Table of Contents

ABT ASSOCIATES INC.
55 WHEELER STREET, CAMBRIDGE, MASSACHUSETTS 02138
TELEPHONE • AREA 617-492-7100

EVALUATION OF THE CHILD CARE FOOD PROGRAM

Final Report on the Congressionally Mandated Studies

Volume I

- Participation
- Administrative and Food Service Costs
- Meal Quality

May 27, 1982

Contract No. 53-3198-40

Principal Authors:

Frederic B. Glantz
Mary Kay O'Neill Fox

With:

Henry J. Policare
Donna D. Warner
William Bach III
Alicia Schrier
Ralph Turner

Submitted to:

Dr. Theodore F. Macaluso, Government Project Officer

United States Department of Agriculture
Food and Nutrition Service
Alexandria, Virginia 22302

Contract Manager	Quality Control Reviewer	Management Reviewer

Table of Contents

FOREWORD

Congress through P.L. 95-627 directed the Department of Agriculture to conduct three studies of the Child Care Food Prorgram: (1) a study of licensing and other barriers to participation in the program; (2) a study of administrative and food service costs in participating day care programs; and (3) a study of meal quality in participating day care centers and family day care homes. These studies were conducted by Abt Associates Inc. under contract to the Food and Nutrition Service of the U.S. Department of Agriculture.

The result of these studies are presented in three volumes:

Volume I — Final Report of the Congressionally Mandated Studies: Participation, Administrative and Food Service Costs, and Meal Quality. This report presents the findings of the three congressionally mandated reports. The volume contains three separate reports, one for each of the three studies. These individual reports are designed as stand-alone reports, and, as such, each contains the essential materials for the overall evaluation of the program. The reports are intended for non-technical audiences. Technical material has been kept to a minimum and, where possible, is presented in brief appendices.

Volume II — Technical Appendix: Part I. This report presents detailed information on the study's design and methodology. Topics covered include survey design and implementation; conceptual approach to cost and meal quality; and variable construction.

Volume III — Technical Appendix: Part II. This report presents the survey questionnaire and observation protocols.

Table of Contents

Executive Summary

Table of Contents

ABT ASSOCIATES INC.
55 WHEELER STREET, CAMBRIDGE, MASSACHUSETTS 02138
TELEPHONE • AREA 617-492-7100

EVALUATION OF THE CHILD CARE FOOD PROGRAM

Final Report on the Congressionally Mandated Studies

Executive Summary

May 27, 1982

Contract No. 53-3198-40

Submitted to:

Dr. Theodore F. Macaluso, Government Project Officer
United States Department of Agriculture
Food and Nutrition Service
Alexandria, Virginia 22302

Contract Manager	Quality Control Reviewer	Management Reviewer

Table of Contents

EXECUTIVE SUMMARY

Overview of the Study

The Child Care Food Program (CCFP) provides federal grants for meals served in nonresidential day care centers and family day care homes. Although program benefits are targeted for preschool children from low-income families, all children attending participating day care facilities receive the benefits of the CCFP. The Child Nutrition Amendments of 1978 (P.L. 95-627) changed several program regulations in order to facilitate participation in the program. The 1978 Amendments directed the Food and Nutrition Service of the Department of Agriculture to study the administrative and food service costs of participating institutions; the quality of meals served in particiating institutions; and licensing and other barriers to participation in the CCFP.

The evaluation of the CCFP was conducted between 1979 and 1982 and was designed to address the three studies mandated by P.L. 95-627. The overall study design recognized that regulatory changes were likely to affect some of the areas under study in the evaluation. Two data collection efforts were conducted. The first data collection effort (Wave I) was conducted between January 1980 and March 1980, prior to the implementation of the regulatory changes stemming from the 1978 Amendments. A second data collection (Wave II) was conducted between January 1981 and March 1981, allowing for the full implementation of the new regulations which became effective May 1, 1980. Wave I provided baseline data on program costs, administrative practices, and program participation as well as an assessment of meal quality. Wave II provided comparative data on costs, administrative

practices, and barriers to participation used to assess the impact of the regulatory changes.[1]

The Omnibus Reconciliation Act of 1981 (P.L. 97-35) initiated major changes in the CCFP. This new legislation is intended to contain the cost of the CCFP, while at the same time ensuring that subsidies available through the program are more directly targeted at low-income children. While this study was conducted prior to the enactment of P.L. 97-35, many of the analyses conducted offer insights into the potential effects of this legislation on program participation.

Summary of Findings

The results of this study indicate quite clearly that the CCFP is meeting its goal of providing nutritious meals to children in day care in an attempt to improve the quality of their diets. The CCFP provides children in participating day care centers and family day care homes a significant opportunity for receiving an adequate daily dietary intake. In addition, the nutritional quality of the diet and the quality and variety of food served are significantly better in participating day care facilities than in nonparticipating facilities.

While meal quality is significantly better in participating day care facilities, the study also found that costs are also significantly higher in participating day care facilities. The CCFP provides a subsidy to participating day care centers rather than reimbursing such centers for the full cost of their food programs. The study found that the level of this subsidy is comensurate with the difference in cost between participating and nonparticipating

---

[1]The regulatory changes were not expected to affect meal quality. Following the recommendation of the study's Advisory Panel, Wave II did not address meal quality.

centers. From this perspective, the government, through the CCFP, is paying only for the difference in meal quality between participating and nonparticipating centers.

Family day care is very different from center-based care. Because small numbers of children are being cared for in the provider's home rather than large numbers of children being cared for in an institutional setting, the food program costs in family day care are not comparable to those of center-based care. In addition, the administrative structure of the food program in participating family day care programs is quite different from that in center-based programs. In family day care programs the sponsor assumes all administrative responsibility for the CCFP for all homes under its umbrella. The current regulations operationally distinguish--and establish separate ceilings for--food program administrative costs and food service delivery costs in family day care programs. Although the administrative structure for homes is quite different from that of centers, on a per-meal basis, the administrative costs in participating family day care programs are, in fact, slightly lower than that of participating center-based programs. The major difference in costs between participating centers and homes is in food service delivery, where costs are markedly higher in homes. This study found that this large difference in food service costs is the direct result of the difference in setting. Family day care providers purchase food for children in their care in small quantities at local markets rather than in large quantities from institutional suppliers, as day care centers do. In addition, family day care providers prepare meals for small numbers of children, and as a consequence the labor cost per meal is substantially higher than in day care centers.

The regulatory changes which resulted from the 1978 Amendments were intended to facilitate participation in the

CCFP. This study, however, found that these changes did not affect participation among eligible day care centers--the participation rate among eligible centers has remained essentially unchanged since 1976 when 60 percent of eligible (i.e. nonprofit) day care centers were participating in the program. In marked contrast, participation among family day care homes has increased sharply since the implementation of the regulatory changes in May 1980. This increase in family day care participation resulted from the elimination of the income eligibility requirements for family day care and the separation of reimbursements for sponsor's administrative costs from reimbursements to homes. These two regulatory changes combined to sharply increase the level of reimbursements received by family day care providers--especially those serving middle-income children.

The study also found that the increase in participation among family day care homes came about largely through the expansion of the very large umbrella sponsors, rather than the creation of new sponsors. New homes are concentrated in the few very large sponsors (i.e., those with more than 200 homes). By June 1981, 6 percent of the umbrella sponsors accounted for 55 percent of all participating homes. The study also found that the large umbrella sponsors benefit from economies of scale and have significantly lower administrative costs per home than the small sponsors.

Whereas the intent of the 1978 Amendments was to facilitate and expand program participation among family day care homes, the most recent legislative changes (P.L. 97-35) strive to contain costs and more sharply focus benefits on children from low-income families. To this end, (1) administrative and food service reimbursements to umbrella sponsors and homes were reduced by 10 percent; (2) the family day care providers' <u>own</u> children are now eligible to participate in the CCFP only if such children are eligible for free or

reduced price meals; and (3) reimbursements will be made for no more than two meals and one snack per child per day.

The effect of the cut in administrative reimbursements will be to force sponsors to reduce their administrative costs or operate at a loss. It is therefore likely that sponsors will change the way they administer the program. Although it is difficult to predict where economies will be made, the cost analyses indicate many sponsors will probably cut back on the frequency of monitoring visits.

The reduction in reimbursements to family day care providers is likely to be substantial and may be large enough to affect participation. Virtually all homes currently serve both a morning and an afternoon snack to children in their care, and more than three-quarters (77 percent) of participating family day care providers currently include meals served to their own children in their claims for CCFP reimbursements. Such providers are about equally divided between those claiming one and those claiming two of their own children. Since on average family day care providers care for five children (including their own), the elimination of their own children from CCFP eligibility would reduce reimbursements between 20 and 40 percent (depending upon the caregiver's family income and how many of her own children were in care). The limitation on reimbursement to one snack will result in a 15 to 27 percent reduction in reimbursements, depending upon the number of other meals served.

The combined effect of the changes will therefore have a large impact on CCFP reimbursements to family day care providers. The reduction will range from 25 percent in homes serving breakfast, lunch and two snacks, in which the provider does not provide care to her own children, to 45 to 65 percent in homes where the provider cares for her own children who are not income eligible. Cuts of this magnitude

will almost certainly act to limit participation among family day care homes.

The study's most important findings are detailed below:

Meal Quality Findings

- Participating programs served more meals and snacks than nonparticipating programs, particularly breakfast.

- Breakfasts and lunches served in all types of programs were nutritionally well balanced.

- CCFP participants provided snacks which contributed greater amounts of calories and nutrients to the overall diet, and were significantly better balanced than snacks served in nonparticipating programs.

- CCFP participants provided significantly greater variety in the types of foods used for all meals and snacks; participants less frequently repeated the same meal or snack over a period of days.

- CCFP participants served significantly more of the naturally high quality nutrient-source foods examined in this evaluation (naturally rich vitamin A foods, iron-rich foods, whole grain breads and bread products).

- CCFP participants provided significantly greater amounts of fruit, 100 percent fruit juice and vegetables, across all meal and snack types whereas nonparticipants served more fruit drinks.

- Participants served significantly fewer concentrated sweets and sweet dessert foods, especially for snacks, thereby supplying significantly lower amounts of sucrose.

- Participants served significantly greater amounts of milk.

Table of Contents

- The nutritional quality of the diet and the quality and variety of foods served are improved as more resources are devoted to nutrition training.

- While the difference in meal quality between participating and nonparticipating centers appears to be related to differences in cost, among participating centers meal quality is not related to either administrative costs or food service delivery costs.

Table of Contents

Cost Findings

The cost findings are presented separately for center-based care and family day care. The data reflect costs as they existed in January 1980 and as such understate the current cost of providing food services in day care.[2]

A. Center-Based Day Care

- The monthly food program cost per center in participating programs is more than twice that of nonparticipating programs ($3,830 vs. $1,790).
- Food service delivery costs in participating programs are 62 percent higher than in non-participating programs ($1.57 per lunch vs. $0.97 per lunch[3]).
- Labor is the largest cost element of food service delivery, accounting for about one-half of the cost of food service for both participating and nonparticipating programs. Yet participants spend two-thirds more per lunch for labor than non-participants ($0.82 vs. $0.49)[4].
- Differences in actual food costs between participating and nonparticipating program are relatively small when compared to differences in labor costs. Participants spend an average of $0.43 per lunch compared to $0.30 for nonparticipants.

---

[2] Comparison of Wave I and II cost data indicate that the cost structure remained unchanged. That is, differences in costs were the result of inflation rather than a change in the real resources used to provide food services.

[3] Food service delivery costs were expressed in terms of lunch equivalents in order to compare programs serving different meal patterns to different numbers of children.

[4] This difference in food service labor cost is largely attributable to the cost of caregivers eating with children more frequently in participating centers. In this study these costs have been considered as food service costs, however, one might equally argue that such costs are caregiving costs. If these costs are considered caregiving then to include them in CCFP reimbursement would be double counting since caregiving is included in the day care fee charged to parents and/or the government.

Table of Contents

- There is evidence of economies of scales in meal preparation. Centers which serve relatively few children and meals devote markedly more time per meal to meal preparation. This is true for both participants and nonparticipants and results from the relatively fixed cost of a cook's time being spread over more and more meals.

- Program administration accounts for a significantly larger proportion of total food program costs among participants than among nonparticipants (17% vs. 12.2%).

- The difference in administrative costs between participants and nonparticipants can be explained largely in terms of the specific administrative requirements of the CCFP. Resources devoted to tasks associated with these requirements account for more than two-thirds of the total resources allocated to food program administration among participating center-based programs.

- The CCFP reimbursed participating centers for an average of 36 percent of their food program costs. Although on the surface these reimbursements appear low in relation to costs, much of the shortfall is due to fractional reimbursement for children in the reduced-price and paid income eligibility categories. If all meals had been reimbursed at the free rate, participating centers would have been reimbursed for 68 percent of their total costs.

B. Family Day Care

- The cost of administering the CCFP for family day care homes is very dependent on the size of the sponsor. The large sponsors are able to benefit from economies of scale--especially in recordkeeping. Sponsors with more than 200 homes had administrative costs that were less than one-half that of smaller sponsors ($18 vs. $39 per home per month).

- On a per-meal basis the administrative costs in family day care are less than that of center-based care ($0.21 vs. $0.34 per lunch).

- Food service costs in family day care are considerably higher than that of center-based care ($2.54 vs. $1.57 per lunch). This difference reflects the difference in setting (home vs. institutional) rather than inefficiency on the part of the family day care provider.

Table of Contents

- Most of the difference in food service cost between family day care and center-based care is due to differences in labor costs rather than food costs. While food costs are clear and unambiguous in family day care, labor costs are less clearly definable. Meal preparation and direct caregiving take place simultaneously and the assignment of caregivers' time to one or the other involves the application of a decision rule. In this study, all time spent cooking was considered meal preparation. The estimated labor cost of $1.48 per lunch in family day care should therefore be considered an upper bound on such costs.[5]

- Unlike center-based care, the reimbursement rates for family day care are intended to be sufficient to cover costs. While the rate structure for administrative reimbursements is sufficient to cover costs, the rates for food service costs are not sufficient to cover both food and labor costs as specified in the legislation. The rates are sufficient to cover only the cost of food.

- P.L. 95-627 and P.L. 97-35 are inconsistent with respect to family day care reimbursements. The CCFP cannot reduce reimbursements by 10 percent as specified in P.L. 97-35 while at the same time satisfying the provision of P.L. 95-627 that such reimbursements be sufficient to cover costs.

Participation Findings

- The regulatory changes which resulted from the enactment of the 1978 Amendments have resulted in a rapid expansion of participation among family day care homes. However, the modest increase in participation among day care centers has been largely unrelated to these regulatory changes.

---

[5] If one considers cooking incidental to caregiving in family day care, then to include the labor cost of meal preparation in the CCFP reimbursement would be double counting since the cost of caregiving is included in the fee charged to parents and/or the government (see footnote 4).

Table of Contents

- The increase in participation among family day care homes resulted from the combined effect of the elimination of the income eligibility criteria for family day care and the separation of reimbursements for sponsors' administrative costs from reimbursements to homes. These two legislative changes (P.L. 95-627) greatly increased the level of reimbursements received by family day care providers--especially those serving middle-income children.

- The growth in family day care participation has been concentrated in homes serving middle-income children. Prior to the elimination of the income eligibility criteria approximately one-third of the children served in participating homes had their meals reimbursed at the paid rate. In December 1981, between 57 and 67 percent of the children served would have been in the paid income eligibility category.

- State agency directors reported the growth in family day care participation has been concentrated in the few very large umbrella sponsors. In the study sample, 90 percent of the increase in homes between January 1980 and January 1981 was accounted for by three large sponsoring agencies.

- The availability of tiering as an alternative method of reimbursement for participating day centers did not result in an increase in participation among day care centers. Analysis indicates that participation among eligible day care centers is determined primarily by two factors--participation in other government programs such as Title XX and the level of potential reimbursements.

- The primary reasons cited by newly participating centers for joining the CCFP were either general economic conditions, which emphasized a need for additional sources of revenue, or that they had just become aware of the CCFP.

Table of Contents

- Although the expansionary policy inherent in P.L. 95-627 has since been superceded by a desire to contain program costs (P.L. 97-35), it is doubtful that the participation rate among day care centers could be substantially increased from current levels (60 percent). Extremely large increases in the level of reimbursements would be needed to significantly increase participation among day care centers. Even if all meals were reimbursed at full cost, only one-third of nonparticipating centers would participate in the CCFP. Such a policy would result in payments of $104 million to new participants and would increase reimbursements to current participants by $216 million.

Table of Contents

Part 1

Participation

Table of Contents

ABT ASSOCIATES INC.
55 WHEELER STREET, CAMBRIDGE, MASSACHUSETTS 02138
TELEPHONE • AREA 617-492-7100

PARTICIPATION IN THE CHILD CARE FOOD PROGRAM

May 27, 1982

Contract No: 53-3198-9-40

Principal Author:
Frederic B. Glantz

Submitted to:

Dr. Theodore F. Macaluso, Project Officer
United States Department of Agriculture
Food and Nutrition Service
Alexandria, Virginia 22302

Contract Manager	Quality Control Reviewer	Management Reviewer

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
	1.1 Overview of the Study Design	6
	1.2 Organization of this Report	7
2.0	CCFP PARTICIPATION AMONG ELIGIBLE DAY CARE CENTERS	8
	2.1 Factors Affecting Participation	10
	2.2 Impact of the 1978 Amendments	22
3.0	CCFP PARTICIPATION AMONG FAMILY DAY CARE HOMES	35
	3.1 Factors Affecting Participation Among FDCHs	36
	3.2 Impact of the 1978 Amendments	39
	3.3 Potential Impact of the Omnibus Reconciliation Act of 1981 (P.L. 97-35)	54
4.0	SUMMARY OF FINDINGS	58
APPENDIX A:	DESCRIPTION OF SURVEY PLAN	63
	A.1 The Universe of Respondents and Sampling Procedures	63
APPENDIX B:	STATISTICAL PARTICIPATION MODEL	76
	B.1 The Logit Model	76
	B.2 The Data	78
	B.3 The Estimated Model	78
	B.4 Estimating Program Participation	81
REFERENCES		84

Table of Contents

TABLE OF TABLES

		Page
Table 1.1:	INCREASE IN CCFP PARTICIPATION SINCE 1978	4
Table 1.2:	GROWTH OF THE CCFP SINCE ITS INCEPTION IN 1969	4
Table 2.1:	DISTRIBUTION OF CHILDREN ATTENDING ELIGIBLE DAY CARE CENTERS BY FAMILY INCOME AND PARTICIPATION STATUS: 1981	9
Table 2.2:	CCFP REIMBURSEMENT RATES FOR DAY CARE CENTERS, JANUARY-JUNE 1980 (dollars)	11
Table 2.3:	DISTRIBUTION OF CHILDREN ATTENDING PARTICIPATING AND NONPARTICIPATING DAY CARE CENTERS BY INCOME ELIGIBILITY CATEGORY: January 1982	14
Table 2.4:	REASONS CITED BY ELIGIBLE NONPROFIT DAY CARE CENTERS FOR NONPARTICIPATION IN CCFP	21
Table 2.5:	EFFECT OF TIERING ON MAXIMUM REIMBURSEMENT RATE	23
Table 2.6:	MAXIMUM INCREASES IN REIMBURSEMENT CEILING UNDER TIERING	23
Table 2.7:	ESTIMATED INCREASE IN PROGRAM PARTICIPATION AND COST UNDER ALTERNATIVE REIMBURSEMENT STRUCTURES	28
Table 2.8:	REASON CITED BY NEW CCFP PARTICIPANTS FOR JOINING THE PROGRAM AT THIS TIME	29
Table 2.9:	COMPARISON OF "OLD" AND "NEW" PARTICIPANTS IN THE CCFP	31
Table 2.10:	PERCENT OF CENTERS ELECTING TO USE THE TIERING METHOD OF REIMBURSEMENT BY TIER CENTERS ARE ELIGIBLE TO CLAIM	33
Table 2.11:	CHANGE IN MEAL PATTERNS AMONG NEW CCFP PARTICIPANTS	34
Table 3.1:	PERCENTAGE OF FDCHs INTERESTED IN PARTICIPATING IN A FOOD PROGRAM GIVEN CERTAIN REQUIREMENTS	38
Table 3.2:	PERCENTAGE OF FDCHs INTERESTED IN PARTICIPATING IN A FOOD PROGRAM GIVEN CERTAIN BENEFITS	38

Table of Contents

TABLE OF TABLES
(continued)

		Page
Table 3.3:	REACTIONS OF PARTICIPATING FAMILY DAY CARE SPONSORS TO THE CCFP	38
Table 3.4:	MEALS CLAIMED AT PAID RATE AS A PERCENT OF TOTAL MEALS CLAIMED, BY STATE: JUNE 1979	40
Table 3.5	CHANGE IN FDCH PARTICIPATION FOLLOWING THE IMPLEMENTATION OF THE REGULATORY CHANGES RESULTING FROM THE 1978 AMENDMENTS, BY STATE	42
Table 3.6:	POTENTIAL INCREASE IN MONTHLY REIMBURSEMENT TO A FDCH UNDER THE NEW REGULATIONS BY INCOME ELIGIBILITY CATEGORY OF CHILDREN SERVED	46
Table 3.7:	DISTRIBUTION OF CHILDREN ATTENDING PARTICIPATING FAMILY DAY CARE HOMES BY INCOME ELIGIBILITY CATEGORY: March 1980 and January 1982	48
Table 3.8:	CHANGE IN ADMINISTRATIVE PRACTICES OF FDCH UMBRELLA SPONSORS BY EXTENT OF MONITORING DONE PRIOR TO THE CHANGE IN REGULATIONS	50
Table 4.1:	DISTRIBUTION OF FDCH UMBRELLA SPONSORS BY NUMBER OF HOMES SPONSORED: SUMMER 1981	60
Table A.1:	SAMPLE SIZES FOR T-TEST OF THE EQUALITY OF TWO PROPORTIONS (P = .50), GIVEN POWER AND EFFECT SIZES	72
Table A.2:	WAVE II SAMPLE SIZES	73
Table B.1:	DETERMINANTS OF PARTICIPATION IN THE CCFP	82

Table of Contents

TABLE OF FIGURES

		Page
Figure 2.1:	EFFECT OF INCOME OF CHILDREN SERVED AND MEAL PATTERN ON A CENTER'S POTENTIAL REIMBURSEMENT FROM THE CCFP	13
Figure 2.2:	ESTIMATED INCREASE IN DAY CARE CENTER PARTICIPATION UNDER ALTERNATIVE REIMBURSEMENT STRUCTURES	26
Figure A.1:	COMPOSITION OF THE WAVE I TELEPHONE SURVEY CHILD CARE CENTER (CCC) SPONSOR SAMPLE	65
Figure A.2:	COMPOSITION OF THE WAVE I TELEPHONE SURVEY FAMILY DAY CARE HOME (FDCH) SPONSOR SAMPLE	67
Figure A.3:	COMPOSITION OF THE FDCH SPONSOR SAMPLE	74
Figure A.4:	COMPOSITION OF THE CCC SPONSOR SAMPLE	75

Table of Contents

1.0 INTRODUCTION

The Child Care Food Program (CCFP) was established in 1968 as the year-round component of the Special Food Service Program for Children, a three-year pilot program that also included a summer food service component. The CCFP was originally designed to provide federal grants for meals served in nonresidential day care centers for preschool children of low-income families and working mothers. By 1975 the CCFP had evolved as a separate program, and eligibility was expanded to include all nonprofit day care centers as well as licensed family day care homes (FDCHs) affiliated with umbrella sponsors.

