | Breakdown of Food Programs Offered by Schools. | 13 |
| Table 11 | Percent of Schools Serving the National School Lunch Program by Grade Level | 14 |
| Table 12 | Average Price of Lunch In Breakfast and Non-Breakfast Schools by Grade Level | 16 |
| Table 13 | Parameters of the Regression Model Testing Factors Influencing School Participation in the School Breakfast Program | 16 |
| Table 14 | Average Daily Student Participation in the School Breakfast and National School Lunch Programs | 18 |
| Table 15 | Average Daily NSLP Participation in Breakfast and Non-Breakfast Schools | 18 |
| Table 16 | Average Daily School Breakfast Program Participation in Needy and Non-Needy Schools. | 20 |
| Table 17 | Average Daily National School Lunch Program Participation by Level of Need for Breakfast and Non-Breakfast Schools | 20 |
| Table 18 | Average Daily Participation in School Breakfast Program by Location of Meal Consumption | 21 |
| Table 19 | Average Daily Participation in the National School Lunch Program by Location of Meal Consumption | 23 |
| Table 20 | Average Daily Participation in the School Breakfast Program by Open or Closed Campus | 23 |

| | | <u>Page</u> |
|----------|--|-------------|
| Table 21 | Average Daily School Breakfast Program Participation with and without Competing Foodservice | 24 |
| Table 22 | Average Daily National School Lunch Program Participation in Schools with and without Competing Foodservice | 24 |
| Table 23 | Parameters of Regression Model Showing Effect of School and Program Characteristics on Average Daily Student Breakfast Participation | 27 |
| Table 24 | Parameters of Regression Model Showing Effect of School and Program Characteristics on Lunch Participation | 29 |
| Table 25 | Primary Reason for Non-Participation in the School Breakfast Program | 31 |

EXECUTIVE SUMMARY

In 1978, the Food and Nutrition Service (FNS) conducted a survey of a nationally representative sample of 625 schools to determine the factors influencing school and student participation in the School Breakfast Program (SBP). Principals and school foodservice managers for the schools in the sample were mailed a questionnaire and were asked to provide data for the month of October 1977. Five hundred and fifteen schools responded to the questionnaire.

The data were analyzed to quantitatively measure factors which effect:

1. A school's participation in the SBP;
2. A student's participation in the SBP; and
3. A student's participation in the National School Lunch Program (NSLP).

In addition, opinion data that were also collected as part of the survey were analyzed to discover the major perceived barriers to the SBP, particularly when a lunch program was already in operation.

SCHOOL PARTICIPATION IN THE SCHOOL BREAKFAST PROGRAM

Four factors distinguished breakfast from non-breakfast schools.

Economic Need

Whether or not a school is needy is the most important feature that differentiates breakfast from non-breakfast¹ schools. Significantly more economically needy schools offered the SBP. Schools that had 40 or more percent of their enrollment approved to receive free or reduced price meals were defined as economically needy. Forty-six percent of breakfast schools and 16 percent of non-breakfast schools showed at least this level of poverty.

Grade Level

Elementary schools were significantly more likely to offer the SBP. Fifty-five percent of SBP schools were elementary schools. Only 9.3 percent were high schools and 24.8 percent were junior high schools. The remainder of breakfast schools were special ungraded schools and consolidated schools that contained grades from kindergarten through high school.

Enrollment Size

Breakfast schools were also significantly more likely to be larger than non-breakfast schools. Breakfast schools had an average enrollment of 585; non-breakfast schools averaged 484 students.

Snack Bars

Schools that had a snack bar on the premises were more likely to offer the breakfast program. There is no easy explanation for this finding, and no data from the survey were collected which would allow further analysis of this finding. It may be, however, that snack bars are the facility through which breakfast is served in some schools.

Several factors that were hypothesized as characteristics which might distinguish breakfast from non-breakfast schools proved not to influence a school's decision to participate in the SBP.

¹Non-breakfast schools include schools which offer no meal programs.

| | |
|---|---|
| Transportation | No differences between breakfast and non-breakfast schools were apparent in the modes of transportation students used to get to school. Most students in non-breakfast schools were driven to school, but the percentages of students bused to school were not significantly different. This was true for students riding both short and long periods on a bus. |
| Facilities | Breakfast and non-breakfast schools were not distinguished by the availability of kitchen facilities. Ten percent of breakfast schools and 13 percent of non-breakfast schools did not have kitchens. The availability of a cafeteria was also examined in the analysis. More non-breakfast schools than breakfast schools did not have a cafeteria, but lack of a special eating room did not prohibit a school from offering the SBP. |
| Supervisory Time | The amount of time between the arrival of teachers and administrators and the start of classes was used as an indicator of the amount of time available for supervision before class. There were no significant differences on this amount of time in breakfast and non-breakfast schools. |
| FACTORS INFLUENCING STUDENT PARTICIPATION IN THE SCHOOL BREAKFAST PROGRAM | Five factors were found to influence a student's participation in the School Breakfast Program. |
| Economic Need | The chief factor influencing student participation in the SBP was the economic need of students. Economically needy schools were defined as schools with at least 40 percent of the students enrolled eligible for free and reduced price meals. Students in these schools had significantly higher participation in the SBP than non-needy schools. Needy schools had average daily participation rates of 45.1 percent of the school's attendance, compared to 22.1 percent participation by students in non-needy schools. |
| Grade Level | On a daily basis, more than twice as many elementary and junior high school students participated in the SBP. As a percent of average daily attendance, 35.9 and 33.3 percent of the elementary and junior high school students, respectively, participated, compared to 15 percent of high school students. |
| Price | As might be expected, non-needy student participation in the breakfast program is price responsive; that is, participation is higher when the price is lower for students who pay full price for their meals. |
| Length of the Breakfast Period | Two variables which may affect how much time a child may have to eat, the degree of busing of students, and the length of time between the start of the breakfast serving period and the beginning of classes, influenced student participation in the breakfast program. Schools with children who ride buses to school ate breakfast more often than students who used other modes of transportation. Longer periods of time elapsing between the beginning of breakfast and the start of classes were also positively associated with SBP participation. |
| Open Campus Policy | An open campus policy, where students are permitted to leave the school grounds during the day, significantly reduces student breakfast participation, even when the grade level and economic need of schools are taken into account. The average participation of schools with an open campus policy is 28.5 percent compared to 36.5 percent of schools with a closed campus policy. |

CHAPTER 1 INTRODUCTION

The following factors did not influence student participation in the School Breakfast Program:

Meal Preparation Site

Participation was not affected by whether the breakfast meal was prepared on the school premises or prepared elsewhere and delivered to the school. This is not surprising since breakfast is a relatively simple meal that can be served with components that require little or no cooking. Generally, 85 percent of the schools prepared the breakfast meal on-site and 15 percent prepared them at places other than the school.

Availability of Vending Machines and Snack Bars

The presence of vending machines or snack bars does not affect student breakfast participation. When vending machines were available, 34.8 percent of the students participated in breakfast compared to 33.7 percent of students where the machines were not accessible. When snack bars were available, 27.4 percent of students participated compared to 34.6 percent when they were not available. This difference, however, was not statistically significant. It is not known whether the snack bars were open during the meal period.

FACTORS INFLUENCING STUDENT PARTICIPATION IN THE NATIONAL SCHOOL LUNCH PROGRAM

The four factors that influenced a student's propensity to participate in the SBP also influenced student participation in the NSLP. These variables are economic need, grade level, the price charged, and an open campus policy. The type of associations were the same: for example, students in economically needy schools participated to a greater extent than students in non-needy schools; lower grade students participated at a higher rate than higher grade students. The strength of these associations, however, was usually weaker for the lunch program. This was because student participation in the lunch program is much higher than participation in the breakfast program. For example, student participation was higher in both the lunch and the breakfast program when there was a high percentage of needy children enrolled. However, non-needy children were more likely to participate in the lunch program, and therefore, the relationship of need to high participation because less important.

There were, however, two interesting trends that were apparent in schools that offered both the NSLP and the SBP. First, they had higher levels of participation than schools that offered only the NSLP. Second, lunch prices to students who pay full price for their meals were lower, even after the effects of economic need and grade level were considered.

Several other additional factors affected NSLP participation.

Meal Preparation Site

Participation in lunch, unlike breakfast, is significantly higher if the meals are prepared at the school, 67 percent, compared with 59 percent in schools that prepare lunch in locations away from the school.

Availability of Snack Bars

Lunch service participation is negatively affected by the availability of a snack bar. Only 49 percent of the students in attendance participated in the NSLP when snack bars were available, compared to 61.3 percent when they were not available.

Length of the School Day

Schools with the longest time between the start and end of classes are more likely to have higher lunch participation.

The following factors did not influence student participation in the NSLP:

**The Availability of
Vending Machines**

The availability of vending machines did not significantly affect student participation in the lunch program. When vending machines were available, 57.2 percent of those attending ate lunch, compared to 60.8 percent when they were not available.

Meal Consumption Site

Lunch participation was examined separately for breakfast and non-breakfast schools concerning meal consumption sites. In non-breakfast schools, the location where meals are eaten is not a factor in the rate of participation. In breakfast schools, high lunch participation rates were found if students ate in a cafeteria, 75.4 percent, a multi-purpose room, 68.5 percent, or a classroom, 65.8, rather than in a gymnasium, on the school grounds or some other location.

**Length of the
Lunch Period**

The length of the school lunch period, the amount of time each student has to be served and to eat, had no significant effect on the rate of student participation.

**PERCEIVED BARRIERS TO
SCHOOL PARTICIPATION
IN THE SBP**

The non-breakfast schools responding to the survey were asked the major reason for non-participation in the SBP. The most frequently reported answer was that the program was not needed, that parents in the community were able to provide breakfast for their children, or that parents had not requested the program. This response was mentioned three times as often as the next most common response for a total of 36.4 percent of the responses. Other responses included busing problems, lack of interest in the program, lack of potential participation, and inadequate facilities.

CHAPTER I: INTRODUCTION

The USDA School Breakfast Program (SBP) was originally authorized as a pilot program under Section 4 of the Child Nutrition Act of 1966. First priority for participation was extended to schools in poor economic areas, and to those schools in which a substantial proportion of students enrolled travelled long distances daily. Federal reimbursement covered food costs for morning meals in schools, and the Secretary of Agriculture established a payment rate of 15 cents per meal for all meals regardless of whether they were served free, at reduced price or at full price to children. In schools determined to be in "severe need" by State agencies, Federal financial assistance, according to the 1966 law, was made available for up to 80 percent of the operating cost of the program (food, labor and other costs).

Between 1968 and 1975, legislation continued to authorize the SBP as a pilot project, but extended its scope first to schools in which there was a need to improve the nutrition and dietary practices of the children of working mothers, and children from low income families, and later, to all schools that applied for the program.

The funding structure of the program grew to parallel that of the National School Lunch Program (NSLP). All meals received a basic reimbursement and each free and reduced price meal received an additional Federal payment. Reimbursement levels to States and localities were determined by the number of meals served. In addition, in schools designated to be in "severe need," increased reimbursement was made available for up to 100 percent of SBP operating costs.

In 1975 Congress permanently authorized the SBP, extended the program to public and private residential child care institutions, and directed the Secretary to carry out planned outreach activities, in cooperation with State educational agencies, that would make the program available in all schools where it was needed to provide adequate nutrition for children in attendance.

Although the School Breakfast Program has been available to all schools since September 1972, only 25,000 schools participated in October 1978, compared to 92,865 schools in the National School Lunch Program (NSLP). In these schools the proportion of breakfasts served free and at a reduced price is substantially higher than the comparable proportion of lunches in the NSLP. The data presented in Table 1 illustrate this point.

USDA placed emphasis on the need to increase participation in the SBP. However, the Department lacked systematic quantitative data to assist in the development of outreach policies regarding the types of schools and children participating in the program or to assess the nutritional contributions of the SBP meal pattern. The information available to FNS related only to the number of schools and children participating and the amount of Federal funds expended. No data were available concerning program operations at the local level, nor were data available concerning characteristics of schools or students that delineate SBP participation.

OBJECTIVES

This study of the School Breakfast Program focuses on three major objectives:

1. To develop a profile of schools and students that do and do not participate in the SBP.
2. To identify factors that distinguish schools with a breakfast program from those without a breakfast program.
3. To identify barriers to participation in the SBP experienced by schools and students.