The 1975 Amendments were intended to expand program participation, particularly among the many children receiving care in FDCHs. The number of children receiving CCFP benefits did expand considerably in response to the broadening of the program's eligibility requirements, but by 1978 the program was still reaching only a small proportion of the children in out-of-home day care. Three years after FDCHs became eligible, fewer than 12,000 FDCHs (serving only 51,000 children) were participating in the program. During the same period, the rate of participation among eligible day care centers also remained relatively low. In 1978, as in 1976, only 60 percent of nonprofit day care centers were participating in the CCFP.[1]

The Child Nutrition Amendments of 1978 permanently authorized the CCFP and changed several program regulations

---

[1]The estimated 1976 participation rate is derived from data from an earlier study of center-based day care (Coelen, Glantz & Calore, 1979). The estimated 1978 participation rate is based upon data obtained in the present study through telephone interviews with a random sample of 775 nonprofit day care centers as part of the effort to recruit participating and nonparticipating centers for the on-site survey.

in order to facilitate participation in the program. In addition, the 1978 Amendments restructured reimbursement procedures. For day care centers, "tiering" was established as an alternative method of computing reimbursement ceilings.[2] The effect of the tiering option was to simplify the calculation of the reimbursement ceiling and, for most eligible day care centers, to increase this ceiling. The changes affecting family day care were far more dramatic:

- Reimbursements for umbrella sponsors' administrative costs were separated from reimbursements for food and food service.

- Separate income eligibility categories for free, reduced-price, and paid rate reimbursements were eliminated. Reimbursements for all meals served in FDCHs were to be made at the "free" rate regardless of the income of the children served.

- State administering agencies were required to establish alternative licensing procedures for FDCHs in cases where no such procedures existed or where a lengthy licensing backlog existed.

- Start-up and expansion funds were provided for family day care sponsors.

The net effect of these legislative changes was to make the program less obtrusive and to greatly increase the level of reimbursements going to family day care homes for food and food preparation.

---

[2]Under the tiering system of reimbursement, day care centers were reimbursed for all children at one rate (free, reduced-price, or paid), according to the eligibility make-up of the group as a whole, regardless of the income of the individual children served.

The impact of the 1978 Amendments is clearly visible in the recent growth in program participation. While the program experienced a modest increase in the number of participating day care centers (an 8 percent increase between June and December 1980[3]), the number of FDCHs participating in the CCFP more than doubled during this same period (Table 1.1).

The 1978 Amendments followed the pattern set by previous amendments affecting the program--they extended and expanded the CCFP by opening up program participation to new groups of children in out-of-home day care. Along with the increases in the number of children served came a substantial increase in program outlays. What started in 1969 as a small program serving 40,000 children at an annual cost of $2.8 million was serving almost 900,000 children at an annual cost of $280 million by 1981 (Table 1.2).

The rapid expansion of the program following the 1978 Amendments raised anew concerns that the CCFP was becoming a growing source of support for middle income and upper income groups (Forman, 1978). More than one-half of the children attending eligible (i.e., nonprofit) day care centers are from middle- and upper-income families (Coelen, et al., 1978, Table 54). Similarly, nearly three-quarters of the children in family day care are from such families.[4]

These concerns were reflected in the sweeping changes initiated by the Omnibus Reconciliation Act of 1981 (P.L. 97-35). This new legislation is intended to contain the cost of the CCFP, while at the same time ensuring that

---

[3]The final regulations were published in the Federal Register January 22, 1980 and became effective on May 1, 1980.

[4]National Child Care Consumer Study, Unco, Inc. 1975.

Table of Contents

Table 1.1

INCREASE IN CCFP PARTICIPATION SINCE 1978

Month	Number of Operating Day Care Facilities		Number of FDCH Sponsors	Average Daily Attendance		
	Centers	FDCHs		Centers	FDCHs	Total
December 1978	15,493	11,573	411	526,636	50,716	577,352
June 1979	14,803	13,757	434	529,924	55,762	585,686
December 1979	16,439	16,059	430	601,560	70,374	671,934
June 1980	15,518	17,452	429	592,679	78,340	671,019
December 1980	16,712	36,545	453	629,129	130,382	759,511
March 1981	17,050	43,155	600	686,091	163,273	849,364

Source: USDA, Program Reporting Section Reports for the CCFP: June 1981, August 1980, and August 1979.

Table 1.2

GROWTH OF THE CCFP SINCE ITS INCEPTION IN 1969

Fiscal Year	Average Daily Attendance (000's)	Obligations (000's)
1969	39.8	$ 2,844
1970	93.3	5,132
1971	175.6	13,067
1972	215.5	15,980
1973	225.3	19,380
1974	377.2	30,419
1975	457.1	47,248
1976	463.1	114,000
Transition Quarter	551.6	19,657
1977	534.4	78,300
1978	580.0	131,000
1979	665.0	158,800
1980	741.0	207,800
1981	853.4	279,700[a]

Source: United States Department of Agriculture

[a]Preliminary estimate based on the first nine months of the year

Table of Contents

the subsidies available through the program are more directly targeted at low-income children. To this end, P.L. 97-35 made the following changes:

- Subsidies for meals and administrative expenses are reduced and tiering has been eliminated as a method for calculating reimbursement ceilings for day care centers.

- Income eligibility guidelines have been revised to expand the number of low-income children eligible for the full free meal reimbursement by raising the threshold for free meals from 125 to 130 percent of the poverty line. At the same time, the number of middle-income children eligible for reduced-price meals has been decreased by lowering the cut-off for reduced-price meals from 195 to 185 percent of the poverty line.

- In an effort to reach low-income children in for-profit day care centers, eligibility has been extended to for-profit centers in which at least 25 percent of the children receive day care subsidies through Title XX.

One probable and intended consequence of the new legislation is to reduce substantially program participation by middle-income children. However, as many low-income children attend day care facilities that will now elect not to participate in the CCFP, the changes may also reduce participation by children from poor and near-poor families.

In many states, then, participation in the CCFP does not increase the resources available to a day care center for the expansion and improvement of their food programs. It is only in those states which view CCFP reimbursements as a supplement to Title XX reimbursements, thus preserving the fiscal incentive for Title XX day care centers to participate in the CCFP, that the CCFP has its intended benefits.

Regulatory Environment

Apart from the interaction between Title XX and CCFP reimbursements, Title XX day care centers operate in a regulatory environment that facilitates CCFP participation. Until the implementation of P.L. 97-35 in 1981,[9] Title XX centers had to comply with the Federal Interagency Day Care Requirements (FIDCR), which required or encouraged a high level of activity in such areas as recordkeeping, monitoring and training. A by-product of participating in Title XX is thus an administrative and accounting structure within a center or sponsor that facilitates CCFP participation. The marginal cost of complying with the CCFP requirements in a program that already has the infrastructure necessary to comply with the FIDCR is minimal. Without such an infrastructure, participation in the CCFP requires an entirely new administrative structure, the cost of which might outweigh the potential benefits of CCFP participation.

It is, however, difficult to disentangle the impact of Title XX from that of the income of the families served, as Title XX's target population is children from low-income families. Comparison of the income distribution

---

[9]Among the many changes included in the Omnibus Reconciliation Act of 1981 (P.L. 97-35) was the elimination of the FIDCR as a condition for providing care to children whose care is subsidized with Title XX funds. However, at the time of this study the FIDCR were still in effect.

Table of Contents

1.1 Overview of the Study Design

The Child Care Food Program Evaluation was mandated by P.L. 95-627, the Child Nutrition Amendments of 1978. The 1978 Amendments directed the Food and Nutrition Service of the Department of Agriculture to study:

- the administrative costs of participating institutions;
- the costs of food service and their relationship to meal quality; and
- licensing and other barriers to participation in the CCFP.

The primary aim of the CCFP evaluation is to complete the three studies mandated by P.L. 95-627 and to place the findings of these studies within the context of an accurate description of existing program operations and an assessment of program impact.

The overall study design recognized that the regulatory changes were likely to affect some of the areas under study in the evaluation. Two data collection efforts were conducted. The first data collection effort (Wave I) was conducted between January 1980 and March 1980, prior to the implementation of the regulatory changes stemming from the 1978 Amendments. A second data collection (Wave II) was conducted between January 1981 and March 1981, following the implementation of the new regulations on May 1, 1980.

Wave I provided baseline data on program costs, administrative practices, and program participation as well as an assessment of meal quality. Wave II provided comparative data used to assess the impact of the regulatory

changes.[5] Both data collection efforts included respondents at each level of the CCFP organization--states and FNS Regional offices, sponsors and day care providers (i.e., centers and family day care homes). A description of the Wave I and II survey plans is presented in Appendix A.

1.2 Organization of this Report

This report examines the factors that affect program participation. The study was conducted prior to the enactment of P.L. 97-35 and was designed to examine the impact of the 1978 Amendments on program participation. While this remains the focus of this report, many of the analyses conducted offer insights into the potential effects of P.L. 97-35 on program participation. Factors affecting participation among eligible day care centers are examined in Section 2. Section 3 explores participation among family day care homes. Conclusions and recommendations are presented in Section 4.

---

[5] Following the recommendations of the study's Advisory Panel, Wave II did not collect data on meal quality since the new regulations were not expected to affect meal quality.

Table of Contents

2.0 CCFP PARTICIPATION AMONG ELIGIBLE DAY CARE CENTERS

At the time of this study, participation in the Child Care Food Program was open to all licensed, nonprofit day care centers. These eligibility criteria for day care centers serve to target program benefits to low-income children. A recent study found that approximately 84 percent of the children whose family income is below $6,000 per year and who use center-based day care attend nonprofit day care centers. By contrast, only one-third of the children from families with annual incomes in excess of $15,000 using center-based care are enrolled in nonprofit day care centers (Coelen, et al. 1979, Table 54). Thus, low-income children account for the vast majority of the enrollment in eligible day care centers--8 out of every 10 children attending a center eligible to participate in the CCFP are from families with annual incomes below $15,000.

Not all eligible day care centers participate in the CCFP. In June 1981, approximately 17,000 nonprofit day care centers were participating in the CCFP--about 60 percent of the centers that were eligible to participate at that time. Among eligible day care centers, those that participate in the CCFP differ from those that do not participate on a number of demographic and program variables. Three differences are especially important in that they are directly related to the decision to participate in the CCFP.

- Participating centers enroll a substantially higher proportion of children from families with annual incomes below $12,000 (54% vs 17%), and a lower proportion of children from families with annual incomes over $21,000 (23% vs 51%) (Table 2.1).

- Nonparticipating centers serve very few children whose care is subsidized by the government through such programs as Title XX. Fewer than 10 percent of the children in nonparticipating

Table of Contents

Table 2.1

DISTRIBUTION OF CHILDREN ATTENDING ELIGIBLE DAY CARE CENTERS BY FAMILY INCOME AND PARTICIPATION STATUS. 1981

	Percent of Children Served	
	Eligible (nonprofit) Daycare Centers	
Family Income (1981)	Participating (n=450)	Nonparticipating (n=368)
$0 - 6,000	18.0%	5.1%
6,001 - 9,000	22.0	3.8
9,001 - 12,000	14.4	7.6
12,001 - 15,000	8.9	7.1
15,001 - 18,000	8.7	13.0
18,001 - 21,000	4.9	12.5
21,001+	23.1	50.8
All children	100.0	100.0

Table of Contents

centers receive subsidized day care. By contrast, over two-thirds of the children in participating centers receive subsidized day care.

- Nonparticipating centers are far less likely to serve lunch than participating centers. About one-third of nonparticipating centers do not serve lunch, whereas virtually all participating centers serve lunch.

While the income distribution of the children served is clearly related to the extent to which a center serves children whose care is subsidized through Title XX, each factor affects participation in the CCFP: day care centers participating in the CCFP are reimbursed by a formula which varies the level of reimbursement according to the type of meals or supplements served (breakfast, lunch/supper, snacks) and by the income level of the families of the children served,[6] as discussed in the following section.

2.1 Factors Affecting Participation

2.1.1 Potential Reimbursement

The benefits which accrue to a day care center from participating in the CCFP are simple and direct--a center

---

[6]At the time of this study, centers were reimbursed for actual costs incurred up to a ceiling set by the formula. However, the cost of the food program in virtually all participating centers (95 percent) exceeded the maximum rate of reimbursement set by the formula; (see Glantz, F., An Examination of Food Program Costs in Day Care Centers and Family Day Care Homes (Abt Associates, 1982). Thus, for all intents and purposes the formula determines actual rather than maximum levels of reimbursement. Effective January 1, 1982, reimbursements will be based solely on the formula as P.L. 97-35 eliminates costs and cost accountability from the CCFP.

receives a subsidy for each meal or snack served. Participation in the CCFP also carries with it certain costs (principally those associated with the CCFP's recordkeeping requirements). Thus, in the simplest terms a center's decision to participate in the program is based upon its estimate of potential benefits relative to potential costs. If potential benefits are expected to exceed potential costs then there is a net gain to be reaped through participation in the CCFP.

The level of potential reimbursement for a center is determined by the income of the children it serves and the pattern of meals and snacks it serves. The reimbursement rates in effect in January-June 1980 (the time of the Wave I data collection) were as shown in Table 2.2.

Table 2.2

CCFP REIMBURSEMENT RATES FOR DAY CARE CENTERS, JANUARY-JUNE 1980 (dollars)

Meal Type	Income Eligibility Category[a]		
	Free	Reduced-Price	Paid
Breakfast	.4925	.4050	.1400
Lunch/Supper	.9725	.8725	.1775
Snack	.2175	.1475	.0725

[a] Free: income not more than 125 percent of poverty level
Reduced-Price: income between 125 and 195 percent of poverty level
Paid: income greater than 195 percent of poverty level

Since the reimbursement rates in the paid category are markedly lower than the free and reduced-price categories, the level of potential reimbursement declines sharply as the proportion of middle- and upper-income children served increases. Similarly, centers which do not serve lunch receive a much lower level of subsidy from the CCFP than centers which serve lunch since the rate of reimbursement for lunch/supper is substantially higher than that of either breakfast or snack.

Figure 2.1 illustrates the effect of the income of children served and the pattern of meals served on the level of potential reimbursement. A center serving lunch and two snacks (morning and afternoon) would receive a maximum of $0.32 per day per child if all children served were in the paid category. By contrast, if all of the children served were in the free and reduced-price categories,[7] the center would recieve a maximum of $1.36 per day per child served. A center serving only morning and afternoon snacks would receive a maximum reimbursement of $0.15 per day per child if it served only children in the paid category; it would receive a maximum of $0.18 per day per child if all children served were in the free and reduced price categories.

As nonparticipating day care centers serve proportionally more middle- and upper-income children and also tend not to serve lunch, the decision not to participate in the CCFP probably reflects a determination on their part that the benefits of participation are not sufficient to offset its costs. By contrast, participating centers serve children concentrated in the free and reduced-price categories (Table 2.3), and also tend to serve a full complement of meals and snacks (91 percent of participating centers

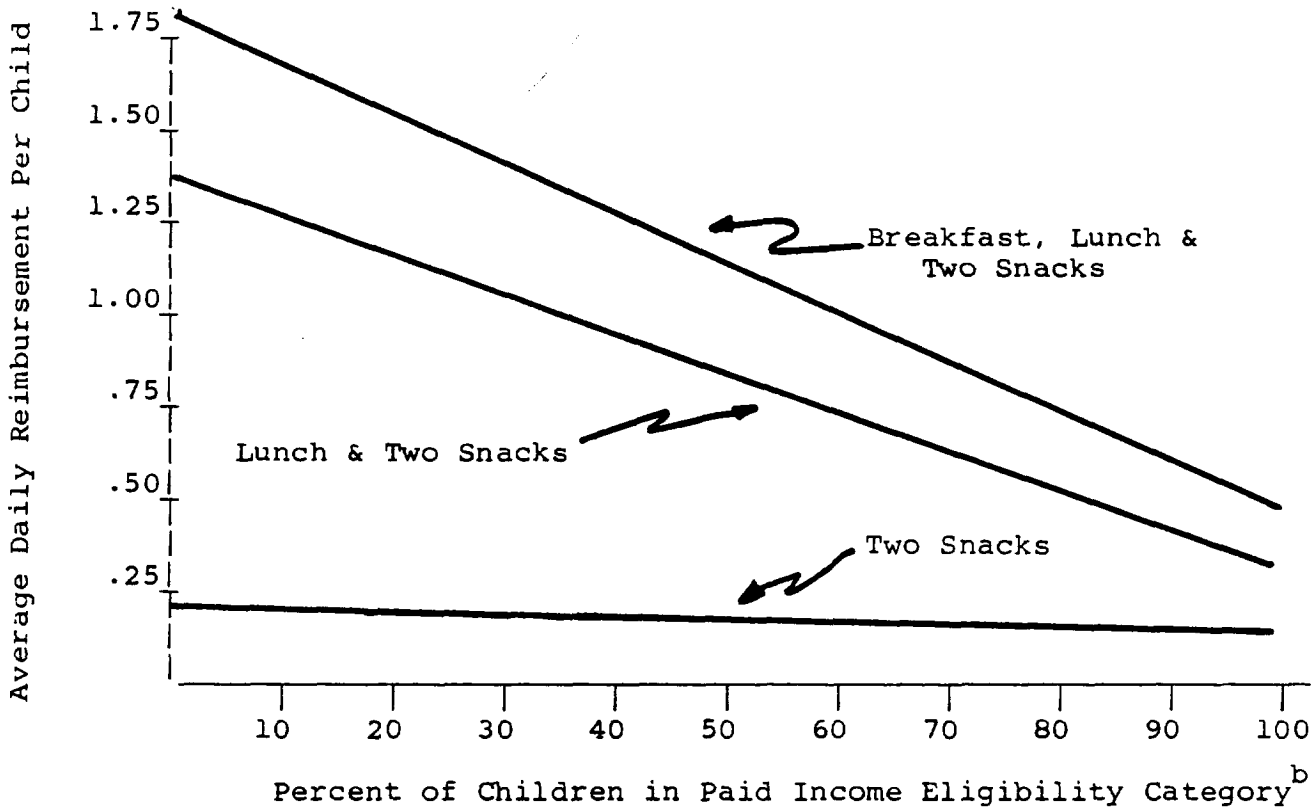
---

[7]This illustration assumes that children are equally divided in the free and reduced-price categories.

Table of Contents

Figure 2.1

EFFECT OF INCOME OF CHILDREN SERVED AND MEAL PATTERN ON A CENTER'S POTENTIAL REIMBURSEMENT FROM THE CCFP[a]



[a]Based on the rates in effect in January-June 1980 (see Table 4 above).

[b]Assumes that the remaining children are equally distributed in the free and reduced price income eligibility category.

Table of Contents

Table 2.3

DISTRIBUTION OF CHILDREN ATTENDING PARTICIPATING AND NONPARTICIPATING DAY CARE CENTERS BY INCOME ELIGIBILITY CATEGORY. January 1982[a]

Income Eligibility Category[b]	Percent of Children Center Type Participating (n=450)	Nonparticipating (n=368)
Free	48.9%	11.4%
Reduced-Price	18.0	14.1
Paid	33.1	74.5
All Categories	100.0	100.0

[a]Data from National Telephone Survey of 450 randomly selected families of children enrolled in participating centers and 368 in nonparticipating centers.

[b]Free: income not more than 130 percent of poverty level
Reduced-Price: income between 130 and 185 percent of poverty level
Paid: income greater than 185 percent of poverty level

serve breakfast and/or morning snack, lunch, and an afternoon snack). Participating centers are therefore at the upper end of the range of potential reimbursement.

2.1.2 Title XX Funding

Fiscal Substitution

Title XX funding itself is a significant factor in CCFP participation among eligible day care centers. There is a dramatic difference in participation rates between centers serving children subsidized wholly or in part by Title XX and centers that do not serve such children: three-quarters of Title XX centers participate in the CCFP, whereas only one-third of eligible non-Title XX centers participate in the program.[8]

In fact, the availability of Title XX funds may act as either a barrier or a facilitator for participation in the CCFP. While not all states consider CCFP funding in their Title XX rate setting, some states deduct from Title XX reimbursements the amount that a facility *is eligible to receive* in CCFP food reimbursements. In effect, child care facilities serving federally subsidized children must participate in the CCFP if they are to maximize their total reimbursements. In other states, Title XX reimbursements are reduced only if a facility *actually receives* CCFP monies. In these states there is no financial incentive for a day care center to participate in the CCFP. In both cases, however, the effect is fiscal substitution at the state level; CCFP funds have simply replaced Title XX funds as a source of day care subsidies.

---

[8]This estimate is derived from data from the National Day Care Center Supply Study. Centers were classified as Title XX centers if *at least one child* was paid for wholly or in part by Title XX funds (Coelen, et al., 1979, p. 15).

of families served by participating and nonparticipating Title XX centers suggests that the income of families served plays a key role in a center's decision whether to participate in the CCFP.[10]

- The median proportion of children from families with incomes below $6,000 is substantially higher in participating Title XX centers (65%) than in nonparticipating Title XX centers (35%).

- The proportion of children receiving subsidized care is markedly higher in participating Title XX centers than in nonparticipating Title XX centers. In 61 percent of participating centers, 70 percent or more of the children are subsidized; among nonparticipating centers, only 34 percent have such a high proportion of subsidized children.

In order to separate the effects of Title XX from the income of families served, a statistical model was developed to estimate a center's probability of participating in the CCFP.[11] The single most important factor influencing participation in the CCFP is the center's participation in Title XX. Other things being equal, a center which served only low-income children (i.e., all children from families with annual incomes less than $6,000) has only a 48 percent

---

[10] These data are from the NDCS Supply Study (Coelen, et al., 1979). The relatively small sample size of nonparticipating centers in the present evaluation precluded separate estimates of the income distribution of children in participating and nonparticipating Title XX centers.

[11] Multinominal logit analysis was used to estimate the probability of participating in the CCFP as a function of the characteristics of the center. Among the independent variables in the model are: (1) a variable indicating whether the center serves subsidized children; and (2) a variable indicating the potential reimbursement from the CCFP. This model is discussed in Appendix B.

probability of participating in the CCFP if it does not also participate in Title XX. Participation in Title XX increases the center's probability of participation in the CCFP to 78 percent.

These results are probably explained by the way day care centers view "government programs." A center which serves predominantly low-income children but does not serve subsidized children may be predisposed against participating in government programs. Such a center is unlikely to participate in a program such as the CCFP unless the financial incentive is relatively great. Therefore, financial participation in other federal programs (such as Title XX or Head Start) and serving a predominantly low-income clientele, with its reimbursement differential, both appear to be important factors in CCFP participation by eligible day care centers.

Title XX For-Profit Day Care Centers

For-profit day care centers have historically been excluded from participation in the CCFP. This exclusion is consistent with the goal of targeting CCFP benefits to children from low-income families. For the most part, for-profit day care centers provide care to middle- and upper-income children. Only 12 percent of the children attending for-profit day care centers are from families with annual incomes below $6,000. By contrast, 42 percent of the children attending nonprofit centers are from such low-income families (Coelen, et al., 1979, Table 54).

However, there is a marked difference between for-profit Title XX centers and for-profit non-Title XX centers in the number of low-income children served. Even though they account for only 25 percent of all for-profit day care

centers, those for-profit centers which serve Title XX subsidized children account for two-thirds of the low-income children enrolled at for-profit day care centers. Nearly one-third of the children attending for-profit Title XX day care centers are from families with annual incomes below $6,000, whereas only 5 percent of the children attending for-profit non-Title XX centers are from such a low-income family (Coelen, et al., 1979, Table 54).