TABLE 1

PROPORTION OF MEALS SERVED FREE AND AT A REDUCED PRICE
IN THE SCHOOL BREAKFAST PROGRAM AND THE NATIONAL SCHOOL LUNCH PROGRAM
BY FISCAL YEAR

| Fiscal Year | Number of Schools Participating | | Average Daily Attendance in Schools | | Average Daily Meals Served | | Meals Served Free and Reduced Price | |
|----------------|------------------------------------|--------------------|--|-------|-------------------------------|------|--|-------|
| | SBPA ^{a/} | NSLP ^{b/} | SBP | NSLP | SBP | NSLP | SBP | NSLP |
| | | | Millions | | Millions | | Percent | |
| 1967 | 752 | 72,944 | .348 | 32.6 | .077 | 18.5 | 76.1 | 12.2 |
| 1969 | 3,325 | 74,861 | 1.382 | 36.0 | .310 | 20.1 | 71.0 | 15.1 |
| 1970 | 4,270 | 75,593 | 1.927 | 37.1 | .485 | 20.9 | 71.6 | 20.7 |
| 1971 | 6,609 | 79,924 | 3.058 | 39.0 | .867 | 22.3 | 76.3 | 26.1 |
| 1972 | 7,865 | 83,333 | 3.885 | 40.5 | 1.048 | 22.9 | 78.5 | 32.4 |
| 1973 | 9,706 | 86,381 | 4.589 | 40.5 | 1.190 | 23.2 | 83.4 | 35.0 |
| 1974 | 11,900 | 87,579 | 4.993 | 40.7 | 1.385 | 23.0 | 82.8 | 37.1 |
| 1975 | 14,134 | 88,666 | 5.910 | 41.3 | 1.774 | 23.2 | 82.1 | 40.28 |
| 1976 | 16,835 | 89,718 | 7.688 | 41.40 | 1.992 | 23.5 | 83.4 | 42.36 |
| 1977 | 23,729 | 92,973 | 8.856 | 41.11 | 2.74 | 26.8 | 85.1 | 44.61 |
| 1978 | 28,200 | 92,865 | 10.410 | 41.24 | 3.13 | 26.2 | 82.8 | 43.26 |

a/ School Breakfast Program

b/ National School Lunch Program

Source: "Monthly Report on Child Nutrition Operations," Form FNS-10, From 1967-1978.

SAMPLING AND METHODOLOGY

In addition to meeting these objectives, the study was undertaken to update information obtained in previous surveys of school foodservice operations and to assess recent changes in these operations. Prior to this study, the most recent comprehensive studies of child nutrition programs were the "1972 National School Lunch Program Survey" and the 1975 "Special Milk Program Evaluation and National School Lunch Program Survey." Both of these studies were conducted by the Food and Nutrition Service. Other related literature is cited in the bibliography.

The study was designed to survey a total of 650 schools through a mailed questionnaire sent to a group of non-breakfast schools and a second group of breakfast schools. The number of schools in each group was approximately equal.

To choose the schools in the survey the following procedure was used:

1. The data base was the School Universe Directory, compiled and maintained by Curriculum Information Center, Inc. of Denver, Colorado, which consisted in December 1975 of 100,974 public, parochial, and private schools.
2. Through a random selection procedure, 2,869 schools were drawn from the directory and screened for the presence of the SBP by FNS Regional Offices. This screening resulted in the identification of 379 SBP schools, and 2,485 non-SBP schools (5 schools were closed).
3. Each of the two groups was randomly ordered and through a second random selection procedure 328 non-SBP and 324 SBP schools were selected for the final survey sample.
4. Because of delays in clearance of the procedures to be used in collecting the data, the survey was not mailed to the schools until December 1977. In several instances State agencies assisted the Department in gathering the data by distributing or collecting the forms. However, FNS personnel and consultants completed all editing and analysis. A copy of the survey instrument appears in the appendix of this report. Five hundred and fifteen responses were received, 247 from schools with the breakfast program and 268 from schools without the program. These responses were edited for completeness and accuracy of data. Where possible, incomplete responses were followed up and completed by telephone.

STATISTICAL TREATMENT

At the time of the survey there were about six times as many non-breakfast as breakfast schools in the country, but the sample used in this study contained an approximately equal number of breakfast and non-breakfast schools. Non-breakfast schools include schools that offer no Federal programs at all. This occurred because in the second random selection procedure a smaller proportion of non-breakfast schools than of breakfast schools was selected from those chosen in the first random selection procedure. This disproportionality was necessary to insure that the sample contained an adequate number of breakfast schools so that the analysis planned could provide an accurate description of School Breakfast Program characteristics. Where the two groups are analyzed separately, the fact that the groups were sampled differently does not matter. But where the whole sample of schools is discussed, the non-breakfast schools must be weighted more heavily than the breakfast schools, so that the results will be representative of the entire population of schools. In the sample, the two groups are equal; to represent the population, each breakfast school must count one sixth as much as a non-breakfast school. Once procedures to weight the sample were implemented, the reweighted sample yielded 447 non-breakfast and 68 breakfast schools, a total of 515 schools. The tables included in this report indicate whether or not the number of schools listed as respondents was weighted for the particular analysis.

Some of the information presented in this study is descriptive. It presents the similarities and differences between breakfast and non-breakfast schools. An effort is made, however, to use some of these differences to explain why the schools do or do not offer the SBP. To find out whether a variable had explanatory power, statistical tests were used to determine whether the differences between the two groups are significant or not. The level of significance indicates the likelihood that an observed difference between groups could have occurred by chance. For example, a significance level of .05 indicates that there is a five percent probability of observing such a difference in the population represented by the same. Significance is usually reported as alpha (α).

There is no set level at which a variable can be said to be statistically significant. Researchers must make their own decision about how rigorous to be in determining statistical significance. Two commonly used values are $\alpha = .05$ and $\alpha = .01$. This means that at $\alpha = .05$ and $\alpha = .01$, respectively, that 95 and 99 times out of 100 an observed difference between groups did not occur by chance. These values are arbitrary, but have been adopted as a convention by most statistical analysts. When possible, we have reported the exact level of significance so that the reader may make his or her own interpretation. In the test, we assume that levels higher than $\alpha = .05$ are not statistically significant, but we discussed some interesting findings with a significance level up to $\alpha = .10$. Levels of significance are reported in the text and tables of this report by both the confidence level percentage and the applicable α level.

There is a wide variety of statistical tests to measure the significance of a difference between two groups on one or several dimensions. In this study, we have used the chi-square test for nominal and ordinal-level variables. This test looks at the observed distribution of cases in the two groups, and compares it with the distribution that would be expected if both groups were really the same. We have used the student's t-test to determine the significance of differences between means. Obviously, means can only be calculated for variables measured at the interval level or above. Analysis of variance has been used to test the influence of nominal independent variables (such as categories) on variance in a dependent variable measured at the interval level or better. We have used multivariate ordinary least squares regression analysis to determine the degree of association of each of a number of independent variables on a given dependent variable with all the other independent variables controlled.

The mathematical basis and assumptions underlying these these are too technical for a brief presentation here, but may be found in any standard statistics text.^{1/}

^{1/} For example, Force and Richer, Social Research Methods (Prentice-Hall 1973), or Blalock, Social Statistics, (McGraw-Hill, second edition 1972).

CHAPTER II: DESCRIPTION OF SURVEY RESULTS

CHARACTERISTICS OF BREAKFAST AND NON-BREAKFAST SCHOOLS

Grade Level

The characteristic that most strongly distinguishes breakfast from non-breakfast schools is grade level. The SBP is most commonly found in elementary and junior high schools, while senior high and consolidated schools are less likely to have the program.^{1/} This information is summarized in Table 2. All other results of this study must be interpreted in light of the differences between elementary and secondary schools.

It should be mentioned here that, in schools that do offer the School Breakfast Program, the rate of student participation is higher in lower grade-level schools. Apparently younger students are likely to participate in the breakfast program. This may be a reason why the administrators in secondary schools do not initiate the program. This also might explain why relatively few consolidated schools offer the program: they may see a low overall rate of participation due to the older students in the school. It may also be that administrators see the need for breakfast more clearly with younger children, while older children are believed to be able to take care of themselves.

Economic Need

Schools having a higher percentage of needy students, those certified eligible for free or reduced-price meals, are much more likely to have a school breakfast program than those that do not. The average percentage of needy students in breakfast schools is 46 percent, while in non-breakfast schools it is 16 percent, a difference significant at the 99 percent level; $\alpha = .00001$. This difference remains significant when the sample is broken down by grade level in Table 3, even though the percentage of needy students in both groups of schools is consistently lower at higher grades. Schools with a higher percentage of needy students apparently are more highly motivated to offer the SBP. Of course, this may be because the program was initiated exclusively in needy schools, and it is only eight years since the program was made available to all schools compared to 34 years that the NSLP has been available to all schools. School participation may also be encouraged by the rate of student participation in the program, which is higher in the needier schools. (Factors influencing student participation in the breakfast program will be discussed later in this chapter).

Public vs. Private Schools

It is possibly this factor of economic need that distinguishes public from private schools in terms of their offering the SBP. About nine percent of the unweighted study sample was made up of private schools. Of these, only 20 percent offered the program, compared with 51 percent of a sample as a whole.

School Enrollment

The average enrollment of schools offering School Breakfast Programs is larger than that of non-breakfast schools. As summarized in Table 4, the average enrollment of breakfast schools is 585; that of non-breakfast schools is 494. This difference is significant at the .99 percent level; $\alpha = .01$. This finding is unexpected, since elementary schools, those most likely to have the SBP, tend to be smaller than secondary schools. Nonetheless, at every level, breakfast schools are larger than non-breakfast schools.

This difference is even more striking in view of the fact that less needy schools tend to be larger, while those with a higher percentage of needy students tend to have lower enrollment. Table 5 shows that schools with 40 percent or more needy students have an average enrollment of 466 students; those with less than 40 percent needy students average 512. Interestingly,

^{1/} Elementary schools are defined as those with any combination of kindergarten through grade six. Junior highs are those having seventh and eighth or seventh through ninth grades. Senior highs in this study are those with seventh through twelfth or ninth or tenth through twelfth grades. Consolidated schools are those offering elementary through senior high grades, and special schools are ungraded.

TABLE 2

PERCENT OF BREAKFAST AND NON-BREAKFAST SCHOOLS
BY GRADE LEVEL ^{a/}

| Grade Level | Breakfast | | Non-Breakfast | | All (weighted) | |
|---------------------|-----------|--------|---------------|--------|----------------|--------|
| | Percent | Number | Percent | Number | Percent | Number |
| Elementary | 55.7 | 149 | 41.6 | 102 | 43.4 | 223 |
| Jr. High School | 24.8 | 66 | 30.0 | 74 | 29.3 | 150 |
| Jr.-Sr. High School | 9.3 | 25 | 17.6 | 43 | 16.5 | 85 |
| Consolidated | 6.5 | 17 | 7.9 | 20 | 7.7 | 39 |
| Special | 3.7 | 10 | 3.0 | 7 | 3.1 | 16 |
| TOTAL | 100 | 267 | 100 | 246 | 100 | 513 |

^{a/} The data in this table are significant at 99 percent level; $\alpha = .009$.

Source: Compiled from data collected during the School Breakfast Program Study, 1977-78.

TABLE 3

PERCENT OF NEEDY STUDENTS IN BREAKFAST AND
NON-BREAKFAST SCHOOLS ^{a/}

| Grade Level | Percent | | All (weighted) |
|--------------------------|-----------|---------------|----------------|
| | Breakfast | Non-Breakfast | |
| Elementary | 47.0 | 18.4 | 27.7 |
| Jr. High School | 49.3 | 15.1 | 22.6 |
| Jr.-Sr. High School | 26.9 | 11.9 | 15.1 |
| Consolidated | 41.6 | 20.4 | 26.9 |
| Special | 54.7 | 22.3 | 30.5 |
| All | 46.0 | 16.0 | -- |
| Number of Sample Schools | 267 | 246 | 513 |

^{a/} The data in this table are significant at the 99.999 percent level; $\alpha = .00001$.

Source: Compiled from data collected during the School Breakfast Study, 1977-78.

TABLE 4

MEAN ENROLLMENT OF BREAKFAST
AND NON-BREAKFAST SCHOOLS a/

| Grade Level | Mean Enrollment | | Number of Schools (weighted) |
|---------------------|----------------------|--------------------------|------------------------------------|
| | Breakfast Schools | Non-Breakfast Schools | |
| Elementary | 505 | 386 | 406 |
| Jr. High School | 584 | 443 | 459 |
| Jr.-Sr. High School | 1,240 | 861 | 890 |
| Consolidated | 470 | 446 | 449 |
| Special | 337 | 477 | 455 |
| All Grade Levels | 585 | 494 | 504 |

a/ The data in this table are significant at the 99 percent level; $\alpha = .01$

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 5

MEAN ENROLLMENT BY ECONOMIC NEED IN SBP
AND NON-SBP SCHOOLS a/

| Economic Need | Mean Enrollment | | | |
|---|-----------------|---------------------------------|--------------------|---------------------------------|
| | SBP Schools | Number of Schools (weighted) | Non-SBP Schools | Number of Schools (weighted) |
| Schools With More Than 40 Percent of Enrollment Needy | 493 | 35 | 444 | 45 |
| Schools With Less Than 40 Percent of Enrollment Needy | 685 | 33 | 498 | 402 |
| All Schools | 585 | 68 | 493 | 447 |
| Number of Schools in Unweighted Sample | | 247 | | 268 |
| | | | | 515 |

a/ The data in this table are significant at the 99 percent level; $\alpha = .01$.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

the size difference is much greater among breakfast schools. The size difference may be more significant in the less needy schools because among the needier schools, such a high percentage participate due to need alone that the influence of size as a motivation for offering the program is masked.

Attendance

There is a slight difference in the rate of attendance between breakfast and non-breakfast schools. Schools with the breakfast program have a slightly lower attendance rate, measured as a percent of total enrollment. This difference is not explained by relative need. Attendance rates are slightly lower among needy schools and the difference is significant at the 99 percent level; $\alpha = .001$ by t-test, but among needy and non-needy schools considered separately (those with more or less than 40 percent needy students), attendance at breakfast schools is still slightly lower. Attendance shows a small negative correlation with school size, so that possibly the larger size of breakfast schools accounts for some of the difference in attendance (Table 6).

It is grade level, however, that apparently explains most of this difference in average attendance rates between breakfast and non-breakfast schools. In an analysis that tested the effect of grade level and the presence of the breakfast program on attendance rates, grade level was found to be highly significant. The presence of a breakfast program, when the effect of grade level is simultaneously considered, did not reach statistical significance in influencing attendance rates.

The introduction of the School Breakfast Program appears to have no impact at all on the attendance rate of a school. Attendance rates were compared at schools one year prior to the introduction of the Breakfast Program, and in the first and third years of the program. There was no discernible difference in attendance, and a t-test comparing attendance at these three points showed no significant differences.

Facilities

It was thought that one of the factors influencing the decision of a school to participate in the School Breakfast Program might be the availability of certain facilities at the school.

In this regard, it is interesting to note that the study found no significant difference between breakfast and non-breakfast schools in the availability of a kitchen. Of non-breakfast schools, 87 percent had a kitchen, compared with 90 percent of the breakfast schools, a statistically insignificant difference. Similarly, children in 87 percent of non-breakfast schools were most likely to take their meals in either a cafeteria or a "multi-purpose room," compared with 91.5 percent of breakfast schools. Even with the two sample groups broken down by grade level, no differences in these two variables were found.

There was a significant difference between breakfast and non-breakfast schools in the availability of a cafeteria. Eighty percent of breakfast schools, and only 64 percent of non-breakfast schools had one ($\alpha = .0001$). This should not affect a school's ability to serve breakfast, however. Breakfast is much easier than lunch to serve, and may easily be offered in a classroom or other non-specialized room.

While kitchens were equally available to both groups of schools, breakfast schools were significantly more likely to have on-site preparation of lunch than were non-breakfast schools. Among breakfast schools, 82 percent had on-site lunch preparation, compared with only 63 percent of non-breakfast schools, $\alpha = .00001$. This may indicate that the types of kitchens that are available vary between the two groups.

TABLE 6

AVERAGE DAILY ATTENDANCE IN BREAKFAST
AND NON-BREAKFAST SCHOOLS ^{a/}

Percent of Total Enrollment

| Grade Level | Breakfast | Non-Breakfast | All (weighted) |
|------------------------------|-----------|---------------|-------------------|
| Elementary | 93.9 | 94.6 | 94.8 |
| Jr. High School | 92.6 | 95.0 | 94.9 |
| Jr.-Sr. High School | 93.4 | 93.0 | 93.0 |
| Consolidated | 92.7 | 94.3 | 94.1 |
| Special | 92.7 | 94.3 | 93.3 |
| Number of Sample Schools: | | | |
| weighted | 68 | 445 | 513 |
| unweighted | 247 | 266 | 513 |

^{a/} The data in this table are significant at 99 percent level; $\alpha = .001$

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 7

PERCENT OF STUDENTS USING DIFFERENT METHODS
OF TRANSPORTATION TO BREAKFAST AND NON-BREAKFAST SCHOOLS

Percent of Students

| Transportation | Number of Schools | Breakfast | Non- Breakfast | All | t-test |
|--------------------------------|----------------------|-----------|-------------------|------|--------------------|
| Bus, less than 30 minutes | 497 ^{a/} | 34.2 | 29.8 | 30.4 | $\alpha = .09$ |
| Bus, 30 minutes to one hour | 513 | 15.0 | 16.6 | 16.4 | N.S. ^{b/} |
| Bus, more than 1 hour | 515 | 2.5 | 1.4 | 1.6 | $\alpha = .09$ |
| Walk or Ride Bike | 510 | 31.7 | 29.9 | 30.0 | N.S. |
| Driven | 510 | 11.8 | 16.3 | 15.7 | $\alpha = .005$ |
| Other | 513 | 0.3 | 0.6 | 0.6 | N.S. |

^{a/} The number of schools may be less than 515 due to missing data points from non-response by some schools.

^{b/} N.S. = Not statistically significant.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

It should be noted, though, that having a kitchen per se is not a regulatory or practical prerequisite to offering the school breakfast. Ten percent of breakfast schools had no kitchen available. This is important since schools without the breakfast program sometimes use the lack of kitchen facilities as a reason for not participating in the SBP.

Logistics

One objection raised to offering the School Breakfast Program is that it is logistically difficult. Problems cited include a high percentage of children who are bused to school, an early starting time for classes, and inadequate supervisory time available from teachers or administrators.

However, as summarized in Table 7, no differences were found between breakfast and non-breakfast schools in terms of the percentage of children riding the bus, the amount of time between the arrival of teachers or administrators and the start of classes, or the hour at which classes start (or at which the first session starts for split session schools). The only difference in student transportation was that more students in non-breakfast schools were driven to school. With regard to busing, it is if anything, the schools that do have the SBP which have a higher percentage of students riding the bus. This shows that having students who are bused to school does not make it difficult to offer the program.

It will be seen later in Table 13 that, even though there is no difference between breakfast and non-breakfast schools in percentage of students riding the bus, this percentage does influence the rate of participation of students in schools that do have breakfast programs.

Competitive Foodservice

An important consideration in planning school feeding programs is the role which is, or ought to be, played by competitive foodservice. Two aspects of this issue were examined in this survey: the availability of competitive foodservice outside and inside the school grounds. There was no direct measure in this survey to assess the availability of competitive foods outside the school, so the presence of an open campus policy was assumed to allow students the liberty to find alternate, or competing, sources of food at meal times. It was hypothesized that schools that have this policy might be less likely to offer the SBP. The study found that breakfast schools were more likely to operate on a closed campus system, where students are not permitted to leave the schools grounds, than were non-breakfast schools. Forty-three percent of all schools have an open campus, but only 32 percent of breakfast schools, compared with 44 percent of non-breakfast, had open campuses, a statistically significant difference at the 99 percent level; $\alpha = .003$.

Competing foodservice within schools was examined through questions concerning vending machines and snack bars. Direct availability of non-federally funded food might also decrease the likelihood of a school offering the SBP. Non-breakfast schools were significantly more likely to have vending machines in the cafeteria, although the numbers were small in both cases; 7.5 percent of non-breakfast and 2 percent of breakfast schools (6.8 percent of the sample as a whole) had these machines, $\alpha = .007$. This represents a total of only 35 schools.

Schools that had vending machines outside the cafeteria were somewhat more likely to serve school breakfasts. Of schools that had the machines (9.2 percent of all schools), 57 percent were in the SBP, compared with 47 percent of those that had no machines outside the cafeteria. This difference was significant at the 96 percent level; $\alpha = .04$, based on a chi-square test. When categorized by grade level, the difference was significant only for junior high schools, and marginally significant, at the 92 percent level, $\alpha = .08$ for consolidated schools. It should be noted, though, that only 47 schools in the sample had these machines.

Schools with a snack bar are also more likely to participate in the School Breakfast Program. Breakfast is offered at 57.4 percent of schools that have a snack bar (only 8.2 percent of all schools in the sample), and at 47.5 percent of schools without this facility. This is true even though snack bars are more commonly available to higher grade level schools. The difference is significant at the 99 percent level; $\alpha = .0001$. No clear explanation of this occurrence is apparent although it may be that schools use snack bars as the serving facility to offer the breakfast program. Schools with a high percentage of needy students are less likely to have open campuses than relatively less needy schools. Of needy schools, 29 percent were open-campus, compared with 43 percent of the less needy schools (needy schools were defined as those with more than 40 percent of students enrolled eligible for free and reduced-price lunches). As we have mentioned, the age range served may influence this difference, since there are more needy schools in the lower grades.

Competitive foods of all kinds are more likely to be available at schools serving older students as summarized in Table 8. The difference between breakfast and non-breakfast schools in frequency of open campus, however, is consistent in elementary, junior, and senior high schools, although it is statistically significant only in elementary schools as indicated in Table 9.

When categorized by school type, breakfast schools show a consistently lower availability of vending machines in the cafeteria, but statistical significance is not reached for most groups because of the small numbers involved. The significant difference in availability of vending machines outside the cafeteria also disappears when the groups are broken down by grade level.

When the sample is categorized by grade level, the availability of a snack bar in school is still positively associated with breakfast being served in elementary schools, but no significant difference is found for other grades. Of the nine elementary schools with a snack bar, seven serve some kind of breakfast, six serve the school breakfast. This represents 75 percent of snack bar schools, compared with 54 percent of the elementary schools without a snack bar that serve the SBP. This difference is significant at the 92 percent level, $\alpha = .08$. However, as with vending machines, the number of schools with the snack bars is quite low, so these differences are probably not very meaningful.

School Breakfast and Other School Feeding Programs

Table 10 shows the weighted number of schools that have different kinds of meal and milk service available. The great majority of schools fall in the class having federal lunch and milk programs, and no breakfast program. Only slightly more than ten percent of schools do not offer some kind of lunch; similarly, only slightly over ten percent fail to offer milk. Less than five percent of schools in the sample offer no foodservice at all (and some of these may have vending machines available). Schools which serve a school breakfast are significantly more likely to serve a school lunch than are non-breakfast schools.

Among the 108 "very needy" schools, defined as schools in which more than 50 percent of students are eligible for free or reduced-price meals, 90 percent had the SBP, while only 37 percent of the non-needy schools had it. Since almost all these needy schools (better than 99 percent) have the NSLP, no relationship with school breakfast could be identified. Among the non-needy schools, however, those that have breakfast are significantly more likely to serve lunch as well ($\alpha = .00001$).

When school grade level is considered, the positive relationship between the breakfast and lunch programs does not reach statistical significance for individual grade levels. For the sample as a whole, the relationship is significant at $\alpha = .02$, as shown in Table 11. Of non-breakfast schools, only

TABLE 8

PERCENT OF SCHOOLS AT EACH GRADE LEVEL WHICH HAVE
COMPETING FOODSERVICE

Percent of Schools

Vending Machines

| Grade Level | Open Campus | In Cafeteria | In School | Total | Snackbar Available | Number of Schools (Weighted) |
|---|----------------|-----------------|--------------|--------|-----------------------|------------------------------------|
| Elementary | 45.7 | 3.1 | 3.7 | 4.5 | 4.0 | 223 |
| Jr. High School | 30.5 | 4.6 | 5.7 | 7.9 | 8.3 | 150 |
| Jr.-Sr. High School | 54.1 | 18.1 | 24.3 | 36.1 | 15.7 | 85 |
| Consolidated | 62.7 | 9.9 | 24.6 | 30.3 | 14.1 | 39 |
| Special | 14.0 | 10.5 | 0.0 | 10.5 | 10.5 | 16 |
| All Grade Levels | 43.0 | 6.8 | 9.2 | 12.9 | 8.2 | -- |
| X ² Significance Level | .0001 | .0001 | .00001 | .00001 | .01 | -- |
| Number of Schools in Unweighted Sample | 515 | -- | -- | 513 | 515 | 513 |

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 9

PERCENT OF SCHOOLS HAVING OPEN CAMPUS BY GRADE LEVEL

| Grade Level | Number of Schools in Unweighted Sample | Percent of Schools | | | Significance Level of Difference of Means |
|---------------------------------|---|--------------------|-----------|------|--|
| | | Non-Breakfast | Breakfast | All | |
| Elementary | 223 | 48.6 | 31.4 | 45.7 | $\alpha = .008$ |
| Jr. High School | 149 | 31.6 | 21.3 | 30.5 | $\alpha = .24$ N.S. ^{a/} |
| Jr.-Sr. High School | 85 | 55.3 | 39.1 | 54.1 | $\alpha = .30$ N.S. |
| Consolidated | 39 | 61.9 | 68.8 | 62.7 | $\alpha = .93$ N.S. |
| Special | 16 | 12.5 | 22.2 | 14.0 | $\alpha = .55$ N.S. |
| Number of Schools (weighted) | -- | 443 | 67 | 510 | -- |

a/ N.S. = Not statistically significant.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 10