Recognizing that the blanket exclusion of for-profit day care centers from the CCFP prevented many low-income children from receiving program benefits, P.L. 97-35 extended CCFP eligibility to for-profit Title XX centers in which at least 25 percent of the children enrolled are subsidized through Title XX. It is estimated that this change will increase by 1,200 the number of day care centers eligible to participate in the CCFP. Many of these newly eligible centers are likely to participate. Using a statistical participation model, we estimate that a for-profit Title XX day care center has between a 63 and 78 percent probability of participating in the CCFP if only 25 percent of its enrollment is from families with incomes of less than $6,000.[12] The probability of participating in the program increases as the proportion of a center's enrollment that is low-income increases. As indicated above, a Title XX center serving only low-income children has a 78 percent probability of participation in the CCFP.

2.1.3 Knowledge of Program Benefits and Requirements

Two final factors influence the likelihood of CCFP participation by eligible day care centers: whether

---

[12] The model does not include a variable indicating the proportion of children whose care is subsidized by Title XX The range on estimated probabilities is due to varying assumptions regarding sponsorship and the income of the remaining children. (see Appendix A below).

or not the sponsor/provider knows of the CCFP and whether the benefits are perceived to outweigh the cost of participation. The intent of the CCFP outreach activities is to minimize nonparticipation due to lack of information or misinformation. And indeed, most eligible nonparticipants know of the CCFP. Directors of eligible but nonparticipating day care centers were asked which of a list of reasons described why their centers did not participate in the CCFP. (Directors were not asked about the level of reimbursement.) Only one-quarter to one-third cited lack of information as a reason for not being a CCFP participant (Table 2.4). Not surprisingly, lack of information did not pose as much of a barrier for centers that are already participating in another federal program, such as Title XX. About one-quarter of nonparticipating centers cited excessive regulation and/or excessive paperwork as the reason for not participating. The "excessive" regulation or paperwork cited by nonparticipants is consistent with the finding that programs serving a predominantly low-income clientele have a relatively low probability of participating in the CCFP unless they also participate in Title XX (and are therefore already subject to "regulations and paperwork").

Although we found general awareness of the CCFP and a variety of negative attitudes towards it, we also found that many of the nonparticipating programs who know of the CCFP do not understand some of the basic benefits of the CCFP. Over 20 percent of the nonparticipating centers we talked with during the Wave I on-site visits were unaware that the CCFP would provide funds to cover the cost of food, 46 percent were unaware that CCFP reimbursed program administrative expenses, and 54 percent did not know about food service equipment assistance funds.[13] Thus, some of the dislike

---

[13] P.L. 97-35 terminated the Food Service Equipment Assistance Program effective October 1, 1981.

Table of Contents

Table 2.4

REASONS CITED BY ELIGIBLE NONPROFIT DAY CARE CENTERS
FOR NONPARTICIPATION IN CCFP

Reasons Cited	Percent of Nonparticipating Centers		
	Title XX Centers (n=76)	Non-Title XX Centers (n=66)	All Centers (n=142)
Believe the center is noneligible.	33	34	34
Have not heard of the program.	13	38	31
Do not know who to contact in order to apply for the program.	18	26	24
There are too many regulations involved.	18	26	24
There is too much paperwork involved.	25	26	26

Source: Coelen, et al. 1979.

of the CCFP is probably based on inadequate information about program benefits. Although knowledge of the program's existence may be high, knowledge of the benefits offered by the CCFP is low. This indicates the need for outreach which focuses on the advantages of participation rather than simply informing centers of the CCFP's existence.

2.2 Impact of the 1978 Amendments

The intent of the 1978 Amendments was to facilitate participation in the CCFP by increasing the level of reimbursements and reducing the recordkeeping burden. For day care centers, a new method of calculating reimbursement ceilings was established. This method, called tiering, had the effect of substantially increasing potential reimbursements for centers serving children in the reduced-price and paid income eligibility categories. The tiering system has since been eliminated as one of the provisions of P.L. 97-35. The elimination of tiering should not have a significant effect on program participation since, as discussed below, the tiering system did not result in the anticipated increase in participation.

2.2.1 Effect of Tiering

The tiering system of reimbursement permitted day care centers to be reimbursed for all children at either the free, reduced-price or paid rate, regardless of the income of the individual children served. The system established three tiers for reimbursement, defined in terms of the enrollment composition of the center. Table 2.5 shows the enrollment composition and reimbursement rates for each tier. In Tier I all children in the reduced and paid categories--as well as those in the free category--are reimbursed at the rate for free meals.

Table of Contents

Table 2.5

EFFECT OF TIERING ON MAXIMUM REIMBURSEMENT RATE

Tier	Enrollment Composition	Reimbursement Rate
I	At least 2/3 eligible for free- and reduced-price meals	All children reimbursed at free rate
II	At least 1/3 eligible for free- and reduced-price meals	All children reimbursed at reduced rate
III	Less than 1/3 eligible for free- and reduced-price meals	All children reimbursed at paid rate

Table 2.6

MAXIMUM INCREASES IN REIMBURSEMENT CEILING UNDER TIERING

		Maximum Reimbursement for Lunch/Supper (12/79 Rates)		
Tier	Enrollment Composition Which Maximizes Tiering	Without Tiering	With Tiering	Percent Change
I	0 free, 2/3 reduced-price, 1/3 paid	0.6139	0.9325	57
II	0 free, 1/3 reduced-price, 2/3 paid	0.3886	0.8325	114
III	NA	---	---	--

The maximum gain for a center in Tier I would therefore occur with the following enrollment composition: 0 free, 2/3 reduced-price, and 1/3 paid. Similarly, in Tier II all children in the free and paid categories are reimbursed at the rate for reduced-price meals. This means a decrease in reimbursement for free children and an increase in reimbursement for paid children. Given the enrollment guidelines for Tier II, the maximum gain occurs for a center with: 0 free, 1/3 reduced-price, and 2/3 paid. Tier III represents a somewhat artificial category in that centers in Tier III would be reimbursed less under tiering than under claiming percentages.[14] Since tiering is optional, it is doubtful that programs would exercise this option. Table 2.6 illustrates the maximum increases in reimbursement available under the tiering system.

The tiering system was designed to simplify the claims process by reducing the paperwork associated with keeping counts of meals served to children in each income eligibility category. Perhaps more importantly, the tiering system was intended to provide an inducement to participate by increasing the amount by which centers would be reimbursed. Centers whose enrollments were concentrated in the reduced-price and paid categories were expected to benefit most by the availability of tiering and it was anticipated that tiering would result in a significant increase in participation among these centers.

As discussed above, increases in potential reimbursement increase the probabilty that a center will participate in the CCFP. Yet, although the increases in potential reimbursement under tiering were quite large, the estimated

---

[14] "Claiming percentage" means the ratio of the number of enrolled children in an institution in each reimbursement category to the total number of enrolled children. An alternative method of calculation, known as the "blended rate," is mathematically equivalent.

increase in participation was relatively small. Using the statistical participation model (see Appendix B) it was estimated that only 311 additional day care centers were likely to participate in the CCFP as a result of the availability of tiering. This relatively small increase in participation stems from the fact that the CCFP currently reimburses participating centers for only part of the costs of their food programs. While tiering increases the level of reimbursement available, reimbursement would still fall considerably short of covering the centers' food program costs. Even if all meals were reimbursed at the free rate, CCFP reimbursements would cover only 68 percent of food program costs.[15]

In order to have obtained sizable increases in the number of day care centers participating in the CCFP, it would have been necessary to combine tiering with an increase in the reimbursement rates for meals in the free income eligibility category. Figure 2.2 shows the relationship between the proportion of food program costs covered by CCFP reimbursements and the estimated increase in the number of participating day care centers. Under tiering, it is estimated that an additional 1288 centers would have joined the CCFP if the free rate covered the full cost of the food program.[16] If all meals had been reimbursed at full cost (e.g., elimination of income eligibility categories as instituted in family day care by P.L. 95-627), an estimated 1733 additional centers would have joined the CCFP.

---

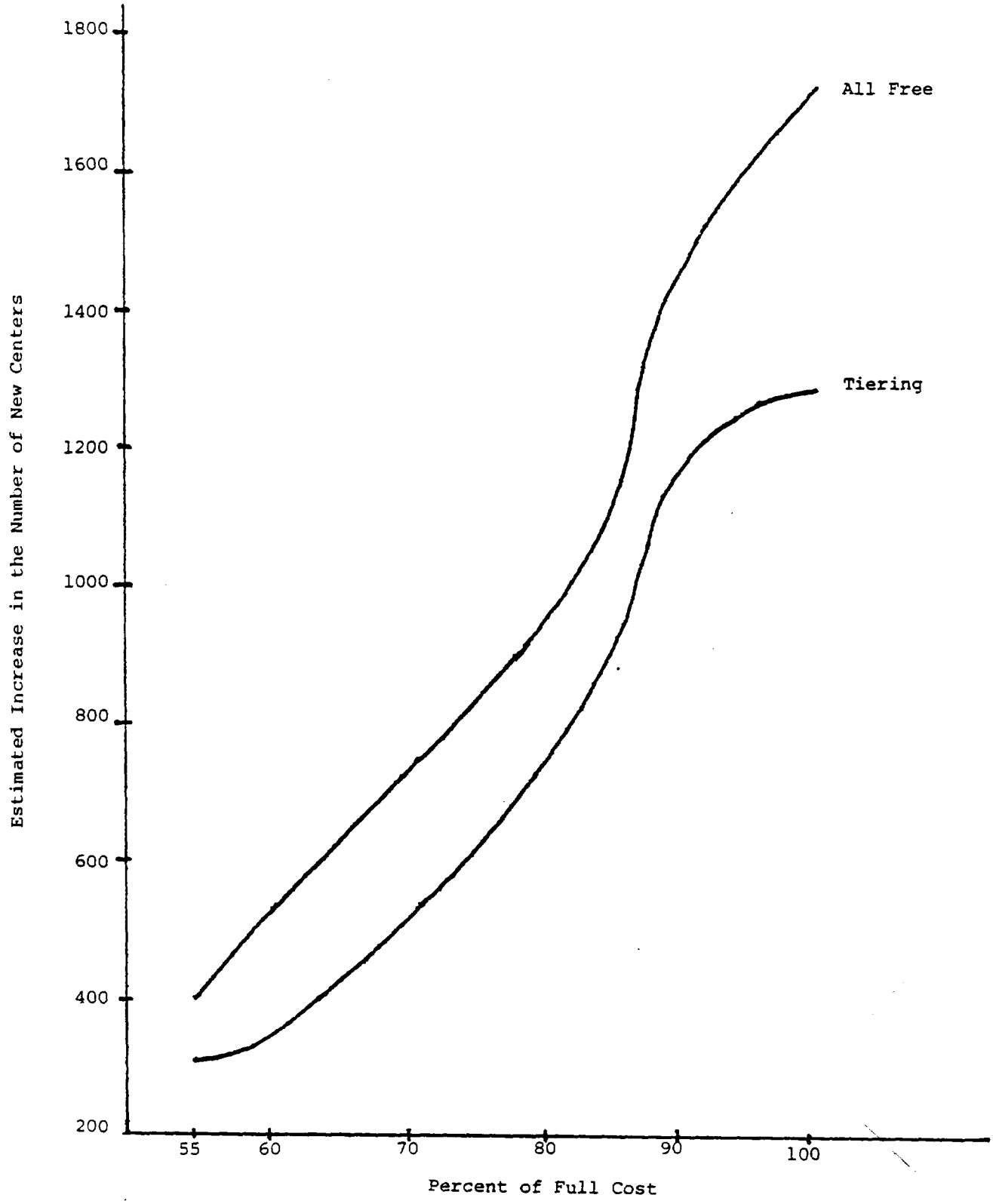
[15] See Glantz, F., An Examination of Food Program Costs in Day Care Centers and Family Day Care Homes (Abt Associates, Inc. 1982).

[16] This assumes that the reduced-price and paid rates were increased by the same percentage as the free rate.

Table of Contents

Figure 2.2

ESTIMATED INCREASE IN DAY CARE CENTER PARTICIPATION
UNDER ALTERNATIVE REIMBURSEMENT STRUCTURES



Because changes in the reimbursement rates would apply not only to new participants but also to all current participants, increasing the proportion of food program costs covered by CCFP reimbursements would result in dramatic increases in total program costs. Under tiering, reimbursement at full cost would have increased program costs by $275 million. Table 2.7 summarizes the increases in program participation and costs that would have resulted under alternative reimbursement structures. It is clear that meaningful increases in program participation could only have come about with very large increases in program costs.

2.2.2 Effect on New Participants

The above discussion was based upon a prospective analysis of the impact of tiering on program participation. This analysis forecast that relatively small increases in participation would result from the implementation of the tiering system. The results of these analyses were confirmed by the New Participant Survey conducted in Wave II. As part of this survey, 100 day care centers that joined the CCFP after May 1, 1980 were interviewed. Each of these centers had been eligible to participate in the CCFP for at least three years prior to the implementation of tiering. Only 2 percent of these centers cited the change in the regulations as the reason for participating at this time. The reasons cited for joining the CCFP at this time are summarized in Table 2.8. Most of the new participants reported that they were not previously aware of the CCFP (32 percent) or were now sufficiently hard pressed for resources that they could no longer pass up participation (30 percent).

As might be expected, the newly participating day care centers differ in many respects from centers that

Table of Contents

Table 2.7

ESTIMATED INCREASE IN PROGRAM PARTICIPATION AND COST UNDER ALTERNATIVE REIMBURSEMENT STRUCTURES

Reimbursement Structure	Percent of nonparticipating centers that would enter CCFP	Number of nonparticipating centers that would enter CCFP	Cost of payments to new participants per year (millions)	Additional cost of payments to current participants (millions)	Total additional cost per year to FNS (millions)
Tiering	5.8	311	$8.8	$24.1	$32.9
All meals reimbursed at January 1980 Free rate	7.4	400	$13.3	$28.3	$41.6
Tiering with free rate set at full cost	23.8	1288	$66.4	$208.1	$274.5
All meals reimbursed at full cost	32.0	1733	$104.3	$215.7	$320.0

Table of Contents

Table 2.8

REASON CITED BY NEW CCFP PARTICIPANTS[a] FOR JOINING THE PROGRAM AT THIS TIME

Reasons Cited	Percent of New Participants (n = 100)
Heard about CCFP for the first time	32%
State of the economy, the need for more resources	30
Got new information about the CCFP	18
Hired a new staff member who knew about CCFP	16
Previously they were ineligible	12
Changed attitude about receiving federal dollars	7
Change in population served	6
Newly acquired kitchen facilities	4
Easier record-keeping	2
Other regulations increased the need for additional resources	2
New staff available to do the work	1
Sponsor required	1
Other	17

[a]New participants are defined as centers that had been eligible to participate in the CCFP for at least three years but did not elect to participate until after May 1, 1980 (the effective date of the regulatory changes stemming from the 1978 amendments).

were already participating in the program in May 1980 (Table 2.9). The new participants tend to serve more part-time children than the "old" participants. On average, 36 percent of the children enrolled in the newly participating centers are enrolled for less than 30 hours per week, compared to an average of 26 percent among the longer-term participants. Perhaps the most important differences between the old and new participants are in the income of the children served and the pattern of meals served:

- On average, only 39 percent of the children served in the newly participating centers are in the free income eligibility category, whereas an average of 62 percent of the children enrolled in the longer term CCFP centers are in this category.

- While virtually all long-term participants serve lunch, only 80 percent of the new participants serve lunch; and nearly three-quarters of the old participants serve breakfast compared to only one-half of the new participants.[17]

The new participants are clearly serving proportionately more middle- and upper-income children. On average, 42 percent of the children enrolled in the newly participating centers are in the paid income eligibility category, this compared to an average of only 25 percent among the longer-term participants.

Most new participants (75 percent), as well as most old participants (69 percent), elected to use the tiering method of reimbursement. However, a surprising number of the new participants using the tiering method were Tier III centers in

---

[17]The sample of old participants was prescreened to include only centers that served lunch (for the meal quality study). However, this screen was not necessary in that fewer than one percent of the CCFP participants did not serve lunch.

Table 2.9

COMPARISON OF "OLD" AND "NEW" PARTICIPANTS IN THE CCFP[a]

Center Characteristic	New Participants (n = 100)	Old Participants (n = 89)	Significance Level
Enrollment	68.1	73.3	n.s.
Percent Children Part-time (less than 30 hours/week)	35.9%	25.6	p <.05
Percent Children in Income Eligibility Category:			
Free	39.3%	61.8%	p <.001
Reduced-Price	19.3%	13.0%	p <.01
Paid	41.7%	25.1%	p <.005
Percent of Centers Eligible for Each Tier[b]:			
Tier I	50.0%	64.8%	n.s.
Tier II	22.0%	15.9%	
Tier III	28.0%	19.3%	
Percent of Centers Serving:			
Breakfast	47.0%	73.0%	p <.001
Morning Snack	74.0%	57.3%	p <.05
Lunch	80.0%	100.0%[c]	p <.001
Afternoon Snack	92.0%	94.4%	n.s.
Supper	4.0%	4.5%	n.s.

[a]"Old" centers are centers that participated in the CCFP prior to May 1, 1980 (the date tiering became effective). "New" centers are those that were eligible to participate in the CCFP for at least three years prior to May 1, 1980 but did not elect to participate until after tiering became effective.

[b]These estimates are based upon the number of children in each income eligibility category and represent the tier that a center would be eligible for. However, not all centers elect to use tiering as the method of reimbursement (75 percent of the new centers and 69 percent of the old centers use tiering).

[c]The sample of old participants was prescreened to include only centers that served lunch (for the meal quality study). However, this screen was not necessary in that fewer than one percent of CCFP participants did not serve lunch.

which meals for all children are reimbursed at the paid rate (Table 2.10). Unless all children enrolled in a center are in the paid income eligibility category, the center would receive a higher total reimbursement by using either claiming percentages or counts of individual meals rather than tiering as the method of reimbursement. One would therefore expect to find few, if any, centers using the tiering method if they qualified only as a Tier III center on the basis of the composition of their enrollment. Yet, 50 percent of the new participants that could qualify only as Tier III centers actually elected to use the tiering method. In marked contrast, only 12 percent of the old participants that would have been classified as Tier III centers elected to use this method of reimbursement.

As noted above, the new participants tend to serve a different configuration of meals and snacks than the old participants. The most striking difference, of course, is that 20 percent of the new participants do not serve lunch. Most of these centers serve morning and afternoon snacks only, and full-day children bring bag lunches. These centers reported that even though they received relatively little in CCFP reimbursements, the rise in costs coupled with a reluctance to raise fees to parents meant that a new source of revenue was crucial to maintaining operations.

In general, the new participants are more likely to serve a morning snack and less likely to serve breakfast than the longer-term CCFP participants. Several of the new participants (14 percent) reported changing the pattern of meals served after joining the CCFP. For the most part these centers added meals or snacks or substituted a meal for a snack (e.g., replaced morning snack with breakfast). Table 2.11 summarizes changes in meal patterns for the new participants.

Table 2.10

PERCENT OF CENTERS ELECTING TO USE THE TIERING METHOD OF REIMBURSEMENT BY TIER CENTERS ARE ELIGIBLE TO CLAIM

Tier in Which Center Would Qualify Based Upon Composition of Enrollment[a]	Percent of Centers Using Tiering	
	New Participants (n)	Old Participants (n)
Tier I	86 % (43)	82 % (47)
Tier II	82 (18)	86 (12)
Tier III	50 (14)	12 (2)
All Centers	75 (75)	69 (61)

[a]Tier I: at least 2/3 of enrollment in the free or reduced-price income eligibility categories (all meals reimbursed at free rate).

Tier II: at least 1/3 of enrollment in the free or reduced-price income eligibility categories (all meals reimbursed at reduced-price rate).

Tier III: less than 1/3 of enrollment in the free or reduced-price income eligibility categories (all meals reimbursed at paid rate).

Table of Contents

Table 2.11

CHANGE IN MEAL PATTERNS AMONG NEW CCFP PARTICIPANTS[a]

Change in Meal Pattern	Number of New Participants
No Change	86
Added Breakfast	3
Replaced AM Snack with Breakfast	3
Added AM and/or PM Snack	3
Added Lunch and Breakfast	1
Added Lunch and AM Snack	2
Added Supper	1
Dropped AM Snack	1

[a]New participants are defined as centers that had been eligible to participate in the CCFP for at least three years but did not elect to participate until after May 1, 1980 (the effective date of the regulatory changes stemming from the 1978 Amendments).

3.0 CCFP PARTICIPATION AMONG FAMILY DAY CARE HOMES

Although the CCFP is primarily a program serving children in day care centers--8 out of every 10 children receiving CCFP benefits are in center-based day care--family day care has been the area of the program which has shown the greatest rate of growth. The number of children receiving program benefits through FDCHs has more than tripled since 1978, increasing from 51,000 to 163,000. This dramatic increase in FDC participation is a direct result of the 1978 amendments, which removed two of the major obstacles to participation among FDCHs: the relatively low level of reimbursement and the obtrusive income eligibility categories for children.

Family day care represents a large reservoir for potential program growth; although there is evidence that the rate of growth of FDC participation is tapering off. It has recently been estimated that there are 1.3 million FDCHs providing care to an estimated 3.4 million children (Fosburg, 1981). Relatively few of these homes are licensed or otherwise regulated (approximately 10 percent), and an even smaller percentage are associated with a system or a sponsoring agency. Thus, relatively few are currently eligible for CCFP participation.

This section examines the factors affecting participation among FDCHs and explores the impact of the 1978 amendments on program participation and administrative practices of FDC umbrella sponsors. The section concludes with a discussion of the most recent legislative changes--those contained in the Omnibus Reconciliation Act of 1981--and their potential effect on FDC participation in the CCFP.

3.1 Factors Affecting Participation Among FDCHs

Among family day care providers, lack of knowledge about the CCFP is likely to be a major barrier to participation. Individual family day care homes are small in terms of the number of families served, autonomous in their organizational structure, and often isolated from community resources. Because of their isolation, it has historically been difficult to identify and recruit family day care providers for the CCFP. However, there are indications that more effective outreach in the family day care community could significantly increase providers' willingness to become licensed and associated with an umbrella sponsor. Nevertheless, a number of family day care providers may not be interested in participating in the CCFP.

This resistance is evidenced by the results of the National Day Care Home Study, conducted from 1977 to 1979 (Singer, 1980). Family day care providers surveyed in this study were asked if they would be interested in participating in a program to receive food subsidies, if that program required working with an umbrella organization, meeting certain nutritional requirements and keeping records of food costs (see Table 3.1). Providers who were already affiliated with a sponsor and were therefore eligible for the CCFP were more likely to want to participate in a food program than were nonsponsored providers. This difference may reflect the informal environment of much nonsponsored day care and the resistance among nonsponsored providers to various forms of regulation associated with agency involvement.

Providers were also asked if they would be interested in participating in a food program that provided benefits such as training and money for food and labor.

Again, more sponsored than nonsponsored providers expressed interest in food programs that provided nutrition training, money for the cost of food served to children, and money for food preparation labor costs (see Table 3.2). The greater interest among sponsored providers may largely reflect caregivers' knowledge that programs which provide such benefits also demand compliance with requirements such as the ones noted above. These data suggest that close to 40 percent of family day care providers may not be willing to participate in a program that has benefits similar to those provided by the CCFP.

As part of the present evaluation, participating family day care sponsors were interviewed prior to the implementation of the changes stemming from the 1978 amendments. These sponsors were asked what they liked and disliked about the CCFP (Table 3.3). While nearly two-thirds of participating FDC sponsors liked the CCFP reimbursements, 41 percent expressed a dislike for the level of reimbursement, stating that it was insufficient both to cover the sponsor's administrative costs and to provide adequate reimbursement to FDC providers. Similarly, 29 percent of participating sponsors did not like the requirement that providers had to collect income data from parents in order to make participation worthwhile. This dislike of collecting and reporting the income of parents is likely to be much higher among nonparticipating FDCHs. As noted above, nearly three-quarters of the children using family day care are from middle-income families. Because low-income families tend to participate more frequently in other income conditioned programs with reporting requirements similar to those of the CCFP, providers serving middle-income children are likely to encounter more parental resistance to reporting their income than providers serving low-income children.