BREAKDOWN OF FOOD PROGRAMS OFFERED BY SCHOOLS
(Weighted)

| Breakfast | Lunch | USDA Milk | Other Milk | No Milk | Subtotal |
|--------------------------------------|------------------------|--------------|---------------|------------|----------|
| School Breakfast | NSLP | 47 | 9 | 4 | 60 |
| | Non-Federal Plate | 1 | 0 | 0 | 1 |
| | A la Carte | 0 | 0 | 0 | 0 |
| | NSLP and A la Carte | 5 | 1 | 0 | 6 |
| | NSLP and Plate | 0 | 0 | 0 | 0 |
| | No Lunch | 0 | 0 | 0 | 0 |
| | | | | | 67 |
| Non-Federal Breakfast | NSLP | 7 | 2 | 0 | 9 |
| | Non-Federal Plate | 0 | 3 | 2 | 5 |
| | A la Carte | 0 | 0 | 0 | 0 |
| | NSLP and A la Carte | 5 | 0 | 0 | 5 |
| | NSLP and Plate | 0 | 0 | 0 | 0 |
| | No Lunch | 0 | 0 | 0 | 0 |
| | | | | | 19 |
| SBP and Non- Federal Breakfast | NSLP | 1 | 0 | 0 | 1 |
| | Non-Federal Plate | 0 | 0 | 0 | 0 |
| | A la Carte | 0 | 0 | 0 | 0 |
| | NSLP and A la Carte | 4 | 0 | 0 | 4 |
| | NSLP and Plate | 2 | 0 | 0 | 2 |
| | No Lunch | 0 | 0 | 0 | 0 |
| | | | | | 7 |

Continued On Next Page

TABLE 10--Continued
BREAKDOWN OF FOOD PROGRAMS OFFERED BY SCHOOLS
(Weighted)

| Breakfast | Lunch | USDA Milk | Other Milk | No Milk | Subtotal |
|--------------|------------------------|--------------|---------------|------------|-----------------------|
| No Breakfast | NSLP | 255 | 28 | 22 | 305 |
| | Non-Federal Plate | 0 | 3 | 0 | 3 |
| | A la Carte | 2 | 5 | 2 | 9 |
| | NSLP and A la Carte | 43 | 7 | 2 | 52 |
| | NSLP and Plate | 0 | 0 | 0 | 0 |
| | No Lunch | 27 | 7 | 22 | 56 |
| TOTAL | | 399 | 65 | 54 | 518 ^{a/} 518 |

^{a/} Total is high due to rounding of weighted observation.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 11
PERCENT OF SCHOOLS OFFERING THE NATIONAL SCHOOL LUNCH PROGRAM
BY GRADE LEVEL
Percent of Schools

| Grade Level | Breakfast | Non-Breakfast | All | Significance Level of Difference by Chi-Square Test | Number of Schools in Weighted Sample |
|------------------------|-----------|---------------|-------|--|---|
| Elementary | 93.3 | 90.1 | 91.6 | N.S. ^{a/} | 204 |
| Jr. High School | 100.0 | 81.2 | 83.4 | N.S. | 150 |
| Jr.-Sr. High School | 95.7 | 74.5 | 76.1 | .07 | 85 |
| Consolidated | 100.0 | 100.0 | 100.0 | --- | 39 |
| Special | 88.9 | 87.5 | 87.7 | N.S. | 16 |
| All Grade Levels | 98.4 | 85.4 | 87.2 | .02 | 515 |

^{a/} N.S. = Not statistically significant

Source: Compiled from data collected during School Breakfast Study, 1977-78.

85 percent serve the Federal School Lunch, compared with 98.4 percent of breakfast schools, and more than 12 percent serve no lunch at all, compared with 0.4 percent, or only one of the breakfast schools. These differences are highly significant.

It is also interesting to note that the price of the school lunch is significantly higher in non-breakfast schools; 50 cents, compared with 46.9 cents in breakfast schools. The price is also higher in schools serving older children, but the difference between breakfast and non-breakfast schools is consistent for elementary, junior, and senior highs as shown in Table 12. This may be due to the fact that in needy schools, those more likely to have the breakfast program, participation is more strongly affected by price than in schools with less needy students, so that the administration tries to keep prices low. Another possible explanation is that having two meal programs makes possible economies of scale which lower meal costs. There was no significant difference in the price charged for reduced price lunches. No difference was found between breakfast and non-breakfast schools in whether or not they offered milk under the Special Milk Program. About 78 percent of the schools in both groups offer the SMP, and 12 to 13 percent offer milk, which is not federally funded.

Combined Effects of School Participation in the SBP

Up to this point the analysis of this report has only examined the relationships that may exist between sets of two categories, or variables. However, a relationship between two variables may be masked or altered by the effect of a third variable not examined in such a two-way analysis. In order to examine the relative independent effects of the various factors influencing a school's decision whether or not to offer the School Breakfast Program, a regression model was estimated. Regression analysis is a statistical technique for controlling the influence of a set of related factors which affect an outcome, or dependent variable, so that the effect of each factor may be measured independently of the others. By looking at many factors at once, regression analysis can clarify relationships suggested by two-way analysis.

The regression model estimated here uses ordinary least squares (OLS) analysis and has, as a dependent variable, a dummy variable^{1/} set at 0 for non-breakfast schools and at 1 for schools in the SBP. Other variables in the model were:

| | |
|---------|--|
| ENROLL | = Total school enrollment |
| NEED | = Percent of students eligible for free and reduced price meals |
| LEVEL | = A dummy variable set at 0 for elementary schools and at 1 for junior and senior high schools ^{2/} |
| KITCHEN | = A dummy variable set at 1 if schools had a kitchen, 0 if they had no kitchen |
| CAF | = A dummy variable set at 1 if schools had either a cafeteria or a multi-purpose room used for eating, and 0 otherwise |

^{1/} A dummy variable is used when the categories measured cannot be expressed as continuous numerical data. In this instance values of zero and one are assigned in lieu of this to measure the presence or absence of a particular element in the model.

^{2/} Special and consolidated schools were excluded from the analysis.

TABLE 12

AVERAGE PRICE OF LUNCH IN BREAKFAST
AND NON-BREAKFAST SCHOOLS BY GRADE LEVEL

| Grade Level | Breakfast Schools | Non-Breakfast Schools | All Schools | Number of Schools in Weighted Sample |
|---------------------|----------------------|--------------------------|----------------|---|
| Elementary | 45.2 | 42.8 | 47.7 | 201 |
| Jr. High School | 49.1 | 51.1 | 50.8 | 106 |
| Jr.-Sr. High School | 51.6 | 56.5 | 56.0 | 68 |
| Consolidated | 46.4 | 42.3 | 42.9 | 26 |
| Special | 46.4 | 47.5 | 47.3 | 12 |
| All Grade Level | 46.9 | 50.0 | 49.5 <u>a/</u> | 412 |

a/ Significant at the 99 percent level; $\alpha = .0001$.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 13

PARAMETERS OF THE REGRESSION MODEL TESTING FACTORS INFLUENCING SCHOOL PARTICIPATION
IN THE SCHOOL BREAKFAST PROGRAM

| Dependent Variable | Number of Cases |
|---|-----------------|
| Schools that do or do not offer the School Breakfast Program | 431 |

| Parameters | F - test |
|------------------------|--|
| ENROLL = .869 | 5.071 <u>a/</u> $\alpha = .01$ |
| NEED = .643 | 96.056 <u>b/</u> $\alpha = .001$ |
| LEVEL <u>c/</u> = .382 | 1.519 $\alpha = \text{N.S.}$ <u>d/</u> |
| KITCHEN = .202 | .202 $\alpha = \text{N.S.}$ |
| CAF <u>e/</u> = .371 | .007 $\alpha = \text{N.S.}$ |
| SUPER <u>f/</u> = .465 | .196 $\alpha = \text{N.S.}$ |
| BUS = .262 | .175 $\alpha = \text{N.S.}$ |

a/ Significant at 99 percent level; $\alpha = .01$.

b/ Significant at 99 percent level; $\alpha = .001$.

c/ Special and consolidated schools were excluded from the analysis.

d/ N.S. - Not significant

e/ CAF = A dummy variable set at one if schools had either a cafeteria or multi-purpose room used for eating, and 0 otherwise.

f/ SUPER = Supervisory time.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

SUPER = Supervisory time, i.e., time (in minutes)
between the arrival of administrative or
teaching staff and the start of classes

BUS = Percentage of students who ride the bus
more than 30 minutes

The results of regression model are shown in Table 13. By far the most important variable affecting school participation in the SBP is the percentage of needy students: schools with a higher proportion of needy children are more likely to offer breakfast. As we have already seen, larger enrollment is also significantly and positively associated with offering the breakfast program. In this regression, grade level (between elementary and secondary) loses its significance as a discriminator between breakfast and non-breakfast schools, although we have already seen that lower grade schools are still shown as more likely to offer the program. In the regression, junior and senior high schools were grouped together to make elementary and secondary groups more equal. Since more junior than senior high schools offer the SBP, this grouping of schools reduced the significance of grade level in the equation. The other variables tested in the model (availability of kitchen, cafeteria, supervisory time, and percent of students bused more than 30 minutes) show no relationship at all to breakfast program participation.

The two way analysis discussed earlier in this report presented similar conclusions, but it is worth noting since the lack of facilities and the shortage of supervisors' time are commonly given as reasons for not offering the breakfast program. Busing of students apparently does not influence the decision of schools to offer the SBP, although we shall see that it does influence participation by students if breakfast is offered. The results are virtually unchanged if a step-wise regression is performed which considers the effect of level first and school size and level of need last. This shows that the high level of significance of school size and level of need is not an artifact of co-variation with some other variable, and that these variables do have independent explanatory power.

STUDENT PARTICIPATION IN THE BREAKFAST AND LUNCH PROGRAMS

Grade Level

Student participation in school feeding programs is higher at lower grade levels. Participation by students is also consistently higher for lunch than for breakfast, as Tables 14 and 15 indicate. As has been suggested by the Children's Foundation report on barriers to the School Breakfast Program^{1/} it may be that school administrators have too high expectations for participation in the breakfast program, and so count the program a failure if it does not match the NSLP in participation. Relevant to administrators' concern for maintaining high participation rates, it is noteworthy that participation in the School Lunch Program is consistently higher in schools that also have the School Breakfast Program. This difference is highly significant at all grade levels. The explanation for this is that lunch participation is positively correlated with a number of variables that are also associated with offering the School Breakfast Program, especially economic need. However, participation is negatively correlated with size, another factor positively associated with the presence of the School Breakfast Program. In a regression equation that controlled for the effects of size, economic need and grade level, the presence of the School Breakfast Program

^{1/} The Children's Foundation, Barriers to School Breakfast, Washington, D.C., November 1978, p. 30.

TABLE 14
AVERAGE DAILY STUDENT PARTICIPATION IN THE SCHOOL BREAKFAST
AND NATIONAL SCHOOL LUNCH PROGRAMS

Percent of Average Daily Attendance

| Grade Level | Breakfast | Number of Schools | Lunch | Number of Schools |
|---------------------|-----------|----------------------|-------|----------------------|
| Elementary | 35.9 | 136 | 62.3 | 199 |
| Jr. High School | 33.3 | 60 | 65.5 | 114 |
| Jr.-Sr. High School | 15.0 | 23 | 40.2 | 65 |
| Consolidated | 30.9 | 15 | 66.2 | 36 |
| Special | 59.5 | 9 | 75.9 | 14 |
| All Grade Levels | 33.5 | 243 | 60.5 | 427 ^{1/} |

^{1/} The remaining 88 schools offered neither the SBP nor the SLP.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 15
AVERAGE DAILY NSLP PARTICIPATION IN BREAKFAST AND NON-BREAKFAST SCHOOLS

Percent of Average Daily Attendance

| Grade Level | Breakfast Schools | Number of Schools (weighted) | Non-Breakfast Schools | Number of Schools (weighted) | All Schools | Number of Schools (weighted) |
|------------------------|----------------------|------------------------------------|--------------------------|------------------------------------|----------------|------------------------------------|
| Elementary | 77.5 | 36 | 58.9 | 163 | 62.3 | 199 |
| Jr. High School | 69.0 | 15 | 64.9 | 98 | 65.5 | 114 |
| Jr.-Sr. High School | 47.1 | 6 | 39.4 | 58 | 40.2 | 65 |
| Consolidated | 71.9 | 4 | 65.4 | 32 | 66.2 | 36 |
| Special | 87.0 | 2 | 73.8 | 12 | 75.9 | 14 |
| All Grade Levels | 72.4 | 64 | 58.5 | 363 | -- | 427 |

Source: Compiled from data collected during School Breakfast Study, 1977-78.

was still found to be significantly positively associated with student participation in lunch. This regression analysis is discussed in greater detail later in this chapter. These findings indicate that the joint availability of the School Breakfast Program and the National School Lunch Program can foster high participation rates by students in the lunch program. At the very least, the availability of breakfast in schools will not reduce participation in the lunch program.