Table of Contents

Table 3.1
PERCENTAGE OF FDCHs INTERESTED IN PARTICIPATING IN A FOOD PROGRAM GIVEN CERTAIN REQUIREMENTS

Program Requirement	Percent of FDCHs Interested in Participating		
	Sponsored (n = 143)	Nonsponsored (n = 650)	All FDCHs (n = 793)
Affiliation with an Umbrella Sponsor	80.5	59.4	62.8
Nutritional Standards for Meals	80.3	63.9	67.2
Maintain Food Cost Records	72.3	50.7	59.7

Source: (Singer, 1980, Table 7.1)

Table 3.2
PERCENTAGE OF FDCHs INTERESTED IN PARTICIPATING IN A FOOD PROGRAM GIVEN CERTAIN BENEFITS

Program Benefit	Percent of FDCHs Interested in Participating		
	Sponsored (n = 143)	Nonsponsored (n = 650)	All FDCHs (n = 793)
Receive Nutrition Training	74.1	62.6	64.5
Receive Money for Food Costs	84.0	58.8	62.8
Receive Money for Food Preparation Labor Costs	90.7	64.3	68.5

Source: (Singer, 1980, Table 7.2)

Table 3.3
REACTIONS OF PARTICIPATING FAMILY DAY CARE SPONSORS TO THE CCFP

Attribute of CCFP	Percent of Sponsors
Most Liked Aspects:	
Reimbursement	64
Nutritious Meals for Children	51
Nutrition Training	47
Disliked Aspects:	
Recordkeeping	55
Level of Reimbursement	41
Income Guidelines	29

The income eligibility criteria, combined with the level of reimbursement and the lack of a separate reimbursement for the sponsor's administrative costs, made it uneconomical for sponsors to administer the program for homes serving middle-income children. Quite simply, a FDCH serving middle-income children did not generate enough CCFP reimbursements to cover the sponsor's administrative costs, let alone provide for sufficient reimbursement to the FDC provider to warrant participation in the program. As a result, sponsors tended not to actively recruit homes serving middle-income children, and several sponsors indicated that they discouraged such homes from participating in the program. Thus, despite the fact that vast majority of children using FDC are from middle-income families, only one-quarter of the children served by the CCFP in family day care were in the paid income eligibility category. Table 3.4 shows the percentage of meals served in participating FDCHs that were in the paid category, by state (prior to the elimination of the income eligibility criteria for FDC). With the exception of Minnesota, the percentages are consistently low. The extraordinarily high percentage of meals in the paid category in Minnesota (72 percent) is explained by state policy: the state agency administering the program encouraged sponsors to recruit homes serving middle-income children.[18]

3.2 Impact of the 1978 Amendments

3.2.1 Program Participation

The intent of the 1978 Amendments was to facilitate participation, especially among FDCHs. To this end, the program:

---

[18] Sponsors were permitted to retain enough of the reimbursements generated from homes serving low-income children to cover the costs of administering the program for homes serving middle-income children.

Table 3.4

MEALS CLAIMED AT PAID RATE AS A PERCENT OF TOTAL MEALS CLAIMED, BY STATE. JUNE 1979

State	Number of Meals Claimed, June 1979		Percent at Paid Rate
	Paid Rate	Total	
New England			
Connecticut	--	--	--
Maine	2,204	20,036	11
Massachusetts	19,781	123,418	16
New Hampshire	9,000	28,000	32
Rhode Island	400	40,000	1
Vermont	500	2,000	25
Mid-Atlantic			
Delaware	--	--	--
District of Columbia	6,000	13,000	46
Maryland	12,500	114,000	11
New Jersey	N/A[a]	14,000	N/A
New York	32,000	568,000	5
Pennsylvania	33,000	145,000	22
Virginia	2,000	28,000	7
West Virginia	--	59,000	--
Southeast			
Alabama	300	169,000	<1
Florida	5,000	106,000	
Georgia	3,000	30,000	10
Kentucky	--	--	--
Mississippi	1,600	5,000	32
North Carolina	300	6,000	5
South Carolina	701	2,500	28
Tennessee	10,800	105,000	10
Midwest			
Illinois	161,000	353,000	45
Indiana	4,500	11,000	41
Michigan	209,000	605,000	34
Minnesota	207,000	287,000	72
Ohio	--	--	--
Wisconsin	2,000	6,400	31
Southwest			
Arkansas	600	20,000	3
Louisiana	--	17,000	--
New Mexico	8,000	89,000	9
Oklahoma	--	--	--
Texas	400	30,000	1
Mountain Plains			
Colorado	42,000	156,000	27
Iowa	18,000	45,000	40
Kansas	43,000	99,000	43
Missouri	--	--	--
Montana	14,000	31,000	45
Nebraska	--	--	--
North Dakota	10,000	19,000	52
South Dakota	2,000	12,000	16
Utah	1,000	4,500	22
Wyoming	28,000	47,000	60
West			
Alaska	--	--	--
Arizona	--	--	--
California	99,000	326,000	30
Hawaii	500	1,200	41
Idaho	5,000	10,000	50
Nevada	--	--	--
Oregon	33,000	114,000	29
Washington	170,000	531,000	32
U.S. Total	1,214,571	4,416,158	28

[a]The Director of the CCFP for New Jersey indicates that the figure for the number of paid meals reported was in error.

Table of Contents

- established alternate procedures for approving FDCHs;
- provided for start-up and expansion funds for family day care sponsors;
- eliminated the income eligibility criteria for children served in FDCHs; and
- separated the reimbursement of sponsors' administrative costs from the reimbursement of family day care providers.

Following the implementation of these changes, virtually all states experienced a sharp increase in FDCH participation (Table 3.5).

Alternate Approval Procedures

From the time that family day care homes became eligible to participate in the CCFP in 1975, there was considerable concern that the requirement that FDCHs be licensed in order to participate was a major barrier to participation in the program. It had been estimated that only 10 percent of the FDCHs in the U.S. were licensed. Many states did not license or regulate family day care at all. Others regulated only homes that served four or more children, or those that served publicly subsidized children (Children's Foundation, 1978). In states where family day care was regulated, there was often a lengthy backlog. The 1978 Amendments addressed this problem by establishing alternate procedures for the approval of FDCHs. State agencies administering the CCFP were directed to establish procedures for granting approval to FDCHs where licensing is

Table of Contents

Table 3.5

CHANGE IN FDCH PARTICIPATION FOLLOWING THE IMPLEMENTATION OF THE REGULATORY CHANGES RESULTING FROM THE 1978 AMENDMENTS, BY STATE

State	Number of FDCHs Participating			Percentage Change
	December 1978	June 1980	March 1981	6/80 to 3/81
New England				
Connecticut	179	183	345	88.5%
Maine	43	93	85	-8.6
Massachusetts	517	858	1,923	124.1
New Hampshire	96	102	200	96.1
Rhode Island	425	475	294	-38.1
Vermont	4	2	--	-100.0
Mid-Atlantic				
Delaware	--	43	43	0.0
District of Columbia	19	54	89	64.8
Maryland	521	882	752	-14.7
New Jersey	55	44	35	-20.5
New York	2,016	2,055	2,643	28.6
Pennsylvania	1,005	1,284	1,571	22.4
Virginia	116	136	641	371.3
West Virginia	3	309	559	80.9
Southeast				
Alabama	393	667	1,027	54.0
Florida	227	316	466	47.5
Georgia	57	121	793	555.4
Kentucky	--	--	38	N/A
Mississippi	23	13	60	361.5
North Carolina	152	80	136	70.0
South Carolina	2	1	16	1500.0
Tennessee	146	204	317	55.4
Mid West				
Illinois	487	816	2,762	238.5
Indiana	24	62	176	183.9
Michigan	1,260	1,819	3,477	91.9
Minnesota	548	2,115	4,817	127.8
Ohio	401	525	1,726	228.8
Wisconsin	42	83	636	666.3
Southwest				
Arkansas	50	47	73	55.3
Louisiana	9	12	--	-100.0
New Mexico	223	288	265	-8.0
Oklahoma	--	--	--	N/A
Texas	99	172	580	237.2
Mountain Plains				
Colorado	403	455	2,792	513.6
Iowa	111	161	447	177.6
Kansas	116	313	814	160.0
Missouri	40	149	642	330.9
Montana	79	131	347	164.9
Nebraska	18	17	351	1982.4
North Dakota	9	56	897	1501.8
South Dakota	50	34	40	17.6
Utah	3	30	628	1993.3
Wyoming	65	96	139	45.0
West				
Alaska	--	--	107	N/A
Arizona	--	--	1,312	N/A
California	778	993	2,779	179.9
Hawaii	1	8	32	300.0
Idaho	6	13	94	623.0
Nevada	--	--	3	N/A
Oregon	373	607	1,232	103.0
Washington	341	528	3,805	620.6
U.S. Total	11,573	17,452	43,155	147.3

[a]The regulatory changes stemming from the 1978 amendments were published in the Federal Register January 22, 1980 and became effective May 1, 1980.

not available and to permit FDCHs to participate in the CCFP for up to one year in cases where licensing or approval was pending before the appropriate state agency.

The availability of alternate approval procedures has not been a factor in the rapid growth of FDC participation following the implementation of the regulatory changes. Of the 28 states interviewed in Wave II, only four had requests for alternate approval, and in only one of these states did the number of requests exceed five.[19] Five states indicated that the state attorney general had ruled that alternate approval was illegal. In any case, the small number of requests for alternate approval appears to indicate that many family day care providers are unwilling to trade their independence for the benefits of CCFP participation.

Start-up and Expansion Funds

Prospective sponsors may now receive start-up payments equal to at least one month's, but not more than two months', anticipated administrative reimbursement (for up to 50 homes). Existing sponsors may receive expansion funds to reach 50 homes. The availability of start-up and expansion funds has not been a major factor in the expansion of the program. In the first six months after they became available, the states reported receiving very few requests for these funds. Of the states interviewed in November 1980, only eight had received applications for these funds. These states reported an average of five such applications, and most were applications for start-up rather than expansion funds.

---

[19] The fourth state had a request from a single sponsor to set up a checklist for use in homes with fewer than three children which the state did not license (an estimated 75-100 FDCHs were involved in this request).

Table of Contents

There is some evidence, however, that start-up funds played a greater role in the expansion of FDCH participation after the Wave II interviews. Between June 1980 and December 1980,[19] the number of umbrella sponsors increased from 429 to 453 (6 percent), while the number of homes participating in the program nearly doubled. Clearly this growth came from an expansion of the existing sponsors. Most of this growth was accounted for by the expansion of sponsors that were already sponsoring large numbers of homes. The number of homes sponsored by the 53 FDC sponsors in the study sample increased from 6,434 to 11,091. However, 90 percent of the increase was accounted for by the growth of three large sponsors. In fact, of the 32 sample sponsors that were eligible for expansion funds, only four had received such funds and had added a total of 40 homes.

Nationally, there was a sharp increase in the number of umbrella sponsors after the Wave II survey. Between December 1980 and March 1981, the number of sponsors increased by 32 percent (from 453 to 600), while the number of homes participating increased by only 18 percent. While there is no doubt that the existing sponsors, expecially the large sponsors, continued to expand during this period, it is reasonable to assume that much of the increase in the number of participating homes was due to the formation of new umbrella sponsors. The delayed increase in the number of sponsoring organizations may reflect the time needed to apply for and receive start-up funds and then gear up to begin operations.

---

[20] Start-up and expansion funds became available May 1, 1980.

Elimination of Income Eligibility Categories and Separation of Administrative Cost Reimbursement from Provider Reimbursements

Because these changes occurred simultaneously, it is impossible to separate the effect of the removal of the income eligibility categories for reimbursement from the establishment of a separate reimbursement rate for sponsors' administrative costs. Together, these two changes increased the amount of CCFP reimbursements going to family day care providers, especially those serving middle-income children. Family day care providers would now be paid an amount "adequate to cover the cost of obtaining and preparing food . . . without a requirement for documentation of such costs."[21] These changes not only provided FDCHs with a sufficient monetary incentive to participate in the program, but also provided sponsors with an incentive to sponsor homes serving middle-income children. The sponsors' reimbursement for administrative costs would now be based upon the number of homes sponsored and would no longer come at the expense of reimbursements to the individual homes.

The impact of these changes on the level of reimbursement to homes and sponsors is illustrated in Table 3.6. It is clear from this illustration that while all FDCHs experienced an increase in reimbursement available under the new regulations, homes serving middle-income children had increases two to three times greater than homes serving low-income (free/reduced-price) children. For umbrella sponsors, basing reimbursements solely on the number of homes sponsored not only provided an incentive to recruit

[21] P.L. 95-627, sec. 17 (f)(4).

Table 3.6

POTENTIAL INCREASE IN MONTHLY REIMBURSEMENT TO A FDCH UNDER THE NEW REGULATIONS BY INCOME ELIGIBILITY CATEGORY OF CHILDREN SERVED[a]

	Composition of FDCH's Enrollment				
	4 Free	2 Free, 2 Reduced-Price	4 Reduced-Price	2 Reduced-Price, 2 Paid	4 Paid
Total Reimbursement Generated Under Old Method[b]	$140.49	$128.52	$116.55	$74.24	$31.92
Sponsor's Estimated Administrative Cost[c]	33.00	33.00	33.00	33.00	33.00
Net Reimbursement to FDCH[d]	107.49	95.52	83.55	41.24	(-1.08)
Total Reimbursement Generated to FDCH Under New Method and Rates[e]	159.60	159.60	159.60	159.60	159.60
Potential Net Increase in FDCH's Reimbursement	52.11	64.08	76.05	118.36	159.60
Food Cost Factor[f]	85.68	85.68	85.68	85.68	85.68

[a]Assumes that each child is served breakfast, lunch, morning and afternoon snack each day in care, and assumes each child is in care 21 days per month.

[b]Based on reimbursement rates in effect December 1979:

	Free	Reduced-Price	Paid
Lunch	79.50¢	69.50¢	14.50¢
Breakfast	40.25¢	33.25¢	11.50¢
Snack	23.75¢	18.00¢	6.00¢

[c]This is the estimated average monthly administrative cost per home of an umbrella sponsor. See Glantz, F., An Examination of Food Program Costs in Day Care Centers and Family Day Care Homes (Abt Associates Inc., 1982).

[d]Assumes sponsor deducts administrative costs before reimbursi

[e]Based on rates in effect May 1, 1980: Lunch 90¢; Breakfast 46¢; Snack 27¢. Sponsors' administrative costs are reimbursed separately under the new system and are based on the number of homes sponsored.

[f]Food cost factors are USDA's estimate of the amount of money needed for food and food preparation. The December 1979 food cost factors were: Lunch 45.5¢; Breakfast 25.5¢; and snack 15.5¢.

homes serving middle-income children,[22] but also provided sponsors with a more predictable source of revenue. Sponsors reported that this facilitated planning and improved the administration of the program.

The most important factor explaining the recent growth of the program is the ability of sponsors to recruit homes serving middle-income children. Not only is there now a financial incentive for such homes to participate in the program, but the program is now less obtrusive, since providers no longer have to obtain income data from parents. The increase in the number of middle-income children served by the program has markedly changed the income mix of children participating in the CCFP through family day care homes. Prior to the implementation of the regulatory changes in May 1980, only 32 percent of the children served in participating FDCHs were in the paid income eligibility category; by January 1982 more than 60 percent of these children were in the paid category (Table 3.7).

3.2.2 Administrative Practices

In addition to the changes designed to foster growth, several regulatory changes were made in 1980 that

---

[22] Previously, umbrella sponsors that sponsored homes with children in the paid category had to rely on the income generated from the low-income FDCHs sponsored to cover the cost of administering the middle-income FDCHs. In one state this was done by allowing the sponsor to pay the FDCH provider the lesser of either total reimbursement generated or the "food cost factor." For FDCHs serving middle-income children, the food cost factor was almost certainly greater than the total reimbursement generated by the home. From Table 18 it is seen that under such a system, an FDCH serving four children at the free rate would generate $140.49 in reimbursement, from which the sponsor pays the FDCH the food cost factor, $85.68. At an average monthly cost of administration of $33 per home, the sponsor of this home would have $21.81 to offset the cost of administering the program for an FDCH serving children in the paid category.

Table 3.7

DISTRIBUTION OF CHILDREN ATTENDING PARTICIPATING FAMILY DAY CARE HOMES BY INCOME ELIGIBILITY CATEGORY: March 1980 and January 1982

Income Eligibility Category	Percent of Children March 1980[a]	January 1982[b] old	January 1982[b] new
Free	44.3%	24.5%	24.5%
Reduced-Price	23.8	13.6	11.1
Paid	31.9	61.9	64.4

[a]Data from the August 1980 PRS Report on the CCFP. The income eligibility categories were specified as:

Free: income not more than 125 percent of poverty level
Reduced-Price: income between 125 and 195 percent of poverty level
Paid: income greater than 195 percent of poverty level

[b]Data from National Telephone Survey of 444 randomly selected families of children enrolled in participating FDCHs. P.L. 97-35 changed the income eligibility categories (for center-based care) effective January 1982. The new categories are specified as:

Free: income not more than 130 percent of poverty level
Reduced-Price: income between 130 and 185 percent of poverty level
Paid: income greater than 185 percent of poverty level.

The income eligibility criteria do not apply to FDC. The data reflect the distribution of children assuming the income eligibility criteria for centers apply to FDC.

were directed toward the improvement of program administration. The key changes affected the frequency of monitoring visits and training sessions, and the timeliness of payments to family day care homes. Sponsors were required to:

- monitor each FDCH at least four times per year;
- provide at least one training session each year; and
- pass through food service reimbursements to FDCHs within 15 working days of receipt of these funds from the state.

Monitoring Visits

Prior to the implementation of the new regulations in 1980, there was no specific number of visits to be conducted each year. Umbrella sponsors determined for themselves the approach that would be used to ensure that FDCHs under their aegis were in compliance with the program's requirements. This, coupled with the fact that the allocation of reimbursement monies between the sponsor and FDCHs was determined by the sponsor,[23] resulted in considerable variation across sponsors in the frequency and content of monitoring visits. Sponsors tended to fall into one of two groups: (a) those that devoted considerable time and expense to the monitoring function, often combining monitoring visits with training and technical assistance; and (b) those that devoted relatively few resources to on-site visits, concentrating instead on in-office record reviews and visiting when necessary. Across all sponsors, the mean number of visits was 12 per year (Table 3.8). Two-thirds

---

[23] Prior to the separation of administrative cost reimbursements there were no uniform guidelines as to the amount of the reimbursement that sponsors were permitted to retain to cover administrative costs.

Table of Contents

Table 3.8

CHANGE IN ADMINISTRATIVE PRACTICES OF FDCH UMBRELLA SPONSORS
BY EXTENT OF MONITORING DONE PRIOR TO THE CHANGE IN REGULATIONS

Administrative Practice	Umbrella Sponsors With Less Than 4 Visits Prior to Change (n = 29)		Significance Level	Umbrella Sponsors With More Than 4 Visits Prior to Change (n = 27)		Significance Level	All Umbrella Sponsors (n = 49)		Significance Level
	Wave I	Wave II		Wave I	Wave II		Wave I	Wave II	
Number of Monitoring Visits Per Year	2.7	4.2	p <.001	18.6	8.5	p <.001	11.7	6.6	p <.01
Number of Items Reviewed	11.6	10.5	p <.10	11.3	11.6	ns	11.4	11.1	ns
Number of Items For Which Training is Provided	3.1	3.1	ns	3.4	3.0	ns	3.3	3.0	ns

of the sponsors visited homes at least four times per year prior to the requirement that they do so. On average, this group of sponsors visited homes about once every three weeks (18.6 times per year). The one-third of sponsors that were visiting fewer than four times per year averaged about one visit every four months (2.7 visits per year).

As one would expect, after the implementation of the new monitoring requirement both groups converged towards four visits per year. The sponsors that were previously making at least four visits per year dropped from an average of 18.6 visits to an average of 8.5 visits, while those previously visiting fewer than four times yearly increased from an average of 2.7 visits to an average of 4.2 visits. Across all sponsors, two-thirds reported that they were now conducting the required four visits per year. Only 10 percent of sponsors now report conducting fewer than four visits per year.

In terms of the content of monitoring visits, there has been little change overall. Most programs (more than 75%) continue to monitor menus, meal preparation (including cleanliness and the kitchen facility), meal service (including the appeal of meals to children and mealtime interaction about food), nutrition of meals and the provider's nutrition knowledge. Reviewed less often are nutrition education offered to children or parents by the day care provider, food purchase and storage, and the provider's financial management. Overall, there has been no change in the number of items reviewed during a monitoring visit, although there is some indication that sponsors have made a trade-off between frequency of visits and completeness of the review. Focusing only on sponsors currently making fewer visits than they did a year ago, we find that they have added a net of one item to their monitoring agenda

(not shown in Table 19), while programs holding to the same schedule or visiting more often have dropped an item ($P < .10$). While a variation of one item is not a great change, it does indicate that altering the scheduled frequency of visits has resulted in a change in the content of the visit as well.

One sponsor commented that the requirement that every home be visited equally often means staff are less able to direct their efforts toward the providers who appear to need the most supervision and help. Since even providers who have participated in CCFP for a long time and have a good record of meeting program requirements must be visited 4 times each year (more often than this agency was accustomed to visiting every home), while the agency's budget has not increased, staff are hard pressed to give extra help to those providers who are having problems. In the past they reported that monitoring typically consisted of one or two home visits to each home each year, careful monthly reviews of the paperwork sent to the agency office by each provider, and frequent visits to those providers who needed help to comply with the requirements. Staff felt that conversations on the phone and at training meetings, along with close inspection of records submitted monthly, told them which providers needed more individualized attention. As do all but two programs surveyed, they visit each new home before approving it and train new CCFP participants to perform the required procedures before food program participation begins.

Nevertheless, it is generally these new participants who need additional monitoring and assistance. Given the expanded schedule for monitoring visits required by the regulations, this program's staff found it difficult to make supplementary visits to providers who were experiencing difficulty. This was particularly exasperating

because they felt the time devoted to frequent visits to homes of long-time participants was not very useful.

Training

While training is an integral part of monitoring, it is also carried on more formally in workshops and group meetings. Group training sessions seem to be generally regarded as more effective than one-to-one training delivered in the home because providers seem to feel less on the defensive in a group situation in which they can share ideas, information, and problems. The group format offers an opportunity to present guest speakers, films, and more elaborate demonstrations and it gives sponsor staff a chance to be in contact with many providers in a short time. The mean number of such training sessions offered annually is slightly over eight. However, the median number is half that, since nearly 25 percent of the programs surveyed give only one or two training sessions each year. Infrequent training sessions are not significantly related to program size or type, although there is a tendency for long-established, traditional family day care systems to provide training sessions more often than other sponsors.

While individual programs reported changes in training curricula from last year, the overall effect has been negligible, suggesting that while the focus of training may vary from year to year as providers' or sponsors' interests vary, there is a fairly stable core of material that is presented cyclically. This "core curriculum" consists of child and family nutrition, menu planning, food preparation, and CCFP requirements and record-keeping. Of the programs which offered training sessions on these topics over the 2-year course of this study, 18 offered training in all 4 areas and another 23 offered sessions in 3 of these 4 subjects. In total, 85 percent offer most of the

core curriculum; individual programs add such topics as food purchasing and child feeding practices.