Economic Need

Student participation in both breakfast and lunch is significantly higher in schools with a higher percentage of needy students. Both lunch and breakfast participation are highly correlated with the percent of needy students enrolled in a school. These results are statistically significant at the 99 percent level; $\alpha = .001$. Although the level of need of schools is higher in lower grade schools, the relationship between breakfast participation and need is consistent at all grade levels. Table 16 shows that among the needy schools, participation in school breakfast does not drop off sharply at the secondary level as it does in the less needy schools. Table 17 shows that even when level of need is accounted for, lunch participation is higher in schools where breakfast is offered, as well as being higher in needier schools. An important finding of this study is the fact that, for both breakfast and lunch, the rate of participation in school feeding among the needy students in any school is much higher than among those who pay full price for the meals. In breakfast schools, 46 percent of students are eligible for free meals, but 57 percent of the lunches served were free. This means that a higher proportion of non-needy students chooses not to eat the school lunch, so a disproportionate number of needy children is served by the program. Note that these figures do not indicate that free lunches are being served to ineligible children. Rather, they show that the population of students who eat school lunches is lower-income than the population of the school as a whole. In non-breakfast schools, 16 percent of the enrolled students qualified for free lunches, but 25 percent of the lunches served were free. The difference in the percentage of lunches served to students eligible for free and reduced-price lunches in non-breakfast schools was identical to breakfast schools, but was about four percentage points higher. Overall, 30 percent of students are eligible for free lunches, while 46 percent of all lunches served were free. The same is even more strongly the case for breakfast: in breakfast schools, 46 percent of students are eligible for free meals, but 79 percent of the breakfasts served during the study period (October 1977) were free. These differences are significant at the 99 percent level, $\alpha = .00001$.

Meal Price

Participation in both the SBP and the NSLP is price responsive, that is, participation is higher when the price is lower. This is true for participation in both breakfast and lunch by students who pay full price for their meals. These price and participation relationships are significant at the 99 percent level, $\alpha = .001$. Of course, the higher participation rate by needy students is another indication of price responsiveness, since these students face a lower or a zero price for their meals.

School Enrollment

Schools with a higher percentage of needy students tend to be smaller in total enrollment. This relationship is significant at the 96 percent level; $\alpha = .04$, and is probably the reason that participation in both the SBP and the NSLP also is higher at lower enrollment levels. One reason for this is that elementary schools and junior high schools tend to have more needy students than do high schools, and enrollment also tends to be smaller in the lower grade schools.

Facilities

Breakfast participation is slightly higher in schools where the breakfast is prepared on-site: 35 percent, compared with 29 percent for off-site preparation. This difference is not significant, however; $\alpha = .15$. School breakfast is a relatively simple meal that can consist entirely of cold foods, so that off-site preparation need not affect the acceptability of the meal.

TABLE 16

AVERAGE DAILY SCHOOL BREAKFAST PROGRAM PARTICIPATION
IN NEEDY AND NON-NEEDY SCHOOLS a/

Percent of Average Daily Attendance

| Grade Level | Needy Schools | Non-Needy Schools | All Schools | Number of Schools (Unweighted) |
|---------------------|------------------|----------------------|----------------|--------------------------------------|
| Elementary | 46.4 | 24.9 | 35.9 | 136 |
| Jr. High School | 39.6 | 22.4 | 33.3 | 60 |
| Jr.-Sr. High School | 41.0 | 9.6 | 15.0 | 23 |
| Consolidated | 38.1 | 26.2 | 30.9 | 15 |
| Special | 75.4 | 27.2 | 59.5 | 9 |
| All Grade Levels | 45.1 | 22.1 | 33.9 | 243 |

a/ Needy Schools have 40 percent or more needy students, significant at the 99 percent level; $\alpha = .00001$.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 17

AVERAGE DAILY NATIONAL SCHOOL LUNCH PROGRAM PARTICIPATION
BY LEVEL OF NEED FOR BREAKFAST AND NON-BREAKFAST SCHOOLS a/

Percent of Average Daily Attendance

| Need | Breakfast | Number of Schools | Non-Breakfast | Number of Schools | All | Number of Schools |
|-----------|-----------|----------------------|---------------|----------------------|------|----------------------|
| Needy | 81.1 | 32 | 66.5 | 42 | 72.9 | 74 |
| Non-Needy | 64.1 | 32 | 57.2 | 323 | 57.8 | 356 |

a/ Needy Schools have 40 percent or more needy students, significant by test $F = 73$; $\alpha = .00001$.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 18.

**AVERAGE DAILY PARTICIPATION IN THE SCHOOL BREAKFAST PROGRAM
BY LOCATION OF MEAL CONSUMPTION**

Percent of Average Daily Attendance

| Location | Participation | Number of Sample Schools |
|--------------------|---------------|-----------------------------|
| Cafeteria | 34.5 | 187 |
| Multi-Purpose Room | 31.6 | 37 |
| Gymnasium | 34.1 | 7 |
| Classroom | 39.3 | 6 |
| School Grounds | 26.8 | 5 |
| Other | 17.6 | 2 |
| All Locations | 33.9 | 244 |

Source: Compiled from data collected during School Breakfast Study, 1977-78.

Participation in lunch is significantly higher ($\alpha = .01$) if the meals are prepared on-site: 67 percent compared with 59 percent for lunches prepared away from the school. Other studies have found that hot lunches have a higher acceptability than cold ones, and these are likely to be more successful if prepared and served at one location.

This difference in lunch participation is particularly noteworthy in light of the fact that needier schools are more likely to have off-site preparation (44 percent of schools with more than 40 percent needy students have off-site lunch preparation, compared with 33 percent of less needy schools), and it has already been discussed that participation is higher in the needy schools. Among breakfast schools, the site of preparation of breakfast shows no relation to whether or not the school is needy.

Breakfast participation was slightly higher for students who took their meals in the classroom, multi-purpose room, or cafeteria, and slightly lower if meals were taken in the gym or elsewhere on the school grounds. The difference was neither great nor statistically significant, however. Table 18 shows that the large majority, 77 percent, of breakfast schools serve meals in the cafeteria; 91 percent have meals in either a cafeteria or a multi-purpose room.

Lunch participation as shown in Table 19 in non-breakfast schools was also not significantly different according to the location where meals were eaten. But in breakfast schools, once again, the highest lunch participation rates were found if students ate either in the cafeteria or multi-purpose room or the classroom, and here the differences were significant. One possible explanation for these differences is that access to other sources of food or to other activities is greater if the students go to a gym or are allowed to go out on school grounds. Supervision may be greater, and alternative activities fewer, in the other locations. It is also possible that some areas provide a more pleasant atmosphere for eating.

Competitive Foodservice

Participation in the breakfast program is significantly reduced if the school has an open campus. This is the case for every grade level as summarized in Table 20. It is not intuitively obvious that this should be so, since all students are free to be outside the school grounds before the start of class, and so are not compelled to be in school at breakfast time. Possibly more food shops are available, and children may be more familiar with them if the campus is open, so the incentive to eat breakfast off campus is greater for these schools. Closed schools also tend to be lower grade schools, and needier schools are also more likely to be closed; both of these characteristics are associated with higher breakfast participation. Nonetheless, breakfast participation is lower in open campus schools even with these variables controlled.

Participation in breakfast is not significantly affected by the availability of vending machines either in or outside the cafeteria, nor by the availability of a snack bar in the school. This is true at all grade levels as illustrated by Table 21.

Open campus policy is the only competing food system that significantly reduces participation in breakfast. Lunch participation is reduced by having a snack bar available, but open campus also has a highly significant effect. These data are displayed in Table 22. It is therefore quite important to note that open campus is a far more common policy than the competitive food systems considered here. One third of breakfast schools and 41 percent of all schools have an open campus, while only approximately ten percent of schools have vending machines or snack bars.

TABLE 19
AVERAGE DAILY PARTICIPATION IN THE NATIONAL SCHOOL LUNCH PROGRAM
BY LOCATION OF MEAL CONSUMPTION

Percent of Average Daily Attendance

| Location | Non-Breakfast Schools | Number of Schools (weighted) | Breakfast Schools | Number of Schools (weighted) | All Schools | Number of Schools (weighted) |
|--------------------|--------------------------|------------------------------------|----------------------|------------------------------------|----------------|------------------------------------|
| Cafeteria | 59.7 | 230 | 75.4 | 50 | 62.5 | 280 |
| Multi-Purpose Room | 57.4 | 83 | 68.5 | 10 | 58.6 | 93 |
| Gymnasium | 60.2 | 25 | 51.2 | 2 | 59.5 | 27 |
| Classroom | 46.5 | 13 | 65.8 | 1 | 48.1 | 14 |
| School Grounds | 63.6 | 3 | 41.0 | 1 | 58.0 | 4 |
| Other | 32.2 | 7 | 46.0 | 1 | 37.4 | 8 |
| All Locations | 58.3 | 361 | 72.6 | 65 | 60.5 | 426 |

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 20
AVERAGE DAILY PARTICIPATION IN THE SCHOOL BREAKFAST PROGRAM
BY OPEN OR CLOSED CAMPUS

Percent of Average Daily Participation

| Grade Level | Open | Closed |
|---|------|--------|
| Elementary | 31.5 | 38.0 |
| Jr. High School | 29.2 | 34.4 |
| Jr.-Sr. High School | 9.9 | 18.3 |
| Consolidated | 25.9 | 44.7 |
| Special | 49.0 | 62.5 |
| All | 28.5 | 36.5 |
| Number of Schools in Weighted Sample | 79 | 165 |

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 21

AVERAGE DAILY SCHOOL BREAKFAST PROGRAM PARTICIPATION
WITH AND WITHOUT COMPETING FOODSERVICE

Percent of Average Daily Attendance

| Availability | Vending Machines | | | Snackbar | | |
|---------------|-------------------------|-------------------|----------------------------|-------------------------|-------------------|----------------------------|
| | Breakfast Participation | Number of Schools | Significance of Difference | Breakfast Participation | Number of Schools | Significance of Difference |
| Available | 34.86 | 29 | | 27.42 | 26 | |
| Not Available | 33.78 | 215 | N.S. <u>a/</u> | 34.68 | 218 | N.S. |
| Both | 33.91 | 234 | | 33.91 | 244 | |

a/ N.S. = Not statistically significant.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

TABLE 22

AVERAGE DAILY NATIONAL SCHOOL LUNCH PROGRAM PARTICIPATION
WITH AND WITHOUT COMPETING FOODSERVICE

Percent of Average Daily Participation

| Competing Foodservice | Presence of Competing Service | | Significance of Difference |
|-----------------------|-------------------------------|---------------|----------------------------|
| | Available | Not Available | |
| Vending Machines | | | |
| Participation | 57.2 | 60.8 | 99% |
| Number of Schools | 381 | 48 | $\alpha = .005$ |
| Snackbar | | | |
| Participation | 49.0 | 61.3 | N.S. <u>a/</u> |
| Number of Schools | 32 | 397 | |
| Open Campus | | | |
| Participation | 55.6 | 63.7 | 99% |
| Number of Schools | 176 | 235 | $\alpha = .001$ |

a/ N.S. = Not statistically significant

Source: Compiled from data collected during School Breakfast Study, 1977-78.

Breakfast participation shows no relationship with class starting time. However, it does show a significant positive correlation at the 98 percent level; $\alpha = .02$ with the length of the breakfast period. In other words, breakfast participation is greater when students have a longer time to be served. The breakfast period was defined as the time between starting to serve breakfast and stopping. Therefore, the data do not indicate whether this higher participation rate is due to breakfast being available right up to, or even after, the beginning of class.

Breakfast participation was also higher in schools that had a large percentage of children who ride the bus to school, but higher participation was statistically significant only for those schools whose students ride longer than 30 minutes. Participation was lower in schools that had a large percentage of their students who are driven to school or who walk or ride a bike to school. This probably indicates that students who have more control over their arrival time at school may forgo school breakfast and arrive later, while those students who must catch the bus can be scheduled to arrive with sufficient time to eat.

Lunch participation showed neither correlation with the length of the lunch period nor with class ending time, but was positively correlated with the length of the school day, when intervening variables were controlled. In lunch programs, as in breakfast programs, the strongest disincentive effect on participation is caused by having an open campus. The effect of vending machines outside the cafeteria and that of snack bars is not consistent among all grade levels. Except for the effects of vending machines in the cafeteria, all of these associations hold only for the relatively non-needy schools. In needy schools, participation is high regardless of competing systems.