Timeliness of FDCH Reimbursements

The 1980 regulations further stipulate that all food service reimbursements be passed through to providers within 15 working days of receipt of funds by the sponsor. All but one sponsor who responded reported being able to meet that deadline. However, ten programs did not respond to the question and may be experiencing difficulty.

In sum, as a result of the CCFP 1980 regulatory changes, family day care sponsors have modified their schedule for monitoring visits toward the required four per year. At the same time, there has been some change in the content of monitoring visits; sponsors making more frequent visits have dropped an item from their review agenda, and those making less frequent visits have added an item for review. The content of training sessions has remained essentially unchanged. The perception of sponsors that increasing the frequency of home visits has diminished the number of training sessions cannot be evaluated from these data.

3.3 Potential Impact of the Omnibus Reconciliation Act of 1981 (P.L. 97-35)

The provisions of P.L. 97-35 that affect the CCFP may have a significant impact on participation among FDCHs. Although those provisions of the 1978 Amendments that resulted in the substantial increase in participation (i.e., the elimination of the income eligibility categories and the separation of administrative cost reimbursements) were not changed by P.L. 97-35, the effect of the most recent legisla-

tive changes is a reduction in the level of reimbursements to both sponsors and FDCHs:

- Total reimbursements to umbrella sponsors for administrative costs are to be reduced by 10 percent. This reduction is to be made in such a way as to distinguish organizations that sponsor large numbers of homes from those that do not.

- The food cost factors used to reimburse FDCHs for food and meal preparation are to be reduced by 10 percent.

- Family day care providers' own children are now eligible to participate in the CCFP only if such children are eligible for free or reduced-price meals.

- Reimbursements will be made for no more than two meals and one snack per child per day.

Administrative Cost Reimbursement

P.L. 97-35 directs the program to reduce the total level of administrative costs reimbursement by 10 percent. The legislation specifies that the new rate strucure must be such that outlays for administrative expenses nationally are reduced by 10 percent. This implies that across all sponsors the amount claimed must be reduced by 10 percent. Since prior to this legislation the amount claimed was limited to a sponsor's actual cost (or the rate ceiling where costs exceed the ceiling), the effect of this change will be to force sponsors to reduce their administrative costs or operate at a loss. It is therefore likely that sponsors will change the way they administer the program. Although it is difficult to predict where economies will be made, many sponsors will probably cut back on the frequency of monitoring visits.

Family Day Care Home Reimbursements

The 10 percent reduction in the food cost factors used to reimburse FDCHs does not appear to be sufficiently large in and of itself to affect participation in the CCFP. However, this cut, when coupled with the restriction that homes can only be reimbursed for one snack per child per day and the restrictions on reimbursement for the FDC provider's own children, may be large enough to affect participation.

Virtually all FDCHs currently serve both a morning and an afternoon snack to the children in their care. The limitation on reimbursement to one snack will result in a 15 to 27 percent reduction in reimbursements, depending upon the number of other meals provided (i.e., breakfast and/or lunch).

More than three-quarters (77 percent) of participating FDC providers currently include meals served to their own children in their CCFP reimbursements. These providers are about equally divided between those claiming one and those claiming two of their own children (mean equals 1.45). The reimposition of income eligibility for providers' own children would mean that these FDC providers could continue to claim their own children only if their family income was less than 185 percent of the poverty threshold. Data from the National Day Care Home Study indicate that more than one-third family day care providers have annual family incomes which exceed $12,000, and thus may exceed this threshold (Singer, 1980, p. 150). Since on average FDC providers care for five children (including their own), the elimination of their own children from CCFP eligibility would reduce reimbursements between 20 and 40 percent (depending upon how many of her own children were in care).

The combined effect of the changes will therefore have a large impact on CCFP reimbursement to family day care providers. The reduction in reimbursements will range from 25 percent in an FDCH serving breakfast, lunch, and two snacks, in which the provider does not provide care to her own child, to 45 to 65 percent in homes where the provider cares for her own children who are not income-eligible. It is clear that cuts of this magnitude will act to limit participation among FDCHs.

4.0 SUMMARY OF FINDINGS

The Child Nutrition Amendments of 1978 were aimed in part at increasing participation in the Child Care Food Program. The regulatory changes stemming from these amendments became effective May 1, 1980. Since then, there has been a tremendous increase in the number of FDCHs participating in the program, but only a modest increase in the number of participating centers. The evidence suggests that the rapid growth of FDC participation is a direct result of the regulatory changes, but that the increase in participation among day care centers is largely unrelated to these changes.

- Finding: The increase in FDC participation resulted from the elimination of the income eligibility criteria for FDC and the separation of reimbursements for sponsors' administrative costs from reimbursements to FDCHs.

In order to encourage program expansion, licensing alternatives were provided to facilitate the licensing or registration of family day care homes. State administering agencies were directed to establish alternative licensing procedures when licensing or approval was unavailable from the relevant federal, state or local licensing agencies. Since almost 90 percent of family day care homes are unlicensed, it was felt that the availability of alternative licensing procedures would facilitate participation in the CCFP.

While the unavailability of licensing is no doubt a barrier to participation for many family day care homes, analysis indicates that under the old regulations, the CCFP simply did not provide a sufficient financial incentive to encourage participation. The vast majority of children in

family day care are from middle-income families and would therefore have their meals reimbursed at the relatively low paid rate. Family day care providers and their sponsors would gain little through CCFP participation.

The changes in the FDC reimbursement structure which establish separate administrative cost reimbursements and eliminate the income eligibility categories greatly increased the level of reimbursements received by family day care providers, especially those serving middle-income children. Respondents interviewed after the regulations went into effect reported that the growth was among homes serving middle-income children.

- Finding: The expansion in FDC participation has come about largely through an expansion of the very large umbrella sponsors.

Although the regulations provided for start-up funds to encourage the formation of new sponsors and for expansion funds for small sponsors (i.e. those with fewer than 50 homes), there have been relatively few requests for such funds. State agency directors reported that the growth in the number of homes participating in the CCFP has been concentrated in the very large statewide umbrella sponsors. Among umbrella sponsors in the study sample, the number of homes sponsored increased by 4,657. However, nearly 90 percent of this growth took place in three large sponsoring agencies. Nationally, there are six sponsors with more than 1,000 homes under their aegis. These six sponsors account for 13,500 homes, or 28 percent of the FDCHs participating in the CCFP (Table 4.1). There are another 32 sponsors with between 201 and 1000 homes; these account for another 12,800 FDCHs. Thus, fewer than 6 percent of the sponsors now account for more than one-half of the homes participating in the program.

Table of Contents

Table 4.1

DISTRIBUTION OF FDCH UMBRELLA SPONSORS BY NUMBER OF HOMES SPONSORED: SUMMER 1981

Sponsor Size (No.of Homes)	No. of Sponsors	Total No. of Homes Sponsored
1-10	171	864
11-20	127	1,943
21-30	90	2,296
31-40	72	2,476
41-50	32	1,406
51-75	54	3,367
76-100	23	2,001
101-125	26	2,905
126-200	27	4,343
201-1000	32	12,776
1001+	6	13,511
Total All Sponsors	660	47,888

Source: Census of state agencies and FNS Regional Offices conducted in July 1981 by Abt Associates.

- Finding: The availability of tiering did not result in an increase in participation among day care centers.

In sharp contrast to the recent rapid expansion of FDC participation, there has been no change in the participation rate of eligible day care centers since 1976. Analysis indicates that participation of eliglible day care centers in the CCFP is determined primarily by two factors--participation in other government programs such as Title XX, and the level of potential reimbursments. Title XX participation provides an administrative base upon which the CCFP is a relatively simple addition. Without Title XX participation the marginal cost of participating in the CCFP is substantially increased. In addition, in many states CCFP reimbursements are taken into consideration in setting centers' Title XX reimbursement rates. Although the mechanism through which CCFP reimbursements are factored into the Title XX rates varies, it appears that the net effect of the interaction is to encourage participation in the CCFP.

As expected, the level of potential reimbursement affects a center's decision to participate in the CCFP. The higher the potential gains from participation, the more likely a center is to participate in the CCFP. Increasing the level of reimbursements is therefore a possible vehicle for increasing participation among eligible day care centers. However, although tiering increased the level of potential reimbursement sharply, the amount of reimbursement available to a center is still low relative to food program costs. Currently, the CCFP reimburses day care centers for less than half the cost of their food programs.

- Finding: Most day care centers that have joined the CCFP since May, 1980 have done so for reasons unrelated to changes in the regulations.

Table of Contents

The primary reasons cited by new participants for joining the CCFP at this time were either general economic conditions, which emphasized a need for additional sources of revenue, or that they had just become aware of the CCFP. Only 2 percent of new participants cited the change in regulations as the reason for electing to participate at this time.

- Finding: Extremely large increases in the level of reimbursements would be needed to significantly increase participation among day care centers.

Statistical analysis indicates that even if all meals are reimbursed at full cost, only one-third of nonparticipating centers would participate in the CCFP. Such a policy would result in payments of $104 million to new participants and would increase payments to current participants by $216 million. Given the current level of program outlays, such a policy is clearly not viable. In light of the foregoing, it seems reasonable to conclude that day care center participation rates have reached a plateau and that future expansion can be brought about only by dramatically increasing program outlays.

Table of Contents

APPENDIX A: DESCRIPTION OF SURVEY PLAN

This appendix describes the essential sampling characteristics of the evaluation design for the entire study, both Wave I and Wave II; the two waves are interrelated. The plans presented here are based upon the Child Care Food Program (CCFP) Evaluation Design submitted August 16, 1979 and the Wave II Design, submitted September 5, 1980.

A.1 The Universe of Respondents and Sampling Procedures

A.1.1 Wave I Respondents and Sampling Procedures

Telephone Survey

The first phase of the Evaluation of the Child Care Food Program included a national telephone survey of sample respondents from three distinct levels of the CCFP organization--FNS regions, sponsors, and providers. At the regional level the survey incorporated a complete census of all seven FNS Regional Directors. At the sponsor level the Child Care Food Program operates through three kinds of sponsoring agencies--independent child care center (ICCC), sponsored child care centers (SCCC) and family day care home (FDCH) systems. Independent child care centers are self-sponsored; that is, the sponsor is also the provider. Sponsored child care centers are the administering agencies for two or more child care centers (providers) which either choose not to be, or cannot be, self-sponsored. On average there are 3.4 providers for each such sponsor. The last group of sponsors are umbrella sponsors for family day care homes.

Because separate generalizations were to be drawn for CCCs and FDCHs, child care center sponsors and family day care home sponsors were sampled independently.

Table of Contents

Center Sponsors

CCC sponsors were sampled by means of a two-stage random sample. First, the 53 states were stratified into two groups, "large" and "small", where state size was determined by the number of participating CCC sponsors in the state. The 20 states in the "large" stratum accounted for approximately 70 percent of all participating CCC sponsors. From these 20 states, a probability sample of nine states was drawn for the evaluation. These states were selected in proportion to the number of participating CCC sponsors in each state.

$$\text{Probability of selecting any given large state} = \frac{\text{\# participating CCC sponsors in state}}{\text{Total \# participating CCC sponsors in all 20 large states}}$$

Subsequently, from each large state chosen, 23 CCC sponsors were randomly sampled from the CCC participant list. This produced a sample of 207 (9 states x 23 sponsors/state) CCC sponsors.

In like fashion, nine states were sampled from the "small" state stratum. For the small states the probability of selection was again proportional to the number of participating CCC sponsors in each state.

$$\text{Probability of selecting any given small state} = \frac{\text{\# participating CCC sponsors in state}}{\text{Total \# participating CCC sponsors in all 33 small states}}$$

Table of Contents

From each small state so chosen, 9 CCC sponsors[24] were randomly sampled. This produced a sample of 81 (9 x 9) CCC sponsors for the small states. Figure A.1 summarizes the selection of CCC sponsors.

Figure A.1

COMPOSITION OF THE WAVE I TELEPHONE SURVEY
CHILD CARE CENTER (CCC) SPONSOR SAMPLE

53 States

Stage 1:	9 Large States	9 Small States
Stage 2:	207 CCC Sponsors (23/State)	81 CCC Sponsors (10/State)

Total Sample: 288 CCC Sponsors

The states that were selected based on the sampling design were:

Nine (9) Large States	Nine (9) Small States
New York	Arkansas
Virginia	Louisiana
Alabama	Oklahoma
Florida	Iowa
North Carolina	North Dakota
Ohio	Nevada
Wisconsin	Maryland
Texas	Mississippi
California	South Carolina

The third stage of the center selection process required selecting providers (i.e. day care centers) for each of the CCC sponsors selected in Stage 2. The distribution of independent child care centers (ICCC) and sponsored child

[24] Some small states have only nine sponsors. In this case, all were sampled. Most states, however, have a greater participant pool.

care centers (SCCC) participating in the CCFP was: 193 ICCC and 95 SCCC.

Each ICCC sponsors corresponds to only one center. In Stage 3 this one center was selected for a total of 193 ICCC centers. Most SCCC sponsors had at least two centers, and two centers were sampled from each such sponsor; from sponsors with a single center, that center was selected. A total of 154 SCCCs were selected. Thus 347 day care centers were included in the National Telephone Survey.

Family Day Care Sponsors

As indicated above, FDCH umbrella sponsors are distributed independently from CCC sponsors, and consequently a separate state sample was drawn for FDCHs. The sample design for FDCH sponsors was a two-stage random sample just as it was for center sponsors. The first stage called for the stratification of the 53 states into a large/medium/small trichotomy. State size was determined both by the number of participating FDCH sponsors per state and the number of FDCHs per state.

The number of FDCHs per sponsor is extremely variable from state to state; five states had 24 percent of the entire FDCH sample but only 3 percent of the FDCH sponsors. Because of this lack of correlation between the number of sponsors and homes, three state were required to construct a sampling stratification which was efficient both for sponsors and homes. In order to maximize the representativeness of the selected sample for both homes and sponsors simultaneously, all sponsors were selected from the large stratum. From the remaining two strata, a proportional sample of sponsors were selected.

Table of Contents

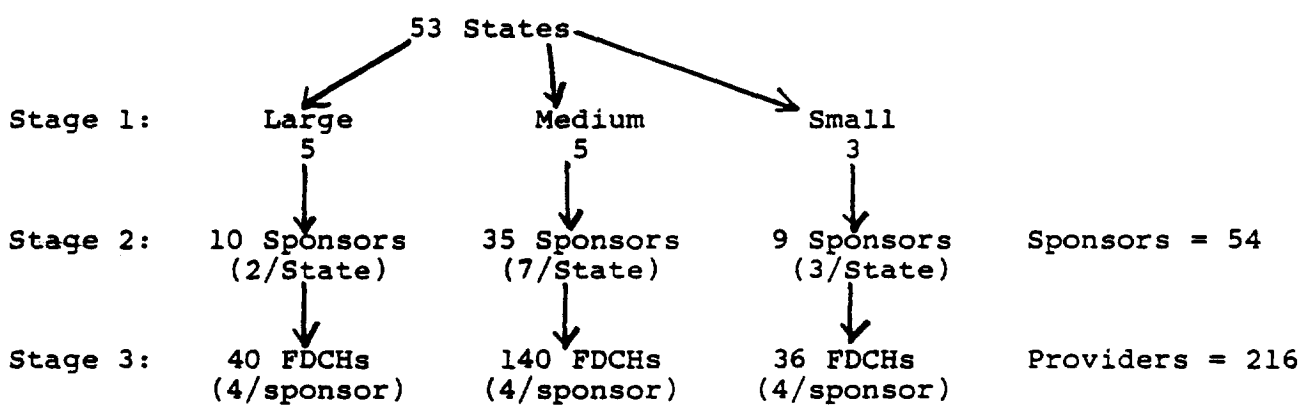
The states that were selected based on the sampling design are:

Large	Medium	Small
Michigan	New York	Illinois
New Mexico	Pennsylvania	Ohio
Colorado	Indiana	Kansas
Maryland	Minnesota	
Rhode Island	Oregon	

Figure A.2 gives the composition of the Wave I Telephone Survey for the Family Day Care Home sponsor and provider samples.

Figure A.2

COMPOSITION OF THE WAVE I TELEPHONE SURVEY
FAMILY DAY CARE HOME (FDCH) SPONSOR SAMPLE



The In-Depth Study

The Wave I In-Depth Study, like the Telephone Survey, included sample respondents from all four administrative levels of the CCFP--regions, states, sponsors and providers. The units sampled are a subset of the units sampled for the Telephone Survey, creating a

completely integrated data base. In this manner, the In-Depth Study served as a validation study for the Telephone Survey.

A census was taken of all seven FNS regions. The state sample for the In-Depth Study consists of those states from which sponsors were sampled in the National Telephone Survey. This results in a state sample size of 28. That is, 18 states were sampled for the center sample and 13 states for the FDCH sample; three states were selected in both samples.

In keeping with the design of the National Telephone Survey, FDCH sponsors and CCC sponsors for the In-Depth Study were sampled independently. From each of the nine large states, 8 sponsors were randomly selected from among the 23 CCC sponsors included in the National Telephone Survey. This provided a sample of 72 (9 sites x 8 sponsors) participating CCC sponsors. From each of the nine small states, three CCC sponsors were randomly sampled from among the nine sponsors previously selected. This resulted in 27 (9 x 3) CCC sponsors sampled from small states. In all, 99 participating child care center sponsors were sampled. This resulted in a sample of 72 ICCCs and 27 SCCCs.

All of the FDCH umbrella sponsors sampled for the National Telephone Survey were included in the In-Depth Study. The provider sample for the In-Depth Study was drawn at the rate of one provider per sponsor (irrespective of sponsor type) except for the 10 FDCH sponsors sampled in the large stratum. In this one case, because of the large number of providers per sponsor, two providers were sampled for each sponsor.

A.1.2 Wave II Sample

The Wave II design also called for both a telephone survey and on-site interviews. The potential participants were nested within the Wave I sample.

Telephone Survey

The objective of the telephone survey was to collect program description data on a large number of programs to determine if programs that participated in the CCFP under the old regulations had changed their behavior since the implementation of the new regulations.

Wave I provided the baseline data for measuring changes in participant programs' behavior. The principal technique to be used in this investigation was a simple t-Test (two-sided) for the difference between two means. Each of the key variables identified in the Wave I analysis would be subject to such a test at a .01 level of confidence. Using a .01 level of confidence for univariate t-Tests would permit joint hypothesis testing for ten variables at a .10 level of confidence.

The power to detect significant differences depends upon the size of the difference we wished to be able to detect (effect size), the level of confidence chosen, and the number of programs sampled.

While the acceptable statistical power adopted is arbitrary, .80 represented a reasonably conservative power to detect a difference of .50 between the two means. We therefore proposed to use a sample of 90 Wave I center-based programs for the telephone survey. Based on Wave I data, we expected this to include 66 sponsors and 24 independent

centers. For FDC sponsors, we proposed to include all 53[25] Wave I sponsors in the telephone survey.

On-Site Interviews

While a telephone survey can efficiently be used to obtain information on administrative practices and procedures, our experience with cost data collection indicated that such data can only be validly obtained in a face-to-face interview situation. Therefore, for the collection of cost data, we conducted face-to-face interviews.

In Wave I, models were developed and estimated which can be used to estimate the effects of variation, or changes, in administrative tasks or other program characteristics on administrative and food service costs. The general form of the model is:

$$C_1 = b_0 + b_1X_{1i} + b_2X_{2i} \quad . \; . \; . + b_mX_{mi}$$

where C_i = cost of program i

$X_{1i} \; . \; . \; . \; X_{mi}$ = set of explanatory variables for program i, including such factors as the frequency of monitoring and training visits, and the number of sites administered by program i.

Wave I data were used to estimate the coefficients of the model (i.e., the values for b_0, b_i, ... b_m).

---

[25]Wave I sampling plan called for 54 sponsors but one state did not have the requisite number so the final sample was 53 FDCH sponsors.

The estimated model could then be used to predict the cost of program i by setting the values of the explanatory variables at the levels that obtain for program i (i.e., X_{1i}, X_{2i}, . . . , X_{mi}). The program's predicted cost, C_i, can then be compared with the program's actual cost, C_i. To determine the predictive accuracy of the model after the implementation of the new regulations, it was necessary to compare predicted to actual costs for a sample of programs operating under the new regulations. Using Wave II values for the exploratory variables we obtain predicted values for the program's costs:

$$C_{2i} = b_o^2 + b_1 X_{1j}^{\ 2} + b_2 X_{2i}^{\ 2} + b_m x_{mi}$$

where X_{1i}^2 . . $X_{mi}^{\ 2}$ = Wave II values for the explanatory variables for program i (e.g., the number of monitoring visits done by program i under the new regulations.)

C_{2i} = predicted cost of program i in Wave II.

If the model predicted well, then the Wave II residuals (C_{2i} - C_{2i}) would be distributed around 0 (zero), with half of the programs having actual costs in excess of predicted costs. Because of sampling error, the proportions of Wave II programs with residuals greater than 0 would differ from the expected .50. By performing a t-test for the equality of two proportions, we could determine if the model was underpredicting costs under the new regulations.

The sample size needed to conduct these tests is dependent on the desired power to detect significant changes

and the size of the effects one wishes to detect. Table A.1 presents the sample sizes required to detect differences in the proportions of .20 and .25.

Table A.1

SAMPLE SIZES FOR T-TEST OF THE EQUALITY OF TWO PROPORTIONS (P = .50), GIVEN POWER AND EFFECT SIZES[a]

Power	Effect Size	
	.20 s.d.	25 s.d.
.60	23	16
.70	30	18
.80	37	23

[a] Table entries are sample sizes required in each group to detect a given effect size with a given power. Tests are directional at the .05 level.

On-site interviews of 40 programs yielded an adequate number of cases to confirm the reimbursement model and to identify where potential adjustments needed to be made. Five of the large states and five of the small states were randomly selected, and 40 programs randomly selected from the Wave I sample of center-based programs in the on-site survey.

Table A.2 presents a summary of the sample for Wave II. Figures A.3 and A.4 show the composition of all FDCH and CCC sponsor samples.

Table of Contents

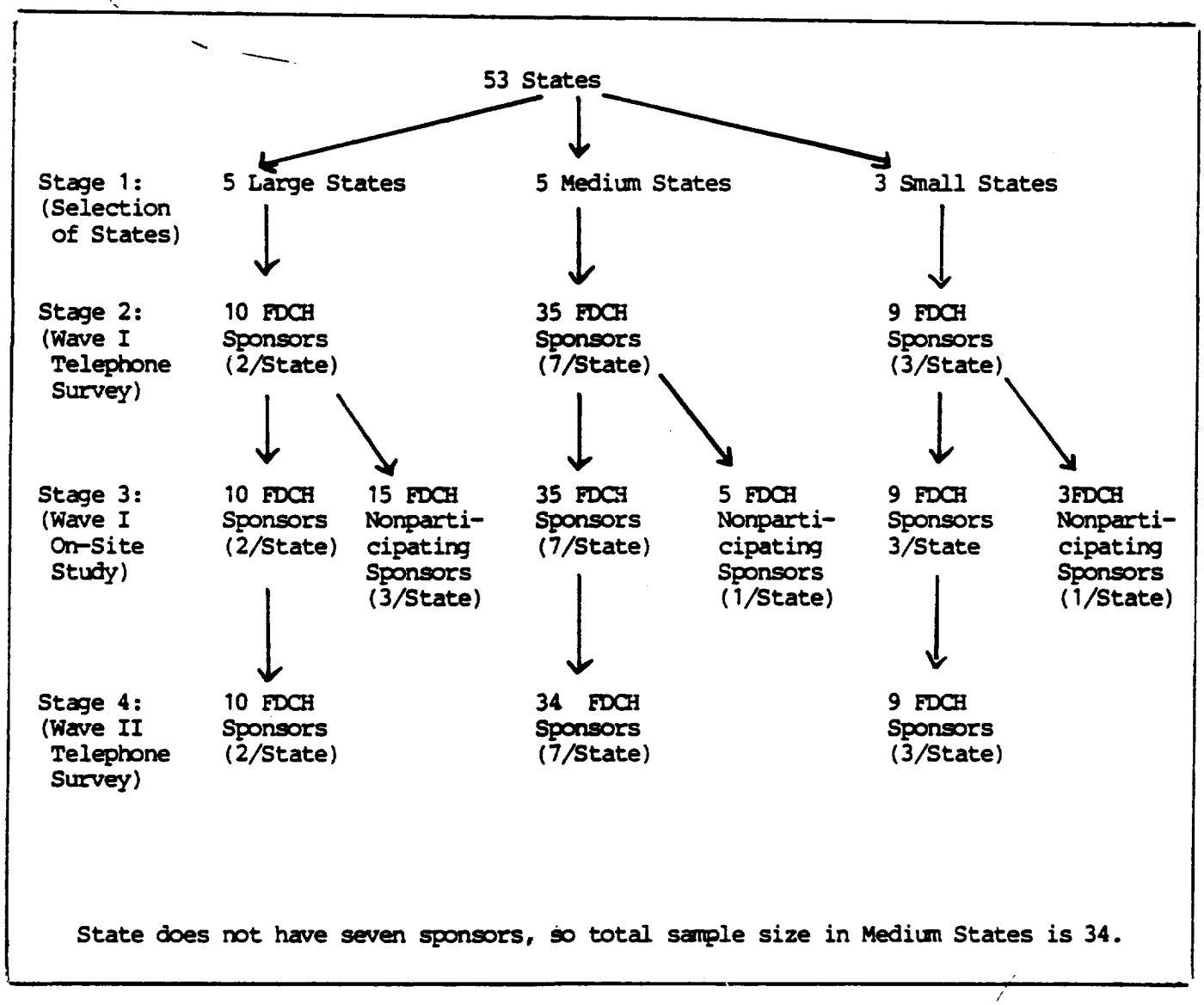
Table A.2

WAVE II SAMPLE SIZES

	Telephone Survey	On-Site Survey
FAMILY DAY CARE SPONSORS	53	--
CENTER-BASED PROGRAMS		
Sponsors	(est) 66	29
Sponsored Centers	(est) 66	29
Independent Centers	(est) 24	11
Total Sponsors	119	29
Total Centers	90	40

Figure A.3

COMPOSITION OF THE FDCH SPONSOR SAMPLE



State does not have seven sponsors, so total sample size in Medium States is 34.

Table of Contents

Figure A.4

COMPOSITION OF THE CCC SPONSOR SAMPLE

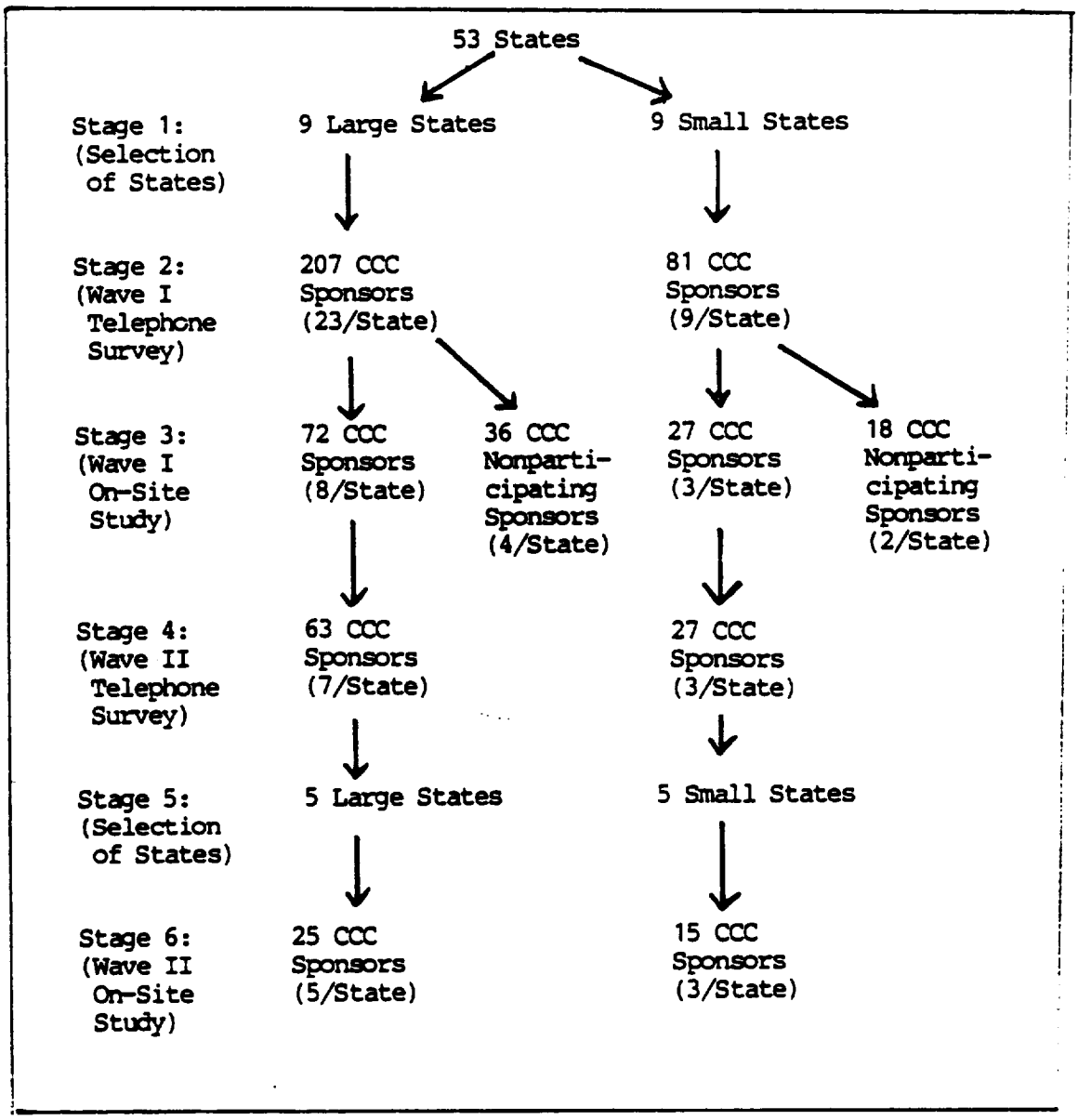


Table of Contents

APPENDIX B: STATISTICAL PARTICIPATION MODEL

In Section 2 we explored the differences between participating and eligible but nonparticipating day care centers. We now consider the extent to which these differences have actually caused the differences in participation. Some of the differences may not be causal. For example, it could be that participating centers have more low-income chlidren only because the Title XX centers that are more likely to participate tend to serve low-income children. Of course, the opposite could also be true--that is, that Title XX centers are more likely to participate because the low-income population which they serve results in higher levels of CCFP reimbursements. In this Appendix we present a model of program participation which disentangles such effects by simultaneously relating participation to a range of center characteristics.

B.1 The Logit Model

The decision to participate in the CCFP results in a binary outcome: day care centers either participate in the program or they do not. Logit models were developed to estimate the probability of making such a decision using a set of contextual or independent variables. Akin to multiple regression, logit models assume that although we can only observe a discrete outcome (here, participation or nonparticipation), each relevant independent variable acts to increase or decrease the likelihood that an individual will select a particular option. Their particular advantage lies in the fact that they overcome the well-known problems of inefficiency and possible misspecification associated with a dichotomous dependent variable in ordinary least

squares regression.[26] (See, for example, Cox, 1970.) In addition, logit analysis may be applied with both continuous and categorical independent variables.

A third advantage of logit analysis is the intuitively appealing interpretations associated with it. Specifically, the natural logarithm of the odds that a facility participates is expressed as a linear combination of independent variables. Mathematically, this relationship is expressed as:

$$\ln \frac{p_0}{1-p_0} = b_0 + b_1x_1 + b_2x_2 + \ldots + b_mx_m + \text{noise}$$

where p_0 is the probability that the facility participates, and the x's and b's are the independent variables and their coefficients

Estimated coefficients (the b's) for these variables represent the proportional change in the odds that a facility will join the CCFP that would be produced by a unit change in the particular independent variable. For ease in interpretation we often talk in terms of the probability that a center will participate rather than the odds:

$$\text{probability of participation} = \frac{e^{m\ \text{odds}}}{1 + e^{m\ \text{odds}}}$$

---

[26] Using a dichotomous dependent variable in a regression is equivalent to doing a discriminant analysis with two groups. A recent article by Press and Wilson (1978) compares this approach with logit models and points to the utility of the latter technique for our purposes.

B.2 The Data

The model described below was estimated using data from the National Day Care Study (NDCS). Between April 1976 and February 1977 the NDCS conducted a nationwide telephone survey of 3100 day care centers. This survey included a question about participation in the CCFP which was asked of the 1839 nonprofit centers in the survey. Fifty-eight (58) percent of these centers indicated that they participated in the CCFP. Since the participation rate did not change appreciably between 1976-1977 and Wave I, the larger NDCS data base was used to estimate the parameters of the logit model. This resulted in far greater degrees of freedom than would have been possible using the present study's data base.

B.3 The Estimated Model

Several general considerations guided the specification of the participation model:

- Benefit/Cost Ratio. The benefits of participation must be greater than the costs (e.g., the costs associated with the program's reporting requirements). Ceteris paribus, we would expect the likelihood of participation to be greater, the larger the benefit/cost ratio.

- Stigma. Some centers may be reluctant to accept public subsidies of any kind. This may stem from a philosophical approach to business or perhaps a reluctance to submit to the regulations that go hand-in-hand with the receipt of subsidies (e.g., civil rights compliance).

- Information. Potential recepients may not be aware of the program or their eligibility for it.

Using these criteria we specified the following model:

PART = F(PRB80FTE, PRBLACK, NUT, CFTE, SPON, FFP)

where

PART = 1 if center participates, 0 otherwise;

PRB80FTE = Potential reimbursement per full-time equivalent child using January 1980 rates and the modal meal pattern for participating centers;

PRBLACK = Proportion of the center's enrollment that is black;

NUT = 1 if the center's menus are planned by a professional nutritionist, 0 otherwise;

CFTE = Number of FTE staff working at the center;

SPON = 1 if the center is sponsored, 0 otherwise; and

FFP = 1 if the center provides care to children whose care is subsidized by Title XX, 0 otherwise.

Potential reimbursement (PRB80FTE) is a measure of the expected benefits of participation in the CCFP. It is expected that the likelihood of participation increases as potential reimbursement increases. The variable has been scaled to eliminate the effect of center size by dividing by the number of FTE children attending the center. Potential reimbursement has been calculated using the January 1980 reimbursement rates. The level of reimbursement is dependent on the income distribution of children served and the pattern of meals served. Since the pattern of meals served may be affected by participation, we have calculated potential reimbursement for <u>all</u> centers using the modal meal pattern

for participating centers (breakfast, lunch, and two snacks). The income eligibility categories which determine reimbursement rates for the CCFP are based on family income relative to the poverty threshold. Since these data were not included in the NDCS, we have used the number of children from families with incomes below $6,000, between $6,000 and $15,000, and above $15,000 as proxies for the number of children in the free, reduced-price and paid income eligibility categories.[27]

Since a professional nutritionist is quite likely to be aware of the CCFP, it is expected that centers using the services of a professional nutritionist (NUT) are more likely to participate in the program.

The number of full-time equivalent staff (CFTE) serves as a measure of center size. If administrative costs are subject to economies of scale, then costs will fall as size increases and the benefit/cost ratio will increase. It is therefore expected that the likelihood of participation will be greater in larger centers.

Sponsorship is often regarded as an important organizational distinction. SPON has been included in the model to test for any difference in participation between sponsored and nonsponsored centers. Although there is no clear conceptual rationale for including this variable, it is possible that sponsored centers have differential access to information.

---

[27] NDCS data reflect 1976 incomes. In 1976, the poverty level for a family of four was $6,000. The three CCFP income categories would correspond approximately to (a) $7,500 or less; (b) $7,500-$11,700; and (c) more than $11,700. The use of NDCS data has the effect of understating maximum reimbursements in centers with proportionately more children in the $6,000-$7,500 income class and overstating maximum reimbursements in centers with proportionately more children in the $11,700-$15,000 income class. As such it probably reduces the differential between participating and nonparticipating centers. On balance, however, the NDCS data provide a reasonable estimate of maximum reimbursements.

The racial mix of a center may serve as a proxy for a center's predisposition towards participating in government programs such as the CCFP means that a center must comply with the civil rights requirements. It is expected that centers with a higher proportion of blacks enrolled (PRBLACK) will be more likely to participate in the CCFP.

Finally, it is expected that centers serving publicly subsidized children (FFP) will have a greater likelihood of participating in the CCFP. Title XX day care centers are more likely to know about the CCFP. In addition, such centers may be under some pressure from the state's Title XX agency to participate in the program in order to allow for fiscal substitution at the state level (i.e., where the state uses CCFP monies to replace Title XX monies as a source of general day care subsidies).

The results of the estimation are shown in Table B.1. The model resulted in a highly significant relationship, and the hypothesis of no relationship between the dependent variable and the independent variables can be rejected at better than the .001 level. Each of the independent variables had the expected sign and was significant at the .05 level or better (most at better than the .001 level).

B.4 Estimating Program Participation

The estimated model was used as a predictive equation to forecast the changes in participation that would result under the tiering system and other reimbursement structures. For each nonparticipating center in the NDCS sample the equation was used to estimate the probability of participation given the center's characteristics (i.e., the values for PRBLACK, NUT, CFTE, SPON, and FFP) and the level of reimbursement it would receive under tiering. Reimbursements under tiering were calculated by determining the tier

Table of Contents

Table B.1

DETERMINANTS OF PARTICIPATION IN THE CCFP

LOGIT EQUATION: N = 1014

Independent Variable	Logit Coefficient	T-Ratio	Significance Level
PRB80FTE	.415	4.050	p <.001
FFP	1.355	9.414	p <.001
NUT	.322	3.679	p <.001
CFTE	.033	2.206	p <.05
PRBLACK	.657	3.597	p <.001
SPON	.373	2.719	p <.01
CONSTANT	-1.193	-7.568	p <.001
R^2	.156		p <.001

in which the center would qualify given the income distribution of the children served and applying the reimbursement rates for that tier to the modal meal pattern of participating centers. Total estimated reimbursements were then divided by the number of FTE children to obtain an estimate of potential reimbursment per FTE child. It was assumed that centers with an estimated probability of participation of .80 or greater would participate in the CCFP. Cases were then weighted to obtian a national estimate of the change in participation. Using this procedure, it was estimated that tiering would result in an increase in participation of 311 day care centers.

Similarly, it was estimated that if all meals were reimbursed at the January 1980 rates, for free meals, 400 nonparticipants would elect to join the CCFP. This relatively small increase in participation stems from that fact that the January 1980 rates cover only a fraction of the full cost of the food programs in day care centers (the free rate is 55 percent of full cost). Two additional series of estimates were therefore made to reflect an increase in the proportion of full cost covered by CCFP reimbursements: (a) tiering and (b) all meals at the free rate. For each method a series of estimates was generated by varying the proportion of full cost covered from 55 to 100 percent.[28] The results for these analyses are presented in Figure 2 above. It is clear from these analyses that meaningful increases in participation can come about only through substantial increase in reimbursement rates. Even if such increases were desirable, the cost to FNS of achieving such increase would be prohibitive. Reimbursing all meals at full cost would result in an estimated increase in participation of 1733 centers, but would increase total program costs by $320 million.

---

[28]Under tiering, it was assumed that the reduced-price and paid rates increased by the same proportion as the free rate.

Table of Contents

REFERENCES

Children's Foundation, Family Day Care Licensing Study (Hearings before the Subcommittee on Nutrition of the Committee on Agriculture, Nutrition and Forestry, U.S. Senate, 95th Congress Second Session on the Child Nutrition Amendments of 1978). Washington, D.C.: U.S. Government Printing Office, 1978.

Coelen, C., Glantz, F., & Calore D. Day Care Centers in the United States. 1976-77. Cambridge: Abt Books, 1979.

Cox, D.R., The Analysis of Binary Data. Great Britain: Methuen, 1970.

Forman, C., Child Nutrition Amendments of 1978. Administration Views (Hearings before the Subcommittee on Nutrition of the Committee on Agriculture, Nutrition and Forestry, U.S. Senate, 95th Congress Second Session on the Child Nutrition Amendments of 1978). Washington, D.C.. U.S. Government Printing Office, 1978.

Fosburg, S., Family Day Care in the United States: Summary of Findings (DHHS Publication No. OHDS 8D-30282) Washington, D.C.. U.S. Government Printing Office, 1981.

Singer, J., Fosburg, S., Goodson, B., & Smith, J., Family Day Care in the United States: Research Report (DHHS Publication No. 80-30282) Washington, D.C: U.S. Government Printing Office, 1980.

Press, S. & Wilson, S., Choosing Between Logistics Regression and Descriminant Analysis. Journal of the American Statistical Association, December 1978, 73, 699-705.

Table of Contents

Part II:

Meal Quality

Table of Contents

ABT ASSOCIATES INC.
55 WHEELER STREET, CAMBRIDGE, MASSACHUSETTS 02138
TELEPHONE • AREA 617-492-7100

AN EXAMINATION OF MEAL QUALITY IN DAY CARE CENTERS AND FAMILY DAY CARE HOMES

May 27, 1982

Contract No.: 53-3198-9-40

Principal Authors:
Mary Kay O'Neill Fox
Frederic B. Glantz

Editor:
Nancy Irwin

Submitted to:

Dr. Theodore F. Macaluso, Project Officer
United States Department of Agriculture
Food and Nutrition Service
Alexandria, Virginia 22302

Contract Manager	Quality Control Reviewer	Management Reviewer

Table of Contents

List of Tables

		Page
Table 1.1	INCREASE IN CCFP PARTICIPATION SINCE 1978	4
Table 1.2	GROWTH OF THE CCFP SINCE ITS INCEPTION IN 1969	
Table 4.1	MEAL QUALITY COMPONENT SCORES DESCRIPTIVE STATISTICS	23
Table 4.2	MEAN PERCENT OF RDA FOR CALORIES AND SELECTED NUTRIENTS CONTRIBUTED BY DIETS OFFERED IN PARTICIPATING AND NONPARTICIPATING PROGRAMS	26
Table 4.3	PERCENT OF PROGRAMS SERVING EACH TYPE OF MEAL AND SNACK	27
Table 4.4	MEAN PERCENT OF RDA FOR CALORIES AND SELECTED NUTRIENTS PROVIDED IN EACH TYPE OF MEAL AND SNACK SERVED IN PARTICIPATING AND NONPARTICIPATING PROGRAMS	29
Table 4.5	MEAN COMPOSITE AND INDIVIDUAL NUTRIENT INQ SCORES FOR DIETS OFFERED IN PARTICIPATING AND NONPARTICIPATING PROGRAMS	31
Table 4.6	DISTRIBUTION OF COMPOSITE AND INDIVIDUAL MEAL INQ SCORES IN PARTICIPATING AND NONPARTICIPATING PROGRAMS	33
Table 4.7	MEAN COMPOSITE AND INDIVIDUAL NUTRIENT INQ SCORES FOR MORNING SNACKS IN PARTICIPATING AND NONPARTICIPATING PROGRAMS	35
Table 4.8	MEAN COMPOSITE AND INDIVIDUAL NUTRIENT INQ SCORES FOR AFTERNOON SNACKS IN PARTICIPATING AND	36

Table of Contents

List of Tables

		Page
Table 4.9	MEAN AND EXTREME FQV SCORES FOR INDIVIDUAL MEALS AND SNACKS	38
Table 4.10	MEAN FQV AND EXTREME FOOD QUALITY COMPONENT SCORES IN PARTICIPATING AND NONPARTICI-PATING PROGRAMS	40
Table 4.11	MEAN PERCENT OF CARBOHYDRATE FROM SUCROSE PROVIDED BY PARTICIPATING AND NONPARTICIPATING PROGRAMS	43
Table 4.12	MEAN AND EXTREME QUALITY CONTROL INDEX SCORES IN PARTICIPATING AND NONPARTICIPATING DAY CARE CENTERS	45
Table 4. 13	MEAN AND EXTREME MEAL SERVICE QUALITY SCORES (MSQ) IN PARTICI-PATING AND NONPARTICIPATING DAY CARE CENTERS	47
Table 5.1	ALLOCATION OF STAFF TIME TO FOOD PROGRAM ADMINISTRATION TASKS	49
Table 5.2	RELATIONSHIP OF MEAL QUALITY TO THE PROVISION OF NUTRITION TRAINING AND THE USE OF A NUTRITIONIST TO PLAN MEALS	51
Table 5.3	COMPLIANCE WITH CCFP MEAL COMPONENT AND QUANTITY REQUIREMENTS BASED ON ONE DAY OBSERVATIONS	53
Table A.1	SAMPLE SIZES FOR T-TEST OF THE EQUALITY OF TWO PROPORTIONS (P=.50), GIVEN THE POWER AND EFFECT SIZES	72
Table A.2	WAVE II SAMPLE SIZES	73

Table of Contents

Table of Contents

		Page
1.0	INTRODUCTION	1
	1.1 Overview of the Study Design	6
	1.2 Organization of this Report	7
2.0	THE DIMENSIONS OF MEAL QUALITY	
	2.1 Nutrient Contribution and Nutritional	
	2.2 Quality and Variety of Food	12
	2.3 Food Service Procedures	14
3.0	DATA COLLECTION PROCEDURES	17
	3.1 Day Care Centers	17
	3.2 Family Day Care Homes	19
4.0	MEAL QUALITY FINDINGS IN DAY CARE CENTERS AND FAMILY DAY CARE HOMES	20
	4.1 Nutrient Contribution and Nutritional Quality	24
	4.2 Food Quality and Variety	37
	4.3 Food Service Procedures	44
5.0	FACTORS AFFECTING MEAL QUALITY IN DAY CARE CENTERS	48
	5.1 Administrative Cost and the Provision of Nutrition Training	48
	5.2 Food Service Delivery Costs	50
	5.3 Compliance With CCFP Meal Requirements	52
6.0	CURRENT REGULATORY POLICY	57
APPENDIX A	DESCRIPTION OF SURVEY PLAN	63
	A.1 The Universe of Respondents and Sampling Procedures	63
References		76

Table of Contents

List of Figures

		Page
Figure 4.1	MEAL QUALITY IN PARTICIPATING AND NONPARTICIPATING PROGRAMS	21
Figure 4.2	FOOD SERVICE PROCEDURES IN PARTICIPATING AND NONPARTICIPATING CENTERS	22
Figure 4.3	MEAN PERCENT OF RDA FOR CALORIES AND SELECTED NUTRIENTS CONTRIBUTED BY DIETS OFFERED IN PARTICIPATING AND NONPARTICIPATING PROGRAMS	25
Figure 4.4	DISTRIBUTION OF COMPOSITE INQ SCORES WITHIN PROGRAM TYPE	32
Figure 4.5	MEAN PERCENT OF CARBOHYDRATE FROM SUCROSE PROVIDED BY PARTICIPATING AND NONPARTICIPATING PROGRAMS	41

Table of Contents

1.0 INTRODUCTION

The Child Care Food Program (CCFP) was established in 1968 as the year-round component of the Special Food Service Program for Children, a three-year pilot program that also included a summer food service component. The CCFP was originally designed to provide federal grants for meals served in nonresidential day care centers for preschool children of low-income families and working mothers. By 1975 the CCFP had evolved as a separate program, and eligibility was expanded to include all nonprofit day care centers as well as licensed family day care homes (FDCHs) affiliated with umbrella sponsors.