Combined Effects of Students Participation in the SBP and the NSLP

In order to evaluate the independent effects of the various factors influencing student participation in school meals, regression models were estimated that show the effect of each variable with the influence of all the others controlled. These models were similar in design and use to the one discussed earlier which was used to estimate the independent effects of variables affecting school participation in the SBP. Two separate regression equations were used to estimate the factors that affect student participation in the SBP and the NSLP. The model with breakfast participation, where participation is computed as a percent of average daily attendance, as the dependent variable included the following other variables.

| | |
|--------|---|
| LEVEL | = A dummy variable, set at 0 for elementary schools and at 1 for secondary (junior and senior high) schools. Other schools were excluded. |
| NEED | = Percent of enrolled students eligible for free and reduced price meals. |
| CAF | = A dummy variable representing whether schools have a separate room for eating, set at 1 if they do and 0 otherwise. |
| BUS | = Percentage of enrolled children who ride the bus to school more than 30 minutes. |
| ENROLL | = Total enrollment of school. |
| OPEN | = A dummy variable set at 1 if the school has an open campus; 0 otherwise. |

| | |
|--------|---|
| VEND | = A dummy variable set at 1 if the school has vending machines; 0 otherwise. |
| SNACK | = A dummy variable set at 1 if the school has a snackbar; 0 otherwise. |
| PRICE | = Full price (in cents) of breakfast. |
| PERIOD | = Length (in minutes) from start to end of breakfast period. |
| TIME | = time (in minutes) from the beginning of the breakfast period to the beginning of class. |
| PREP | = A dummy variable set at 1 if breakfast is prepared on-site; 0 otherwise. |

The results calculated by the regression are shown in Table 23. The level of significance is an indication of the strength of the association of each variable with breakfast participation. As expected from our earlier discussion, the percent of needy students has the greatest effect on breakfast participation, with a significance level at the 99 percent level; $\alpha = .001$. In addition, it accounts for 30 percent of the variability in breakfast participation. Grade level is negatively associated with participation: children in younger grade schools are more likely to eat breakfast if it is offered. Higher price is a significant disincentive to participation in the SBP, both directly and because of the fact that prices are greater in less needy and in higher grade level schools. School size shows a significant positive association with breakfast participation when grade level and economic need controlled. It is not evident why this should be so.

On-site meal preparation does not influence participation in breakfast. We have discussed possible reasons for this: a highly acceptable breakfast (milk and cereal or muffins and fruit, for example) can be prepared outside and brought into the school without any great loss in quality. This is in contrast to lunch, where one would expect on-site preparation to produce a more acceptable meal. Availability of a special room for eating has a slight negative effect on breakfast participation.

As we found before, an open campus significantly reduces breakfast participation. This is true even with school size, grade level, and neediness controlled. Vending machines and snackbars do not reduce participation in the SBP. Possibly in schools with open campus policies, children are already familiar with food shops close to the school, and so are more likely to have breakfast at these places before coming to class. Otherwise it is not clear why open campus should affect children's decision to eat the school breakfast, since they are off-campus on their way to school in any case.

The length of the breakfast period had no effect on program participation, but the length of time between breakfast starting and class starting time did affect it. The percentage of children riding the bus was also positively associated with SBP participation. Both of these variables relate to the amount of time a child may have to eat before coming to class, and this clearly makes a difference.

TABLE 23

PARAMETERS OF REGRESSION MODEL SHOWING
EFFECT OF SCHOOL AND PROGRAM CHARACTERISTICS
ON AVERAGE DAILY STUDENT BREAKFAST PARTICIPATION

| Dependent Variable | Number of Cases | Constant |
|-------------------------|--------------------|-----------------|
| Breakfast Participation | 187 | 27.43 |
| Parameters | | F-Test |
| LEVEL | = -5.49 | 4.193 <u>a/</u> |
| NEED | = .390 | 66.6 <u>b/</u> |
| CAF <u>d/</u> | = -6.77 | 1.96 <u>c/</u> |
| BUS | = .087 | 2.77 <u>a/</u> |
| ENROLL | = .009 | 8.47 <u>a/</u> |
| OPEN | = -7.428 | 6.52 <u>a/</u> |
| VEND | = 2.391 | 0.271 |
| SNACK | = 2.069 | 0.224 |
| PRICE | = -.382 | 5.157 <u>a/</u> |
| PERIOD | = .049 | 0.690 |
| TIME | = .109 | 2.618 <u>a/</u> |
| PREP | = 3.487 | 0.802 |

a/ Significant at 99 percent level; $\alpha = .01$.

b/ Significant at 99 percent level; $\alpha = .001$.

c/ Significant at 95 percent level; $\alpha = .05$.

d/ CAF = A dummy variable for the presence or absence
of a cafeteria or multi-purpose room used for eating.

Source: Compiled from data collected during School
Breakfast Study, 1977-78.

For the sake of comparison, a similar regression was run using lunch participation as the dependent variable. In addition to the relevant variables from the breakfast model, the following variables were included.

- COMPET = A dummy variable set at 1 if another lunch (a la carte or non-federal plate) was also available, 0 if only NSLP was available.
- DAY = Length of the school day (in minutes)
- SBP = A dummy variable set at 1 if the school served a school breakfast; 0 otherwise.

The result of the regression is shown in Table 24. Many of the results show similar relationships to those for breakfast. Lunch price shows the strongest association with participation; there is higher participation with lower lunch prices. High levels of needy students are also associated with high participation in the NSLP, but the association is not nearly so strong as with breakfast.

The availability of a competing lunch or a la carte service is a significant disincentive to NSLP participation. As with breakfast, the presence of an open campus has a negative influence on NSLP participation. Neither vending machines nor available snackbars show a significant effect, though snack bars do show a negative association with school lunch participation.

The length of the lunch period has no effect on lunch participation, but the length of the day does; schools with long days show higher participation in lunch. Presumably students facing longer days know that they will have to wait a long time after lunch for another opportunity to eat.

In contrast to breakfast, lunch participation is significantly and substantially increased if the meal is prepared on location. This may be explained by the fact that lunch is a more complicated meal than breakfast and quality can be better maintained in on-site cooking and serving. Also, greater variety, including hot and chilled foods, is possible with on-site preparation. This would be true for breakfast as well, but as we shall discuss, breakfasts with more elaborate menus also cost more, and the price disincentive (in the case of breakfast) apparently discourages participation more than menu variety encourages it.

The highly significant negative relationship between school size and lunch participation has no ready explanation, since it is evident in spite of controlling for possible explanatory variables such as grade level and level of need. Presumably schools with larger enrollment share some other characteristic that discourage lunch participation but promotes it in breakfast, since it is not obvious why school size should directly affect meal program participation. Another possibility is that this is an artifact of the co-variation of school size with these variables, since in the case of high co-variation not all the influence of intervening variables can be controlled.

Especially noteworthy is the fact that schools which have a breakfast program show a considerably higher participation rate in lunch. This remains true even with such co-variables as neediness, grade level, and school size controlled. This means that the availability of breakfast does not discourage lunch participation, another presumed barrier to the commencement of the breakfast program.

TABLE 24

PARAMETERS OF REGRESSION MODEL SHOWING
EFFECT OF SCHOOL AND PROGRAM CHARACTERISTICS
ON AVERAGE DAILY STUDENT LUNCH PARTICIPATION

| Dependent Variable | Number of Cases | Constant |
|------------------------|--------------------|-----------|
| Lunch Participation | 319 | 47.19 |
| Parameters | F-Test | |
| ENROLL = -.0093 | 8.231 | <u>a/</u> |
| COMPET = -8.433 | 5.44 | <u>a/</u> |
| PRICE = -.839 | 34.37 | <u>b/</u> |
| NEED = .172 | 7.66 | <u>a/</u> |
| CAF <u>c/</u> = 3.259 | .817 | |
| OPEN = -4.078 | 2.619 | <u>a/</u> |
| VEND = 2.659 | .332 | |
| SNACK = -3.890 | .682 | |
| PERIOD = -.034 | .249 | |
| DAY = .123 | 5.346 | <u>a/</u> |
| SBP <u>d/</u> = 9.919 | 7.320 | <u>a/</u> |
| PREP <u>e/</u> = 6.588 | 4.681 | <u>a/</u> |
| LEVEL = -2.268 | .696 | |

a/ Significant at 99 percent level; $\alpha = .01$.

b/ Significant at 99 percent level; $\alpha = .001$.

c/ CAF = A dummy variable to account for the presence or absence of a cafeteria or a multi-purpose room used for eating.

d/ SBP = School Breakfast Program.

e/ PREP = A dummy variable for the location of the preparation of breakfast.

Source: Compiled from data collected during School Breakfast Study, 1977-78.

It should be noted that these two regression equations were run only on elementary, junior, and senior high schools. Consolidated and special schools were excluded so that grade level could be controlled. These schools have their own unique characteristics. For example, consolidated schools tend to have more children travelling long distances by bus, and they tend to have lower enrollments; some relationships that may be typical of these schools would be missing from the models described in this section.

Breakfast Participation and Special SBP Characteristics

It was hypothesized that breakfast participation might be higher in schools where breakfast more frequently included meat or a meat alternate. However, the study showed that frequency of serving meat or an alternate did not have any impact on participation. About 80 percent of breakfast schools serve meat or a meat alternate at least once a week; most serve it once, twice, or three times per week.

Only six percent of the breakfast schools sampled serve the formulated grain-fruit product as part of the SBP meal pattern. The formulated grain-fruit product is a bread product fortified with vitamin C which can be used in a SBP menu to fulfill both the bread and the fruit components of the breakfast meal pattern.

A surprising finding was that participation in the School Breakfast Program was significantly lower in schools in which a menu choice for breakfast was offered. Participation averaged 23 percent in programs offering choice, compared with 36 percent of those that did not ($F = 11$; $\alpha = .0011$). This seemingly counterintuitive result is explained by the fact that choice is offered in significantly more schools of higher grade level and with a lower percentage of needy students. Furthermore, the price to paying students of a breakfast that includes a choice of many items averages 26.2 cents, while the price of a breakfast without choice averages 21.7 cents. All these factors make it understandable that participation should be lower where menu choice is offered.

FACTORS INFLUENCING NON-BREAKFAST SCHOOLS

Prior Participation

Several questions were asked of respondents from schools that did not participate in the SBP at the time of the survey to discover what obstacles localities encounter in beginning or continuing the breakfast program.

There were 264 schools in the sample that did not operate the program in October 1977. Of these schools, 2.3 percent had previously operated the program and discontinued it after a short period. Another 38 schools or 14.4 percent indicated their intent to enter the program within 12 months, between 12-24 months, or at an undecided later date. At least 21 of these schools were from States that mandated the SBP in schools with designated characteristics. The remaining 220 schools had not offered the SBP in the past and did not intend to offer the program in the future.

Reasons for Non-Participation

We asked each of the 264 schools to describe its primary reason for non-participation in the SBP. The most frequently mentioned reason was that the program was "not needed," that parents in the community were able to provide breakfast for their children, or had not requested the program. In addition, some respondents went further to mention that they perceived a family, not a school, responsibility to offer a morning meal to children. This response was mentioned 96 times, more than three times the number of the next most often mentioned response. Table 25 displays the reasons cited for non-participation.

Twenty-eight schools (10.6 percent) listed busing, transportation or other scheduling problems as the major reason for not participating in the SBP. Lack of interest in the program (22 schools, 8.3 percent) and school board opposition (12 schools, 4.5 percent) accounted for 12.8 percent of the total. Lack of funds (7 schools), facilities (12 schools) or information about the

TABLE 25
PRIMARY REASON FOR NON-PARTICIPATION
IN THE SCHOOL BREAKFAST PROGRAM

| Reason | Number of Schools with this response | Percent |
|---|---|---------|
| 1. Parents able to provide breakfast, program not needed | 96 | 36.4 |
| 2. Busing, transportation or scheduling problems | 28 | 10.6 |
| 3. Lack of interest, support, or too much trouble to operate | 22 | 8.3 |
| 4. Lack of participation or potential participation by students | 17 | 6.4 |
| 5. Facilities inadequate | 12 | 4.5 |
| 6. School Board opposition | 12 | 4.5 |
| 7. Other foodservice available at breakfast | 8 | 3.0 |
| 8. Lack of funds | 7 | 2.7 |
| 9. No information on the program | 2 | .8 |
| 10. Other reasons | 10 | 3.8 |
| 11. No response | 50 | 18.9 |
| (Schools entering the SBP listing no response) | (23) | (9.1) |
| TOTAL | 264 | 99.9 |

Source: Compiled from data collected during School Breakfast Study, 1977-78.

program (2 schools) for another 7.4 percent. Lack of participation was described as the primary reason for not participating by 17 schools (6.4 percent). In three percent of the schools non-Federally supported foodservice was available at breakfast.

The reasons cited for non-participation reflect the perceptions of the respondents who were, in the majority of cases, school principals. Some of the problems like lack of facilities or funding are quite easy to overcome. The meal pattern required by the SBP, 1/2 cup fruit or full strength fruit juice, 1 slice bread, and 1/2 pint of milk requires minimal equipment and facilities for operation. Most schools that offer the NSLP have the facilities to offer the SBP. Since the meal can and sometimes is, eaten in areas other than the cafeteria, an eating area or eating facility also may not present overwhelming barriers to SBP operations. In cases where the lack of facilities are legitimately a problem, the Department's Foodservice Equipment Assistance Program will target funds towards schools moving toward the initiation of a breakfast program.

The funding structure of the SBP is intended to allow the program to be self-supporting. Since all meals receive a basic reimbursement rate and meals served at free or reduced price receive additional funds to compensate for no charge or low charges to the students, student payments should cover any costs not already borne by Federal reimbursements. In addition, schools that qualify under each State's criteria for especially needy breakfast reimbursement can receive additional Federal payments if actual costs incurred exceed the normal reimbursement rates.

Some other obstacles cited as impediments to a school's initiation of the SBP have been examined already in the analysis of this report. For example, our statistical examination of characteristics of schools which did and did not offer the SBP at the time of the report indicated that the degree to which students are bused to school, or the variety of modes of transportation of students are not factors that have prevented schools from operating the SBP. Scheduling of the class day also does not appear to influence a school's ability to offer the program.

The anticipation of unacceptably low levels of participation by students in the SBP was another reason cited by schools that did not offer the breakfast program. It is true that student participation in the SBP has never matched that of the NSLP. However, there are indications that average daily breakfast participation is growing over time. The "Special Milk Program and National School Lunch Program Survey" that analyzed data collected in 1975 showed average daily student participation 22.1 percent in the SBP. In this survey, analyzing data from October 1977, we report that average daily SBP participation is at 33.4 percent, or a 52.9 percent increase in less than three years. While the number of breakfasts served may never equal that of the NSLP, it may be that those who feel that SBP performance must match the NSLP have set unreasonably high performance standards for the program.

The prevailing response to this question, that the program is not needed, or that parents should provide breakfasts for their children, reflects a philosophical attitude towards the role schools and institutions should play in the lives of children and in the life of their communities. The SBP is perceived as a social institution which substitutes government programs for traditional family roles. Yet, in some respects, traditions of family life have altered. There are now more families where both husband and wife earn an income; and there are also more families with a single head of the

household. Both circumstances can result in less time to provide children with morning meals. However, the SBP is intended to fill the nutritional need for morning meals created by these circumstances. To the extent that increasing numbers of children may not have access to breakfast, the need for this program does exist, even if local preferences or attitudes differ over the organizational structure through which it is offered.

CHAPTER III: APPENDIXES

SURVEY INSTRUMENT

The survey instrument used to collect the data presented in this report was mailed to the respondents in December 1977. Responses were received in January, February and March of 1978 and follow-up activities and manual edit checks were completed during February, March and April 1978. The survey instrument appears on pages 36-52.

USDA SCHOOL BREAKFAST PROGRAM EVALUATION

UNITED STATES DEPARTMENT OF AGRICULTURE
FOOD AND NUTRITION SERVICE
NOVEMBER, 1977

Respondent's Name _____

Respondent's Title _____

Telephone Number _____ Date of Completion _____

PLEASE COMPLETE ONLY THOSE SECTIONS OF THIS QUESTIONNAIRE
WHICH APPLY TO YOUR SCHOOL.

Section I: To be completed by all schools selected for the survey.

Section II: To be completed by all schools which DO NOT participate
in the USDA School Breakfast Program.

Section III: To be completed by schools which DO participate in the
USDA School Breakfast Program.

The United States Department of Agriculture's Food and Nutrition Service is acting as the data collection agent in this survey. This information is needed to assess the status of the USDA School Breakfast Program in schools and to determine the types of schools that participate in the program. All information given will be kept confidential and will be used only for statistical purposes in combination with similar reports from other schools across the Nation.

ID ☐ ☐ ☐ (1-3)
11 (4-5)

SECTION I

TO BE COMPLETED BY ALL SCHOOLS IN THE SURVEY

1a. Please indicate type of school:

public ☐ 1 (7)
private ☐ 2

1b. Please indicate if this is a boarding or
a non-boarding school:

boarding ☐ 1 (8)
nonboarding ☐ 2

2. Please circle all grades taught:

PreK K 1 2 3 4 5 6 7 8 9 10 11 12 (9-22)
Other (specify) _____

3. Please enter the following information
for October, 1977:

total enrollment ☐ ☐ ☐ ☐ ☐ ☐ (23-28)

average daily attendance ☐ ☐ ☐ ☐ ☐ ☐ (29-34)

4. Does this school operate on a single
session or a split session basis?

single session (answer question 5, skip question 6) ☐ 1 (35)
split session (skip to question 6) ☐ 2

5. If your school operates on a single
session basis, please enter the class
starting time and class ending times
as indicated:

class starting time ☐ ☐ ☐ ☐ (36-39)

class ending time ☐ ☐ ☐ ☐ (40-43)

ID (1-3)

12 (4-5)

6. If your school operates on a split session basis, please enter below the number of students in each session, the class starting time and class ending time for each session, and if any type of foodservice is available to each session.

| Session | Enrollment | Class starting time | Class ending time | Food service available? (Yes--No) | |
|---------|---------------|-----------------------|-----------------------|-----------------------------------|---------|
| 1 | <u> </u> | <u> </u> : <u> </u> | <u> </u> : <u> </u> | Yes <u> </u> 1 No <u> </u> 2 | (7-21) |
| 2 | <u> </u> | <u> </u> : <u> </u> | <u> </u> : <u> </u> | Yes <u> </u> 1 No <u> </u> 2 | (22-36) |
| 3 | <u> </u> | <u> </u> : <u> </u> | <u> </u> : <u> </u> | Yes <u> </u> 1 No <u> </u> 2 | (37-51) |

7. With respect to the lunch period, does this school operate on an open or closed campus basis?

Open campus--students can leave for meals ☐ 1 (52)

Closed campus--students cannot leave for meals ☐ 2

8. Please indicate the facilities available at the school, regardless of whether or not they are currently used:

kitchen Yes ☐ 1 No ☐ 2 (53)

cafeteria Yes ☐ 1 No ☐ 2 (54)

multipurpose room Yes ☐ 1 No ☐ 2 (55)

gymnasium Yes ☐ 1 No ☐ 2 (56)

9. By what time in the morning are teachers and administrators required to arrive for the school day?

 : (57-60)

ID (1-3)
13 (4-5)

10. What is your best estimate of the percentage of students who utilize the following means of transportation to school each day?

| | Percent | % |
|---|-------------|---------|
| bus (less than 30 minutes one-way) | <u> </u> | (7-8) |
| bus (30 minutes to 1 hour one-way) | <u> </u> | (9-10) |
| bus (over 1 hour one-way) | <u> </u> | (11-12) |
| walk or bike | <u> </u> | (13-14) |
| auto driven by student, parent or other | <u> </u> | (15-16) |
| other (specify below) | <u> </u> | (17-18) |

11. First check the boxes below which apply to the food and/or milk service which your school operates. If any of these services are not available to the entire school, please indicate the grades to which they are not available in the space provided on the right.

Grades to which
services are
not available.

SERVICES AVAILABLE (Check all that apply)

(19) Breakfast

- | | | | | |
|----------------------------|--|-----------------------------|-----|------|
| 1 <input type="checkbox"/> | USDA School Breakfast Program (SBP) | <u> </u> | 0/1 | (20) |
| 2 <input type="checkbox"/> | Other breakfast service (including a la carte) | <u> </u> | | |

(21) Lunch

- | | | | | |
|----------------------------|---|-----------------------------|-----|------|
| 1 <input type="checkbox"/> | USDA National School Lunch Program (NSLP) | <u> </u> | 0/1 | (22) |
| 2 <input type="checkbox"/> | Other plate lunch service (not NSLP) | <u> </u> | | |
| 3 <input type="checkbox"/> | A la carte service | <u> </u> | | |

Milk

If your school provides milk, what is the lowest charge to children for 1/2 pint of milk?

 ¢ (23-24)

- (25) Is this milk provided under:

- | | | | | |
|----------------------------|---------------------------------|-----------------------------|-----|------|
| 1 <input type="checkbox"/> | USDA Special Milk Program (SMP) | <u> </u> | 0/1 | (26) |
| 2 <input type="checkbox"/> | Other milk service | <u> </u> | | |

Other

- | | | | | | |
|------|------------------------------|--|-----------------------------|-----|------|
| (27) | 0/1 <input type="checkbox"/> | Vending machines offering items for sale in cafeteria | <u> </u> | 0/1 | (28) |
| (29) | 0/1 <input type="checkbox"/> | Vending machines offering items for sale elsewhere in school | <u> </u> | 0/1 | (30) |

Grades to which
services are
not available.

Other (cont.)

(31) C/1 ☒ Snack bar, school store, etc.
(other than school cafeteria or
lunch room)

0/1 (32)

(33) 0/1 ☒ No food or milk service

0/1 (34)

12. Were you aware of the Department of Agriculture's
School Breakfast Program before you received
this questionnaire?

yes ☒ 1 (35)
no ☒ 2

PLEASE COMPLETE EITHER SECTION II OR SECTION III OF THIS QUESTIONNAIRE
AS APPROPRIATE AND RETURN THE QUESTIONNAIRE IN THE ENVELOPE PROVIDED.

PAGE 5 OF THIS QUESTIONNAIRE HAS BEEN PROVIDED FOR YOUR COMMENTS.
THANK YOU FOR YOUR ASSISTANCE IN THIS STUDY.

PLEASE USE THIS PAGE TO RECORD ANY COMMENTS WHICH YOU MIGHT HAVE
CONCERNING THE CHILD NUTRITION PROGRAMS OR THIS STUDY.

0/1 (36)

ID (1-3)

21 (4-5)

SECTION II

TO BE COMPLETED BY ALL SCHOOLS NOT PARTICIPATING
IN THE USDA SCHOOL BREAKFAST PROGRAM (SBP)

1. Has this school ever participated in the
USDA School Breakfast Program?

yes ☐ 1 (7)
no ☐ 2

If no, go to item 2.

If yes:

- a. When did the school begin
the program?

month year (8-11)

- b. When did the school
leave the program?

month year (12-15)

- c. Please explain below the
primary reason for leaving the
program:

2. Do you plan to enter the USDA School
Breakfast Program?

yes ☐ 1 (16)
no ☐ 2

If yes; check the response that applies:

- a. Within 12 months? ☐ 1 (17)

Within 12-24 months? ☐ 2

Undecided later date? ☐ 3

b. Please check one:

plans are tentative

☐ 1

(18)

application is being prepared

☐ 2

application has been submitted

☐ 3

If no:

a. What is the primary reason for not participating in the School Breakfast Program?

b. What are any secondary reasons?

c. If there are any legal prohibitions against your school's participation in the School Breakfast Program, please indicate them below:

3. Does any employee contract restrict working times of any school employees and therefore preclude the potential operation of the School Breakfast Program?

yes ☐ 1

(19)

no ☐ 2

don't know ☐ 3

If yes:

please indicate the employees affected by the contracts:

administrators Yes ☐ 1 No ☐ 2 (20)

teachers Yes ☐ 1 No ☐ 2 (21)

custodial Yes ☐ 1 No ☐ 2 (22)

food service Yes ☐ 1 No ☐ 2 (23)

other Yes ☐ 1 No ☐ 2 (24)

- yes $\frac{_}{_} \frac{_}{_}$ 1 (25)
no $\frac{_}{_} \frac{_}{_}$ 2

3

- yes 1 1 (26)
no 2 2

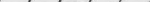


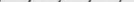
(27-32)

- (33-38)

- NSLP
/// (39-40)

- _____
/ / / / / / / / / / (41-48)

- 
- (49-56)

- 
- (57-64)

- (65-72)

ID (1-3)
22 (4-5)

8. Does your school charge the same price for Type A lunches for students in all grades?

yes 1 (6)
no 2

If yes, what is the charge for

full price ¢ (7-8)
reduced price ¢ (9-10)

If no, what is highest charge for

full price ¢ (11-12)
reduced price ¢ (13-14)

Which grades are charged this price? 0/1 (15)

What is the lowest charge for full price (16-17)

reduced price (18-19)

Which grades are charged this price? 0/1 (20)

9. Please indicate the starting and ending time for each lunch service period:

NATIONAL SCHOOL LUNCH PROGRAM

| Service period | Starting time | Ending time | |
|----------------|---------------|---------------------------|---------|
| 1 <u> </u> | : <u> </u> | <u> </u> : <u> </u> | (21-28) |
| 2 <u> </u> | : <u> </u> | <u> </u> : <u> </u> | (29-36) |
| 3 <u> </u> | : <u> </u> | <u> </u> : <u> </u> | (37-44) |

10. What type of food preparation system does this school use for the National School Lunch Program?

Please check one:

NSLP

- a. Most of the food for lunches is prepared at this school by school employees:

1. For consumption at this school only

☐ 1 (45)

2. For consumption at this and other schools

☐ 2

- b. Most of the food for meals is prepared elsewhere by school employees:

1. At a central kitchen (a kitchen which is not part of a school)

☐ 3

2. At another school

☐ 4

- c. Most of the food is prepared by a food service management company:

1. At this school

☐ 5

2. Elsewhere

☐ 6

- d. Other type of food preparation system (please explain below)

☐ 7

11. Where are most lunches usually eaten by students:

cafeteria ☐ 1 (46)

multipurpose room ☐ 2

gymnasium ☐ 3

classroom ☐ 4

outside, on school grounds ☐ 5

other (specify) _____ ☐ 6

PLEASE RETURN THIS QUESTIONNAIRE WITH ALL APPROPRIATE SECTIONS COMPLETED IN THE ENVELOPE PROVIDED. THANK YOU FOR YOUR ASSISTANCE IN THIS STUDY.