The 1975 Amendments were intended to expand program participation, particularly among the many children receiving care in FDCHs. The number of children receiving CCFP benefits did expand considerably in response to the broadening of the program's eligibility requirements, but by 1978 the program was still reaching only a small proportion of the children in out-of-home day care. Three years after FDCHs became eligible, fewer than 12,000 FDCHs (serving only 51,000 children) were participating in the program. During the same period, the rate of participation among eligible day care centers also remained relatively low. In 1978, as in 1976, only 60 percent of nonprofit day care centers were participating in the CCFP.[1]

The Child Nutrition Amendments of 1978 permanently authorized the CCFP and changed several program regulations

---

[1]The estimated 1976 participation rate is derived from data from an earlier study of center-based day care (Coelen, Glantz & Calore, 1979). The estimated 1978 participation rate is based upon data obtained in the present study through telephone interviews with a random sample of 775 nonprofit day care centers as part of the effort to recruit participating and nonparticipating centers for the on-site survey.

in order to facilitate participation in the program. In addition, the 1978 Amendments restructured reimbursement procedures. For day care centers, "tiering" was established as an alternative method of computing reimbursement ceilings.[2] The effect of the tiering option was to simplify the calculation of the reimbursement ceiling and, for most eligible day care centers, to increase this ceiling. The changes affecting family day care were far more dramatic:

- Reimbursements for umbrella sponsors' administrative costs were separated from reimbursements for food and food service.

- Separate income eligibility categories for free, reduced-price, and paid rate reimbursements were eliminated. Reimbursements for all meals served in FDCHs were to be made at the "free" rate regardless of the income of the children served.

- State administering agencies were required to establish alternative licensing procedures for FDCHs in cases where no such procedures existed or where a lengthy licensing backlog existed.

- Start-up and expansion funds were provided for family day care sponsors.

The net effect of these legislative changes was to make the program less obtrusive and to greatly increase the level of reimbursements going to family day care homes for food and food preparation.

---

[2]Under the tiering system of reimbursement, day care centers were reimbursed for <u>all</u> children at one rate (free, reduced-price, or paid), according to the eligibility make-up of the group as a whole, regardless of the income of the individual children served.

The impact of the 1978 Amendments is clearly visible in the recent growth in program participation. While the program experienced a modest increase in the number of participating day care centers (an 8 percent increase between June and December 1980[3]), the number of FDCHs participating in the CCFP more than doubled during this same period (Table 1.1).

The 1978 Amendments followed the pattern set by previous amendments affecting the program--they extended and expanded the CCFP by opening up program participation to new groups of children in out-of-home day care. Along with the increases in the number of children served came a substantial increase in program outlays. What started in 1969 as a small program serving 40,000 children at an annual cost of $2.8 million was serving almost 900,000 children at an annual cost of $280 million by 1981 (Table 1.2).

The rapid expansion of the program following the 1978 Amendments raised anew concerns that the CCFP was becoming a growing source of support for middle income and upper income groups (Forman, 1978). More than one-half of the children attending eligible (i.e., nonprofit) day care centers are from middle- and upper-income families (Coelen, et al., 1978, Table 54). Similarly, nearly three-quarters of the children in family day care are from such families.[4]

These concerns were reflected in the sweeping changes initiated by the Omnibus Reconciliation Act of 1981 (P.L. 97-35). This new legislation is intended to contain the cost of the CCFP, while at the same time ensuring that

---

[3]The final regulations were published in the Federal Register January 22, 1980 and became effective on May 1, 1980.

[4]National Child Care Consumer Study, Unco, Inc. 1975.

Table of Contents

Table 1.1

INCREASE IN CCFP PARTICIPATION SINCE 1978

Month	Number of Operating Day Care Facilities		Number of FDCH Sponsors	Average Daily Attendance		
	Centers	FDCHs		Centers	FDCHs	Total
December 1978	15,493	11,573	411	526,636	50,716	577,352
June 1979	14,803	13,757	434	529,924	55,762	585,686
December 1979	16,439	16,059	430	601,560	70,374	671,934
June 1980	15,518	17,452	429	592,679	78,340	671,019
December 1980	16,712	36,545	453	629,129	130,382	759,511
March 1981	17,050	43,155	600	686,091	163,273	849,364

Source: USDA, Program Reporting Section Reports for the CCFP: June 1981, August 1980, and August 1979.

Table 1.2

GROWTH OF THE CCFP SINCE ITS INCEPTION IN 1969

Fiscal Year	Average Daily Attendance (000's)	Obligations (000's)
1969	39.8	$ 2,844
1970	93.3	5,132
1971	175.6	13,067
1972	215.5	15,980
1973	225.3	19,380
1974	377.2	30,419
1975	457.1	47,248
1976	463.1	114,000
Transition Quarter	551.6	19,657
1977	534.4	78,300
1978	580.0	131,000
1979	665.0	158,800
1980	741.0	207,800
1981	853.4	279,700[a]

Source: United States Department of Agriculture

[a]Preliminary estimate based on the first nine months of the year

the subsidies available through the program are more directly targeted at low-income children. To this end, P.L. 97-35 made the following changes:

- Subsidies for meals and administrative expenses are reduced and tiering has been eliminated as a method for calculating reimbursement ceilings for day care centers.

- Income eligibility guidelines have been revised to expand the number of low-income children eligible for the full free meal reimbursement by raising the threshold for free meals from 125 to 130 percent of the poverty line. At the same time, the number of middle-income children eligible for reduced-price meals has been decreased by lowering the cut-off for reduced-price meals from 195 to 185 percent of the poverty line.

- In an effort to reach low-income children in for-profit day care centers, eligibility has been extended to for-profit centers in which at least 25 percent of the children receive day care subsidies through Title XX.

One probable and intended consequence of the new legislation is to reduce substantially program participation by middle-income children. However, as many low-income children attend day care facilities that will now elect not to participate in the CCFP, the changes may also reduce participation by children from poor and near-poor families.

Table of Contents

1.1 Overview of the Study Design

The Child Care Food Program Evaluation was mandated by P.L. 95-627, the Child Nutrition Amendments of 1978. The 1978 Amendments directed the Food and Nutrition Service of the Department of Agriculture to study:

- the administrative costs of participating institutions;
- the costs of food service and their relationship to meal quality; and
- licensing and other barriers to participation in the CCFP.

The primary aim of the CCFP evaluation is to complete the three studies mandated by P.L. 95-627 and to place the findings of these studies within the context of an accurate description of existing program operations and an assessment of program impact.

The overall study design recognized that the regulatory changes were likely to affect some of the areas under study in the evaluation. Two data collection efforts were conducted. The first data collection effort (Wave I) was conducted between January 1980 and March 1980, prior to the implementation of the regulatory changes stemming from the 1978 Amendments. A second data collection (Wave II) was conducted between January 1981 and March 1981, following the implementation of the new regulations on May 1, 1980.

Wave I provided baseline data on program costs, administrative practices, and program participation as well as an assessment of meal quality. Wave II provided comparative data used to assess the impact of the regulatory

changes.[5] Both data collection efforts included respondents at each level of the CCFP organization--states and FNS Regional offices, sponsors and day care providers (i.e., centers and family day care homes). A description of the Wave I and II survey plans is presented in Appendix A.

1.2 Organization of this Report

This report outlines the dimensions of meal quality examined in this study, identifies significant differences noted between participating and nonparticipating programs and assesses the relationship between meal quality and other program variables of interest. Section 2.0 presents the definition of meal quality used in this evaluation, and the major component variables used in assessing meal quality. Section 3.0 briefly describes the data collection and data handling techniques used in obtaining the data necessary for the meal quality analyses. Section 4.0 focuses on the findings of the cross-sectional analyses and outlines the major differences between participating and nonparticipating programs on each of the component meal quality variables. Factors affecting the level of meal quality in participating programs are examined in Section 5.0. Comments on current regulatory policy and recommendations for means to improve meal quality are presented in Section 6.0.

Appendix A is included with this report to provide the reader with supplementary information on the survey plan used in Waves I and II of the CCFP Evaluation The data collection procedures, data handling techniques and variable construction used in the meal quality analyses are presented in the Technical Appendix.

---

[5] Following the recommendations of the study's Advisory Panel, Wave II did not collect data on meal quality since the new regulations were not expected to affect meal quality.

Table of Contents

2.0 THE DIMENSIONS OF MEAL QUALITY

The term "meal quality" has no universally accepted definition. Rather, meal quality encompasses a variety of factors involved in the preparation, provision and consumption of nutritious meals and snacks. This study examined three key dimensions of meal quality:

- nutrient content of the diet;
- nutritional quality of the diet; and
- quality and variety of food provided.

The central factor in any assessment of meal quality is an assessment of the potential nutrient contribution of the diet provided in day care--does the food served to children in day care make a substantial contribution to their daily requirements for the essential nutrients needed for proper growth and development? Are the meals and snacks served to children in day care of high nutritional quality--are they well balanced in the amount of nutrients and calories provided? While the CCFP meal requirements lay the groundwork for the provision of nutritious meals, the regulations permit considerable variation in the foods served.[6] Therefore, day care programs which comply with the CCFP requirements may still vary considerably in terms of the actual nutrient content and overall nutritional quality of the diets provided to children.

Nutrient standards and meal requirements may be satisfied in any number of ways, some of which are nutritionally more desirable than others. It is therefore also important to look at quality attributes of food beyond the nutrients provided. It is useful, for example, to discriminate between nutrients provided in whole foods, and nutrients provided in highly processed, highly sugared foods that may be enriched or fortified. The variety of foods offered to children is also an important aspect of any

---

[6] Federal Register, January 22, 1980, P. 4986-4988

feeding program; it is generally recognized that monotony in food service may adversely affect consumption. In addition, an important objective of many child nutrition programs is the introduction of new foods, which makes children aware of the myriad food choices available, and broadens their knowledge of and experiences with food.

In addition to the examination of potential nutrient contribution, overall nutritional quality, and the quality and variety of foods provided, the study also evaluated the food service procedures used in planning, preparing and serving meals, which may ultimately have an impact on meal quality. These included:

- quality control procedures; and
- quality of meal service.

Appropriate food service procedures maximize the potential contribution of any food service program. Care in the purchase and storage of food, in food preparation and handling, and in general sanitation help to ensure that the nutritional quality of the food is maintained. The environment in which meals are served may also affect food consumption. The quality of meal service may be affected by the manner in which food is presented to children and the behavior of food service personnel, as well as such "environmental" factors as crowding and noise levels in the eating area (Williams, 1977). All of the issues discussed in this chapter and the following chapter are presented in more detail in the Technical Appendix.

2.1 Nutrient Contribution and Nutritional Quality of the Diet

The Recommended Dietary Allowances (RDAs) for individual nutrients have traditionally been used as a standard against which to measure the nutrient content of

diets. (National Academy of Sciences, 1980). A key element in evaluating the meals served in day care centers and family day care homes (FDCHs) is an assessment of the nutrient content of the diet, expressed as the proportion of the RDAs for the essential nutrients contributed by each meal and by the overall diet.[7]

To allow a reasonable assessment of the usual nutrient content of diets provided in day care programs, the nutrient data used in these analyses represent the average nutrient contribution of the meals and snacks served in a randomly selected three-day period. The methodology used in collecting nutrition-related data and computing nutrient content of the diets is presented in Section 3.0.

The assessment of average nutrient contribution, as described above, speaks more to adequacy of the diet provided than to actual quality of the diet. A more complete assessment of meal quality also requires an examination of the manner in which the nutrient standards are met. This study used a measure of "nutrient density" to quantitatively assess the quality of the meals provided in day care centers and homes. An Index of Nutritional Quality (INQ) based on the concept of the nutrient:calorie ratio was used in measuring nutrient density (Sorenson & Hansen, 1975 and Sorenson, Wyse, Wittwer, & Hansen, 1976). The INQ measures the nutrient contribution of foods and/or meals relative to their caloric content. The degree to which nutrients and calories are balanced provides a useful measure of the overall nutritional quality of a given food, meal, snack, or total diet. The American diet provides ample opportunity for consumption of foods of poor nutritional quality: foods that are high in calories and low in nutrients. Since children are principal consumers of such foods, the concept of nutrient density is extremely relevant to an evaluation of a feeding program for children.

---

[7]The RDA standards used in this evaluation were those for four- to six-year-old children; approximately two-thirds of children in day care fall within this age group.

Table of Contents

The INQ, as used in this study, assesses the nutrient:calorie ratio in relation to the RDA standards, and may be expressed as:

$$\text{INQ} = \frac{\text{Percent of RDA Standard for Nutrient}}{\text{Percent of RDA Standard for Calories}}$$

Using this INQ measure, meals with high nutrient content in proportion to caloric content would receive high INQ scores; those with lesser nutrient content in proportion to caloric content would receive lower INQ scores. The meal perfectly balanced in nutrients and calories would receive an INQ score of 1.0 for each nutrient evaluated. Thus, if the same nutrient:calorie ratio were maintained to the level which satisfied 100 percent of the requirement for calories, 100 percent of all nutrient requirements would be satisfied as well.

Evaluation of discrete INQ scores for each individual nutrient in a food or meal is useful in assessing individual dietary intakes or for nutrition education purposes. In assessing overall meal quality and attempting to discern causes for variations in meal quality, however, it is more useful to deal with a single aggregate measure. For the purposes of this evaluation, INQ scores were aggregated at two levels: total scores were computed for each individual meal and snack; these scores were further aggregated to compute a global or composite INQ for each day care center or FDCH.

The total INQ score for each meal and snack was obtained by aggregating the INQs for each individual nutrient and computing the average. A global or composite INQ for the overall diet was calculated by summing the scores for each meal or snack served and computing the average.

This composite INQ score provides a reasonable assessment of the nutritional quality of the overall diet provided by participating and nonparticipating day care centers and family day care homes.

Since discrete INQ scores for any individual nutrient may well exceed 1.0, the INQ score for each nutrient was truncated to a value of 1.0 when aggregating across nutrients to obtain total INQ scores for each meal and snack. This procedure eliminates the problem other investigators have cited when using aggregate measures (Abdel - Ghany, 1978) --that is, truncation of individual nutrient INQ scores eliminates the possibility of excessive amounts of one nutrient offsetting serious shortcomings in another. Therefore, an extraordinarily high INQ score for one nutrient cannot compensate for a low INQ score for another nutrient.

2.2 Quality and Variety of Food

The INQ evaluates the quality of meals on the basis of their nutrient:calorie ratio, which, by definition, takes into account the proportion of high-sugar, high-fat, low-nutrient foods. However, this measure does not provide a means to discriminate between foods on other quality attributes. For example, the INQ score does not discriminate between nutrients provided from natural sources and nutrients provided in highly processed foods that have been enriched or fortified. Due to high levels of nutrient enrichment or fortification, many such foods would receive an adequate or high INQ--even though they may contain high levels of sugar and/or sodium and low levels of other nutrients not assessed by the INQ (fiber, trace minerals). For example, although similar levels of Vitamin C may be obtained from both citrus fruits and juices and Vitamin C-fortified fruit

drinks, the latter provide excess amounts of sucrose and water, and contain less natural fruit juice, thereby providing less of the other nutrients found in whole fruits and full-strength fruit juices. Highly fortified breakfast cereals or breakfast bars may also receive high INQ scores, but may actually be less nutritionally complete, in terms of a wide nutrient spectrum, than their less sweetened and less processed counterparts. Whole grain breads and bread products and fresh fruits and vegetables may be considered to be of higher quality than refined bread products or processed fruits and vegetables, because they contain greater amounts of trace minerals and natural fiber and smaller amounts of sugar, other sweeteners, and sodium.

The Food Quality and Variety (FQV) Index used in this study allows discrimination beyond that possible with the INQ. The FQV measure was adapted from that used in evaluating meal quality in the USDA Summer Food Service Program (Litschauer, Boehm, Davis, Belongia, & Matsumoto, 1978). The measure provides an assessment of the quality and variety of foods offered during a typical three-day period. FQV scores were based on menus from the randomly selected three-day period, and were computed in the following manner: quality points were awarded each time specific types of high-quality food were served (e.g., fruits or vegetables rich in Vitamins A or C, whole grain bread or bread products, foods supplying significant amounts of iron, low fat dairy products) and each time foods of lesser quality were avoided (e.g., cereals with more than 15% sucrose content, soft drinks, concentrated sweets, fatty foods, salty snack foods). Variety points were awarded for each different food served within general food categories over the three days (e.g., different types of fruit, vegetables, meat). Total scores were computed for each meal and snack served; these scores were summed to produce a daily FQV score. For ease in interpreting these data, individual

meal FQV scores were standardized by dividing by the maximum FQV score for each meal and snack. Daily FQV scores were also standardized by dividing by the maximum FQV score possible, given the number of meals and snacks served in each program. Thus, each FQV score is expressed as a ratio of the score for an individual meal, snack or day to an appropriate "ideal score." The instrument used in scoring the three-day menus, and a more detailed description of the scoring procedures used, are both presented in the Technical Appendix.

2.3 Food Service Procedures

Two aspects of food service procedures in day care centers were also examined in this study: quality control practices used in the purchase, storage, and preparation of meals, and the quality of the meal service environment.[8] These factors are not seen as elements of meal quality per se, but the extent to which they are handled appropriately may ultimately effect the actual quality of meals in any day care setting.

Quality Control

In order to maximize the potential contribution of any food service program, the service of meals must be thoughtfully planned and implemented. Care must be taken in each step of the food service chain to ensure that:

- nutritious meals and snacks are planned;
- high-quality foods are selected in meeting those plans;
- foods are stored appropriately;

---

[8] These process variables were evaluated in day care centers only, since the reference standards used are institutional in nature and are not appropriate for the family day care home setting.

- foods are handled and prepared so that neither the hygienic quality nor nutritional quality is impaired; and

- prepared foods are held, transported or served appropriately so that aesthetic, hygienic and nutritional qualities are not compromised.

The extent to which day care centers perform "quality control" procedures was of interest to the meal quality evaluation, since the food service in these programs may be quite small and operated by teachers or other non-food service personnel. Also of interest was the question of whether CCFP participation heightened food service awareness and thus affected the levels of quality control.

Five major variables were considered in generating a Quality Control Index for food service procedures (QCI):

- food purchasing and storage;
- food preparation and handling;
- menu planning;
- menu review/monitoring; and
- general sanitation.

Standards utilized in assessing these variables were obtained from public health standards for day care facilities or small food services,[9] food service performance standards for Head Start Programs,[10] and behaviors generally recognized as helpful in ensuring and enhancing the nutritional and hygienic quality of foods. Data were collected using personal interviews with cooks, menu planners and/or center directors, as well as through observation during meal preparation and service.

---

[9] U.S. Department of Health, Education and Welfare, Food Service Sanitation Manual, 1976.

[10] U.S. Department of Health, Education and Welfare, Competencies for Food Service Personnel in Head Start Programs, 1977

Table of Contents

The Quality Control Index (QCI) standards were used to generate an "ideal" or maximum score across a wide variety of categories of procedures and behaviors. The QCI scores presented in this report represent proportions of this optimal score, and thus range form 0.00 to 1.00, for uniformity and ease of interpretation.

Meal Service Quality

The evaluation of meal service quality (MSQ) focused on environmental factors which may affect children's food consumption and attitudes towards food, as well as their developing nutritional habits. The Meal Service Quality score (MSQ) is comprised of many elements which reflect the:

- physical environment, such as use of child-size furniture and eating utensils, cleanliness, and noise level;

- general mealtime environment, such as the adequacy of time allowed to eat, the children's involvement in meal preparation and service, and the mealtime atmosphere; and

- caregiver/child interactions, such as caregivers eating with children, discussing the foods served, encouraging children to taste all foods, and appropriate attendance and reaction to problem eaters.

Data were collected during observation of one lunch and one snack in each center.

Like the QCI scores, Meal Service Quality scores (MSQ) range from 0.00 to 1.00 and reflect a proportion of the optimal MSQ score, across a variety of procedures and behaviors.

Table of Contents

3.0 DATA COLLECTION PROCEDURES

Data were collected by trained interviewers during a one-day visit to each sponsor, day care center and family day care home. Data collection techniques included interviews with sponsors, center directors, cooks, menu planners and teachers. In addition, the preparation, service and consumption of one lunch and one snack was observed in each center and home. In order to decrease the probability of experimental reactivity biasing the nutrition data, data were collected on foods served on the day of observation as well as on foods served on the Monday, Wednesday and Friday of a randomly selected week's menu.

The compilation of food-related data necessary for the nutrient analysis involved observation of meal preparation and service, collection of menus and complete food description information, and an assessment of the average portion size for each major food group. These portion sizes were also used in assessing compliance with CCFP meal regulations. The techniques employed in assessing portion sizes of foods served differed in the two care settings (centers and homes). The methodology used in each setting is described below.

3.1 Day Care Centers

In both participating and nonparticipating centers, information on portion sizes was obtained on the day of observation utilizing a "plate game," a technique developed to obtain accurate weight measurements of the amount of each

food served.[11] With the assistance of teachers, food service personnel and children themselves, portion sizes were determined for each food served during lunch and one snack period to six randomly selected children between four and six years of age. Each portion of food served to or taken by the six selected children (including seconds) was weighed on a gram scale. The six individual weights for each food were then averaged to define the average serving size for each food group. These serving sizes were subsequently used in the nutrient analysis.

Complete data on specific foods served on each of the three days in the randomly selected menu were also obtained to allow accurate nutrient analyses. Information regarding each food listed on the menu was elicited from the cook or person with designated responsibility for food preparation. Information included type of food (e.g., whole milk, skim milk; frozen corn, canned corn), brand names, enrichment/fortification characteristics, recipes and preparation methods (e.g., added salt, butter; fried, baked).

Nutrient analysis of the three-day menus was carried out by the Nutrition Coding Center at the University of Minnesota. Using the portion sizes computed with the plate game, and the detailed food description information obtained from the cook or menu planner, the nutrient content of the diet provided on each of the three days was determined.

---

[11]Data collected for this study were limited to foods served to the children; plate waste was not measured. Therefore the findings of this study reflect the diets offered in day care programs. The Child Impact Study, currently being conducted by Abt Associates, is examining actual food consumption, in day care and at home, to address the question of the relation between meals provided in day care and children's total daily intake.

An average or composite was computed for each individual meal and snack, and for a full day.

3.2 Family Day Care Homes

Collection of food-related data was conducted somewhat differently in the family day care home setting. No direct measurement of portion sizes was undertaken due to the obtrusiveness of the "plate game" measure in the more intimate FDCH environment. Rather, portion sizes for use in nutrient analysis were based on the amounts of food used in preparation, and the number of day care children (plus caregiver and other children or adults) to be served. If the amounts of food used in preparation of each menu item were sufficient to provide the CCFP-designated portion size, then the average serving sizes used for nutrient analysis were set equal to the appropriate CCFP standard portion size. The CCFP food purchasing guidelines were used in assessing the adequacy of amounts of food used in preparation.[12]

---

[12] U.S. Department of Agriculture, Food Buying Guide for Child Care Centers, 1977.