ID (1-3)
31 (4-5)

SECTION III

TO BE COMPLETED BY ALL SCHOOLS WHICH DO PARTICIPATE IN THE USDA SCHOOL
BREAKFAST PROGRAM (SBP)

If your school does not participate in the USDA National School Lunch
Program (NSLP), disregard items marked NSLP.

1. Please enter the following information for
the month of October, 1977:
- | | SBP | NSLP | |
|---|-----------------------------|-----------------------------|-------------|
| a. Number of days meal service was offered during October, 1977 | <u> </u> | <u> </u> | (7-10) |
| b. <u>Total reimbursable meals served</u> <u>to students</u> during October, 1977 | <u> </u> | <u> </u> | (11- 26) |
| c. Total meals served <u>free</u> to <u>students</u> during October, 1977 | <u> </u> | <u> </u> | (27-42) |
| d. Total meals served at a <u>reduced-</u> <u>price</u> to <u>students</u> during October, 1977 | <u> </u> | <u> </u> | (43-58) |
| e. Total meals served to <u>others</u> (teachers, workers, etc.) during October, 1977 | <u> </u> | <u> </u> | (59-74) |

ID (1-3)
32 (4-5)

- 2a. How many students are approved to receive free meals? (7-12)
- b. How many students are approved to receive reduced-price meals? (13-18)
3. What is the highest price charged to students for meals?
- | | <u>SBP</u> | <u>NSLP</u> | |
|---|---------------|---------------|---------|
| a. Full price | <u> </u> ¢ | <u> </u> ¢ | (19-22) |
| b. Reduced-price (for meals served to needy children) | <u> </u> ¢ | <u> </u> ¢ | (23-26) |
4. What type of food preparation system does this school have?
- Please check all that apply:
- | | <u>SBP</u> | <u>NSLP</u> | |
|---|----------------------------|----------------------------|---------|
| a. Most of the food for meals is prepared at this school by school employees: | | | |
| 1. For consumption at this school only | <input type="checkbox"/> 1 | <input type="checkbox"/> 1 | (27-28) |
| 2. For consumption at this and other schools | <input type="checkbox"/> 2 | <input type="checkbox"/> 2 | |
| b. Most of the food for meals is prepared elsewhere by school employees: | | | |
| 1. At a central kitchen (a kitchen which is not part of a school) | <input type="checkbox"/> 3 | <input type="checkbox"/> 3 | |
| 2. At another school | <input type="checkbox"/> 4 | <input type="checkbox"/> 4 | |
| c. Most of the food is prepared by a food service management company: | | | |
| 1. At this school | <input type="checkbox"/> 5 | <input type="checkbox"/> 5 | |
| 2. Elsewhere | <input type="checkbox"/> 6 | <input type="checkbox"/> 6 | |
| d. Other type of food preparation system (please explain below) | <input type="checkbox"/> 7 | <input type="checkbox"/> 7 | |
- _____
- _____

5. Where are most meals usually eaten by students? (please check only one response)

| | | | |
|----------------------------|--------------------------|---|------|
| cafeteria | <input type="checkbox"/> | 1 | (29) |
| multipurpose room | <input type="checkbox"/> | 2 | |
| gymnasium | <input type="checkbox"/> | 3 | |
| classroom | <input type="checkbox"/> | 4 | |
| outside, on school grounds | <input type="checkbox"/> | 5 | |
| other (specify) _____ | <input type="checkbox"/> | 6 | |

6. Please indicate the time periods during which meals are served. If more than one service is offered, please list each separately, noting starting and ending time.

SCHOOL BREAKFAST PROGRAM

| Service period | Starting time | Ending time |
|----------------|----------------------|----------------------|
| 1 | <input type="text"/> | <input type="text"/> |
| 2 | <input type="text"/> | <input type="text"/> |
| 3 | <input type="text"/> | <input type="text"/> |

NATIONAL SCHOOL LUNCH PROGRAM

| Service period | Starting time | Ending time | |
|----------------|----------------------|----------------------|---------|
| 1 | <input type="text"/> | <input type="text"/> | (30-45) |
| 2 | <input type="text"/> | <input type="text"/> | (46-61) |
| 3 | <input type="text"/> | <input type="text"/> | (62-77) |

ID (1-3)
 34 (4-5)

7. When did this school begin participating in the School Breakfast Program?

month (7-8)
 year (9-10)

8. Do you intend to continue participating in the School Breakfast Program?

yes ☐ 1 (11)
 no ☐ 2

9. Please explain briefly any efforts being made to encourage students to participate in the School Breakfast Program:

10. What was enrollment and average daily attendance for this school in the following periods:

| | <u>Enrollment</u> | <u>Average daily attendance</u> | |
|---|---|---|---------|
| a. October, 1977 | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | (12-23) |
| b. October, 1 year before participation in the SBP began | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | (24-35) |
| c. October, during first year of participation in the SBP | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | (36-47) |
| d. Has this school participated 3 years in the SBP? | Yes <input type="checkbox"/> 1 | No <input type="checkbox"/> 2 | (48) |
| e. October, 3 years after participation began in the SBP | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | (49-60) |

ID (1-3)

34 (4-5)

11. In some instances it may be impossible for students to participate in the School Breakfast Program for various reasons. Please indicate below the approximate numbers of students who are unable to participate in the program for the following reasons:

Number of
students

| | | | | | |
|--|----------------------|----------------------|----------------------|----------------------|---------|
| Students arrive too late by bus for meal service | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | (7-10) |
| Class schedule interferes with meal service | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | (11-14) |
| Students come too late by choice | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | (15-18) |
| Other (please specify below) | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | (19-22) |

12. Does your school usually operate the School Breakfast Program during the entire school year?

yes ☐ 1 (23)
no ☐ 2

If no, please complete:

- a. During what month do School Breakfast Program operations usually begin?

month (24-25)

- b. During what month do School Breakfast Program operations usually end?

month (26-27)

13. In planning breakfast menus, are meat and meat alternates (protein-rich foods such as eggs, sausage, ham, ground beef, poultry, fish, cheese, or peanut butter) offered as part of a reimbursable school breakfast?

yes ☐ 1 (28)
no ☐ 2

If yes, how many times per week on the average is a meat or meat alternate served as part of a reimbursable school breakfast?

once a week ☐ 1 (29)
twice a week ☐ 2
three times a week ☐ 3
four times a week ☐ 4
every day ☐ 5

14. Are formulated grain-fruit products that meet Food and Nutrition Service specifications (i.e. nutrient fortified doughnuts or cakes that must contain specified levels of various nutrients) offered as part of a reimbursable school breakfast?

yes ☐ 1 (30)
no ☐ 2

If yes, how many times per week on the average is a formulated grain-fruit product served as part of a reimbursable school breakfast?

once a week ☐ 1 (31)
twice a week ☐ 2
three times a week ☐ 3
four times a week ☐ 4
every day ☐ 5

15. Are students offered a choice of foods that they are allowed to select from at breakfast?

yes ☐ 1 (32)
no ☐ 2

16. Please attach a copy of your breakfast menu including serving sizes for the first week of operations for this month.

PLEASE RETURN THIS QUESTIONNAIRE WITH ALL APPROPRIATE SECTIONS COMPLETED IN THE ENVELOPE PROVIDED.

THANK YOU FOR YOUR ASSISTANCE IN THIS STUDY.

SELECTED
BIBLIOGRAPHY

1. Arvedson, I., Sterky G., and Tjernstron, K. "Breakfast Habits of Swedish School Children." Journal of American Dietetics Association, 55:257-261.
2. The Cereal Institute, Inc. The Breakfast Source Book. Chicago, Illinois, 1966.
3. The Children's Foundation. Barriers to School Breakfast. Washington, D.C., November 1978.
4. The Children's Rights Group. "School Breakfast Program: A Feasibility Study." San Francisco, California, 1978.
5. . "School Breakfast and Lunch Program: A Feasibility Study." San Francisco, California, 1979.
6. Dwyer, J.T., Elias, M.F., and Warren, T.H. "Effects of an Experimental Breakfast Program on Behavior in the Late Morning." Department of Nutrition Harvard School of Public Health, Cambridge, Massachusetts. Unpublished, 1973.
7. Fellers, S.A. "A Study of the Effects of Breakfast on Scholastic Attainment, Drop Out Rate and Knowledge of Nutrition," Ph.D. Dissertation. Boston University, Massachusetts, 1967.
8. Food Research Action Center. If We had Ham. . .We Could Have Ham and Eggs . . .If We Had Eggs: A Study of the School Breakfast Program. Yonkers, New York, 1972.
9. Hard, Margaret G. and Price, David. "Evaluation of School Lunch and School Breakfast Programs in the State of Washington." 1975.
10. Kiester, M. "Relation of Mid-Morning Feeding to Behavior of Nursery School Children." Journal of American Dietetic Association, 26:25-29.
11. Koonce, T.M. "Does Breakfast Help?" School Food Service Journal, 26:51-54.
12. Kotz, Nick. Hunger in America; The Federal Response. The Field Foundation. New York, New York, 1979.
13. Laird, D.A., Levitan, M., and Wilson, V.A. "Nervousness in School Children as Related to Hunger and Diet." Medical Journal Records, 134:494-499, 1931.
14. Lieberman, H.M., Hunt, I.F., Coulson, A.H., Clark, V.A., Swendseid, M.E., and Ho, L. "Evaluation of a Ghetto School Breakfast Program." Journal of the American Dietetic Association, 68:132-138, 1976.
15. Lininger, F. "Relation of the Use of Milk to the Physical and Scholastic Progress of Undernourished School Children." American Journal of Public Health, 23:555-560, 1973.
16. Matteson, N.E., "Mid-Morning Nutrition and Its Effects of School Type Tasks." Ph.D. Dissertation, USC, 1970.
17. Massachusetts Department of Education, Bureau of Nutrition Education and School Food Service 1969. Unpublished Survey of "Morning Eating Habits of School Children," 1977.

18. Minnesota State Senate Subcommittee on Education in Cooperation with the Minnesota Department of Education, Industry, and Local Schools. Unpublished "Survey of Morning Eating Habits of School Children," 1977.
19. Norstrand, George H., "A Study of the Effects of School Breakfast on Reading Achievement, Attendance, and General School Adjustment of Pupils." Unpublished dissertation. Brigham Young University, 1977.
20. Philadelphia Jaycees. "Needless Hunger, A Report on the School Breakfast Program in Philadelphia." Philadelphia, Pennsylvania, 1975.
21. Pinkus, M.S. "A Study of Public Breakfast Habits and Behavioral Patterns in Certain Louisiana Elementary Schools, Following Implementation of the National Breakfast Program." Master's Thesis, Louisiana State University, 1970.
22. Pollitt, Ernesto, et al. "Educational Benefits of the United States School Feeding Program: A Critical Review of the Literature." The American Journal of Public Health, 68:477-481, 1978.
23. Project Feed: "Summary of the Hartford School Breakfast Proposal." Report to the Mayor and the Board of Education, Hartford, Connecticut, 1978.
24. Read, M.S. "Malnutrition, Hunger, and Behavior." Journal of the American Dietetic Association, 63:379-385, 1973.
25. Tisdale, F.F., Robertson, E.C., Drake, G.H., Jackson, Fowler, H.M. Long, J.A., Bronha, L., Ellis, R.G., Phillips, A.J. and Rogers, R.S. "Canadian Red Cross School Meal Study." Canadian Medical Association Journal, 64:477-489, 1951.