4.0 MEAL QUALITY FINDINGS IN DAY CARE CENTERS AND FAMILY DAY CARE HOMES

This section presents an overview of meal quality in participating and nonparticipating day care centers. Results for participating family day care homes are also presented; however the study did not examine meal quality in nonparticipating family day care homes.[13]

Some caution should be exercised in making direct comparisons between the two modes of care. This is especially true of the measures of nutritional quality, since no direct measurement of serving sizes was attempted in the home setting due to the obtrusiveness of the "plate game" protocol. The food quality and variety measure (FQV) is less affected by mode of care. The food service procedure measures (QCI and MSQ) were not evaluated for FDCHs, since the standards used are institutional in nature, and inappropriate for the home setting.

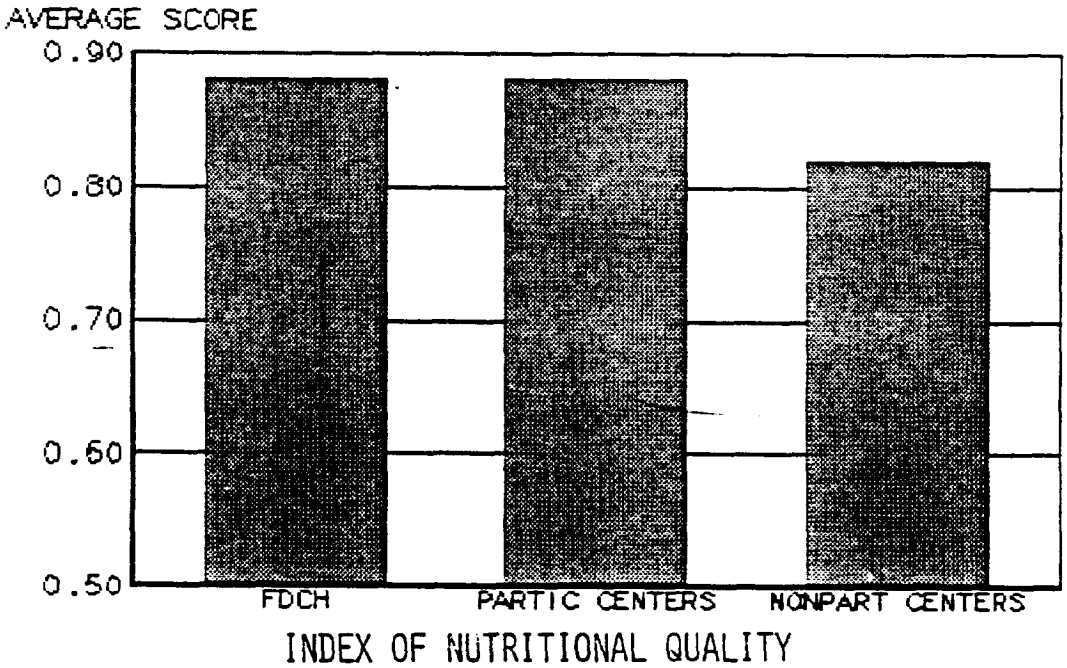
Figures 4.1 and 4.2 and Table 4.1 present an overview of the components of meal quality. The differences between participating and nonparticipating day care centers are striking. For every measure examined, participating centers have significantly higher levels of meal quality than nonparticipating centers. Equally striking is the finding that participating FDCHs also serve meals of superior nutritional quality, and that these meals generally contain foods of higher quality and variety than those served by nonparticipating centers.

---

[13] One of the principal findings of the participation study is that virtually all sponsored family day care homes are participating in the CCFP. All family day care sponsors who were contacted in an attempt to recruit eligible but nonparticipating homes were already participating in the CCFP. Thus, we were unable to find a comparison group of eligible but nonparticipating family day care homes.

Figure 4.1

MEAL QUALITY IN PARTICIPATING AND NONPARTICIPATING PROGRAMS



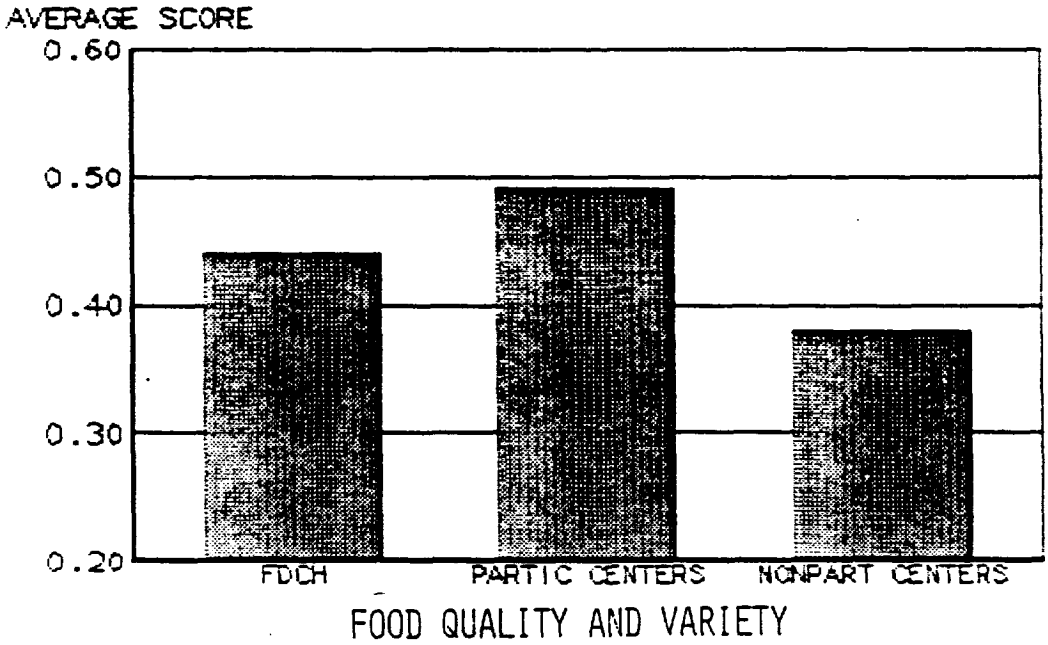
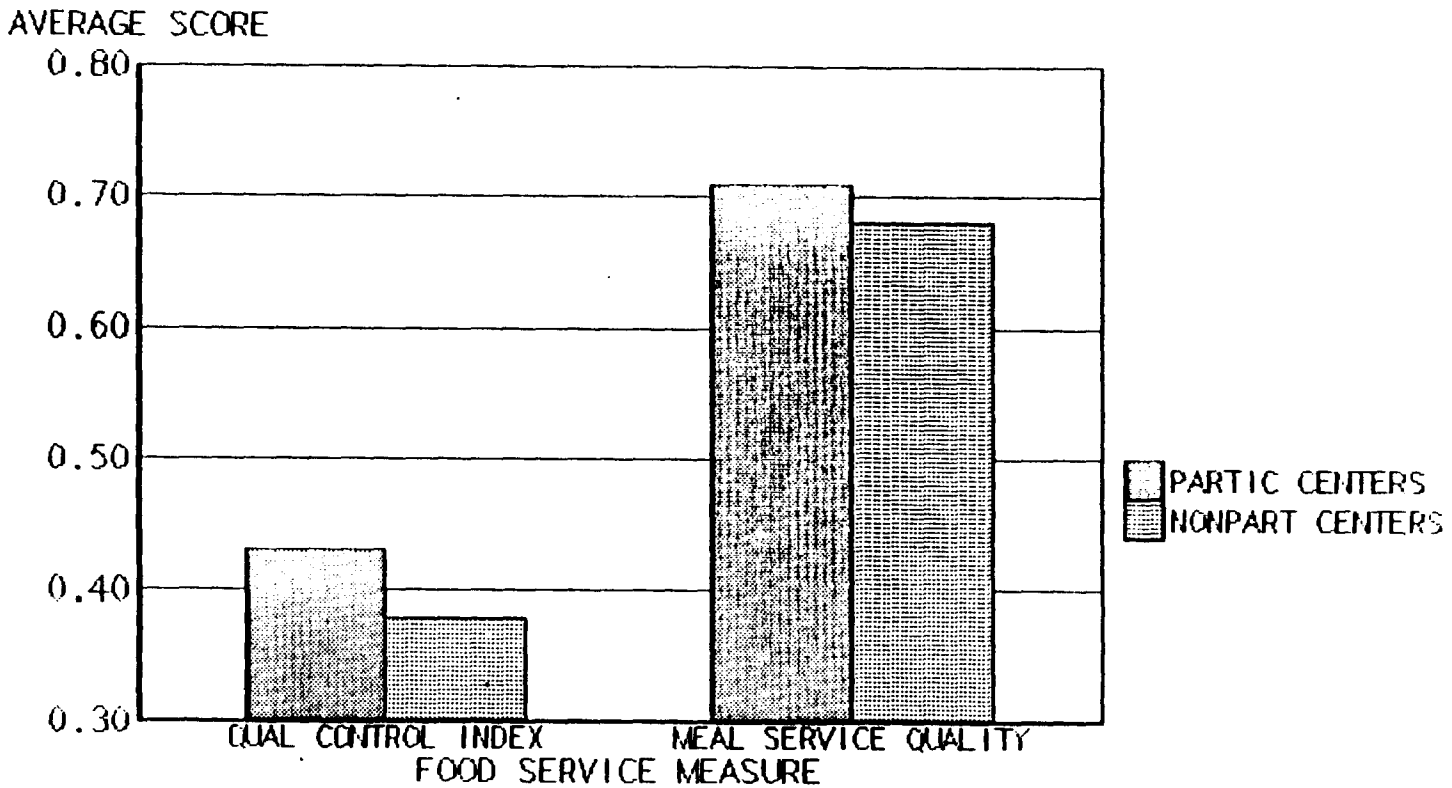


Figure 4.2

Food Service Procedures in Participating and Nonparticipating Centers



A1

Table 4.1

MEAL QUALITY COMPONENT SCORES
DESCRIPTIVE STATISTICS

Meal Quality Component	Program Type: Family Day Care Homes (n=62) Mean	Std. Deviation	Day Care Centers: Participating (n=100) Mean	Std. Deviation	Day Care Centers: Nonparticipating (n=60) Mean	Std. Deviation	Test of Center Differences: t statistic	Significance Level
Index of Nutritional Quality (INQ)	0.88	± 0.05	0.88	± 0.05	0.82	± 0.06	7.66	p <.001
Food Quality and Variety (FQV)	0.44	± 0.08	0.49	± 0.09	0.38	± 0.09	6.95	p <.001
Quality Control Index (QCI)	NA	NA	0.43	± 0.06	0.38	± 0.08	4.51	p <.001
Meal Service Quality (MSQ)	NA	NA	0.71	± 0.10	0.68	± 0.10	2.15	p <.05

4.1 Nutrient Contribution and Nutritional Quality

Nutrient Contribution

The proportion of the RDAs for calories and essential nutrients contributed by the meals and snacks served in day care provides a reasonable measure of the adequacy of this portion of the children's diet. Figure 4.3 and Table 4.2 show the caloric and nutrient contributions of the diets offered in day care centers and homes, expressed as percent of the RDA. With the exception of Vitamins A and C, for which there were no significant differences, both participating centers and homes provide a significantly higher proportion of the RDAs for calories and all selected nutrients than nonparticipating centers.

The nutritional significance of these differences must be placed in the context of the child's total dietary intake. Food consumed in day care provides only part of the child's total diet. It is clear, however, that the CCFP provides children in participating centers and homes a considerable opportunity for receiving an adequate daily intake. For children in nonparticipating centers, the food consumed at home is substantially more important to the achievement of an adequate nutrient intake.

Part of the explanation for the higher nutrient content of diets provided in participating centers and homes stems from the fact that CCFP participants serve breakfast far more frequently than nonparticipants (Table 4.3). Only one-third of nonparticipating centers serve breakfast compared to 70 percent of participating centers and 87 percent of participating homes. Since a breakfast can be expected to contribute more total nutrients than a snack, the addition of breakfast to the participants' meal pattern accounts for some of the differences seen in caloric

Table of Contents

Figure 4.3

Mean Percent of RDA for Calories and Selected Nutrients Contributed by Diets Offered in Participating and Nonparticipating Programs

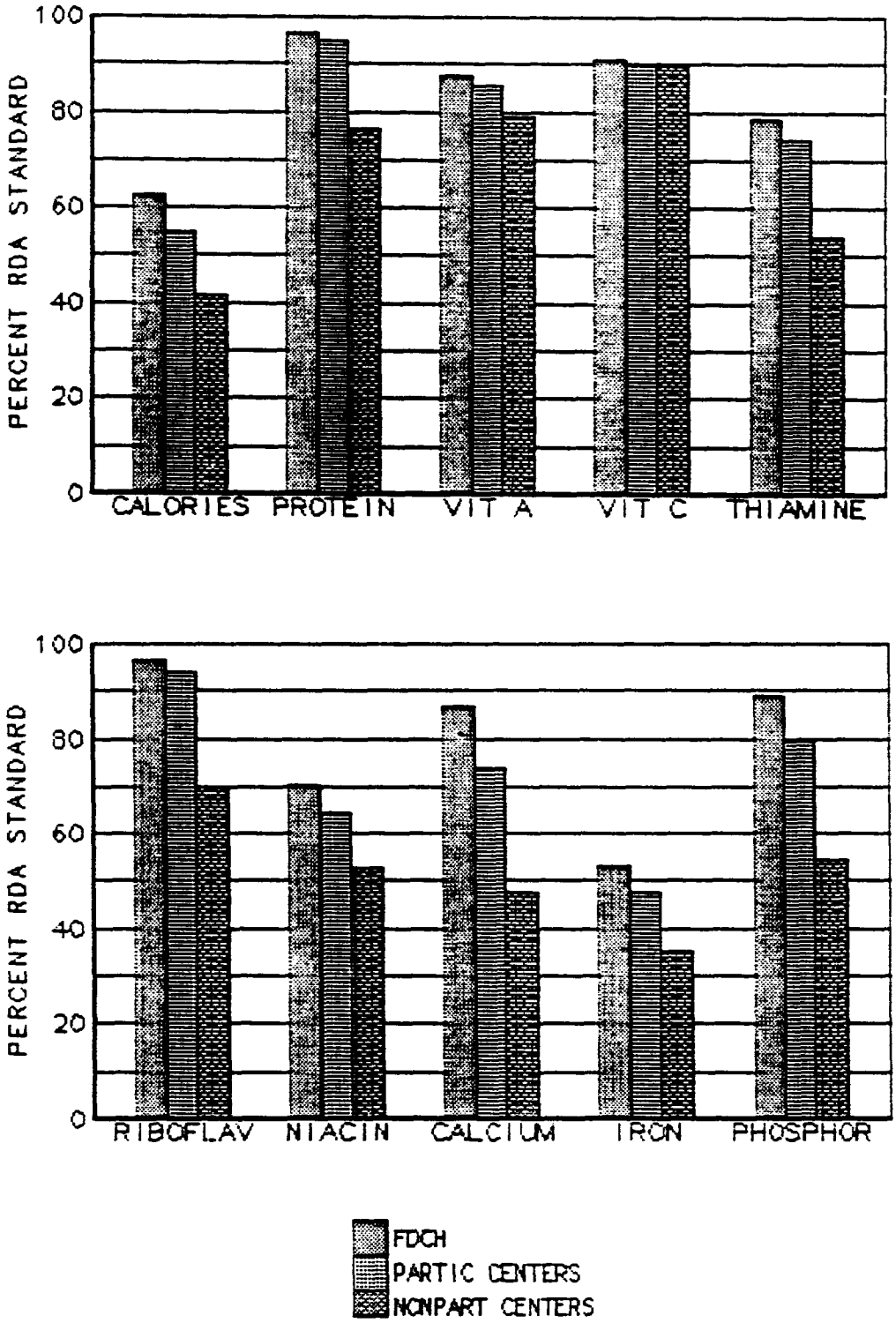


Table 4.2

MEAN PERCENT OF RDA FOR CALORIES AND SELECTED NUTRIENTS CONTRIBUTED BY DIETS OFFERED IN PARTICIPATING AND NONPARTICIPATING PROGRAMS

Nutrient	FDCH (n=62)	Day Care Centers: Participating (n=100)	Day Care Centers: Nonparticipating (n=60)	Test of Center Differences: t statistic	Test of Center Differences: Significance Level
	Percent of Recommended Dietary Allowances[a]				
Calories	62.6	54.8	41.7	6.65	p <.001
Protein	96.4	94.7	76.4	8.11	p <.001
Vitamin A	87.7	85.3	78.9	1.89	ns
Vitamin C	91.2	90.1	89.7	0.13	ns
Thiamine	78.5	74.3	53.9	6.78	p <.001
Riboflavin	96.4	94.1	70.0	9.24	p <.001
Niacin	70.5	64.5	52.6	3.94	p <.001
Calcium	86.5	73.8	47.6	8.66	p <.001
Iron	53.1	47.8	35.0	5.79	p <.001
Phosphorus	88.9	79.4	54.5	9.16	p <.001

[a]Levels exceeding 100 percent of the RDA for any individual nutrient were truncated to 100 percent, to minimize the effect of excessivey high levels on the mean value.

Table of Contents

Table 4.3

PERCENT OF PROGRAMS SERVING EACH TYPE OF MEAL AND SNACK

Meal	Program Type		
		Day Care Centers	
	FDCH (n=62)	Partici-pating (n=100)	Nonparti-cipating (n=60)
Breakfast	87.1%	70.0%	33.3%
Morning (AM) Snack	96.8%	61.0%	91.7%
Lunch	100.0%	100.0%	100.0%
Afternoon (PM) Snack	100.0%	91.0%	100.0%

and nutrient contributions of total diets provided by participants and nonparticipants.

Examination of the separate contributions made by individual meals and snacks reveals that with the exception of vitamins A and C, participants generally provided greater amounts of calories and all selected nutrients for both snacks and lunch. All of these differences were statistically significant, as shown in Table 4.4. Few differences were noted for the breakfast meal, although participating centers did provide significantly higher levels of protein, calcium and phosphorus (Table 4.4).

Vitamins A and C have previously been described as problem nutrients in the preschool population (Williams, 1977). Neither of these nutrients was lacking in any of the meals or snacks provided by participants or nonparticipants. This may be due to the focus these nutrients have been receiving in preschool and other nutrition education programs in recent years. While the difference in the amount of vitamin A contained in meals provided by participants and nonparticipants was insignificant, nonparticipants did provide significantly more vitamin C in both of the snacks evaluated. This may be a reflection of the CCFP meal regulations, which propose milk as an alternate to fruit or fruit juice for snacks.

Nutrient Density

As discussed in the previous section, nutrient standards (RDAs) are appropriately viewed as measures of dietary adequacy. The associated nutritional quality of the diets of participating and nonparticipating programs was assessed by measuring the nutrient density of the meals and snacks served: the relative balance between nutrients and calories. On this basis, the nutritional quality of the

Table of Contents

Table 4.4

MEAN PERCENT OF RDA FOR CALORIES AND SELECTED NUTRIENTS PROVIDED IN EACH TYPE OF MEAL AND SNACK SERVED IN PARTICIPATING AND NONPARTICIPATING PROGRAMS

Nutrient	Breakfast					AM Snack				
		Day Care Centers		Test of Center Differences			Day Care Centers		Test of Center Differences	
	FDCH (n=53)	Participating (n=71)	Nonparticipating (n=14)	t statistic	Significance Level	FDCH (n=60)	Participating (n=58)	Nonparticipating (n=51)	t statistic	Significance Level
Calories	16.7	17.36	16.14	0.42	ns	8.5	9.00	6.96	3.07	p <.01
Protein	36.3	34.48	26.58	2.08	p <.01	13.3	14.45	7.88	4.07	p <.001
Vitamin A	28.0	30.16	34.48	0.94	ns	12.0	13.69	12.76	0.39	ns
Vitamin C	56.1	50.25	50.15	0.00	ns	30.3	39.80	47.83	1.26	ns
Thiamine	26.4	31.75	37.38	1.28	ns	11.6	14.16	9.00	3.68	p <.001
Riboflavin	39.7	47.63	41.29	1.34	ns	15.5	17.86	8.41	4.04	p <.001
Niacin	14.1	20.71	27.05	1.60	ns	8.8	11.09	7.17	3.05	p <.01
Calcium	31.4	28.93	19.15	3.09	p <.01	10.8	11.16	6.06	3.33	p <.001
Iron	13.4	16.75	15.31	0.45	ns	7.2	6.78	4.83	2.81	p <.01
Phosphorus	30.4	28.43	20.55	2.85	p <.01	10.9	11.76	7.32	3.38	p <.001

Nutrient	Lunch					PM Snack				
		Day Care Centers		Test of Center Differences			Day Care Centers		Test of Center Differences	
	FDCH (n=62)	Participating (n=100)	Nonparticipating (n=60)	t statistic	Significance Level	FDCH (n=57)	Participating (n=92)	Nonparticipating (n=56)	t statistic	Significance Level
Calories	23.9	29.37	25.54	2.96	p <.01	10.0	8.62	6.85	2.76	p <.01
Protein	61.2	69.04	58.96	3.52	p <.001	17.8	14.51	8.23	4.37	p <.001
Vitamin A	52.9	61.20	55.39	1.30	ns	16.1	14.17	17.19	1.15	ns
Vitamin C	30.7	40.45	33.38	2.07	p <.05	21.2	27.69	40.60	2.15	p ≤.01
Thiamine	28.8	36.73	31.85	2.52	p <.01	10.8	10.97	6.43	2.95	p <.01
Riboflavin	56.5	59.68	48.60	3.50	p <.001	20.2	17.84	8.62	4.45	p <.001
Niacin	33.4	37.79	35.78	0.90	ns	8.9	7.28	4.74	3.04	p <.001
Calcium	36.4	37.12	30.92	3.20	p ≤.001	15.8	12.87	7.67	3.43	p <.001
Iron	20.7	27.56	23.85	2.76	p <.01	6.8	5.58	3.78	3.84	p <.001
Phosphorus	41.2	44.26	36.04	4.26	p <.001	15.0	12.07	8.14	3.21	p <.001

[a]Levels exceeding 100 percent of the RDA for any individual nutrient were truncated to 100 percent, to minimize the effect of excessively high levels on the mean value.

meals and snacks provided by participating centers and homes is significantly greater than that of nonparticipating centers. The composite INQ score (i.e., the aggregate score across all meals) for both participating centers and homes averaged 0.88 compared with a mean of 0.82 for nonparticipating centers. This finding indicates that, overall, the diets provided in participating programs are significantly better balanced than those offered in nonparticipating programs. Table 4.5 summarizes these differences on a nutrient-by-nutrient basis. As Table 4.5 shows, both participating and nonparticipating programs provide diets similar in Vitamin A and C density; however, participating programs provide diets that contain significantly greater amounts of all other nutrients in relation to total caloric content.

The distribution of INQ scores within each program type is even more revealing.[14] Chi-square analysis of the percentage of participating and nonparticipating centers having high, medium and low INQ scores revealed significant differences ($p<.001$) (Figure 4.4 and Table 4.6). Only 5 percent of participating centers and homes had low composite INQ scores, while more than one-third of nonparticipating centers had composite INQ scores that were low. At the other extreme, approximately one-half of participating centers and homes had a high composite INQ score. Fewer than 20 percent of nonparticipating centers had scores within the high range.

---

[14]There are no existing standards for the composite INQ score. The distribution of INQs in the entire study sample (n=222) was used to establish the standards used here. The distribution was skewed to the right, with considerable clustering between .81 and .90. In assigning cut-off points for high, medium and low scores, the tails at either end of the distribution (approximately 15% of the population in each tail) were designated as high and low scores, while the central cluster (approximately 70% of the population) was considered the medium or average range. Thus, INQs of less than 0.81 were considered low; INQs between 0.81 and 0.90 were considered medium; and INQs above 0.90 were considered high. (See the Technical Appendix for additional information.)

Table of Contents

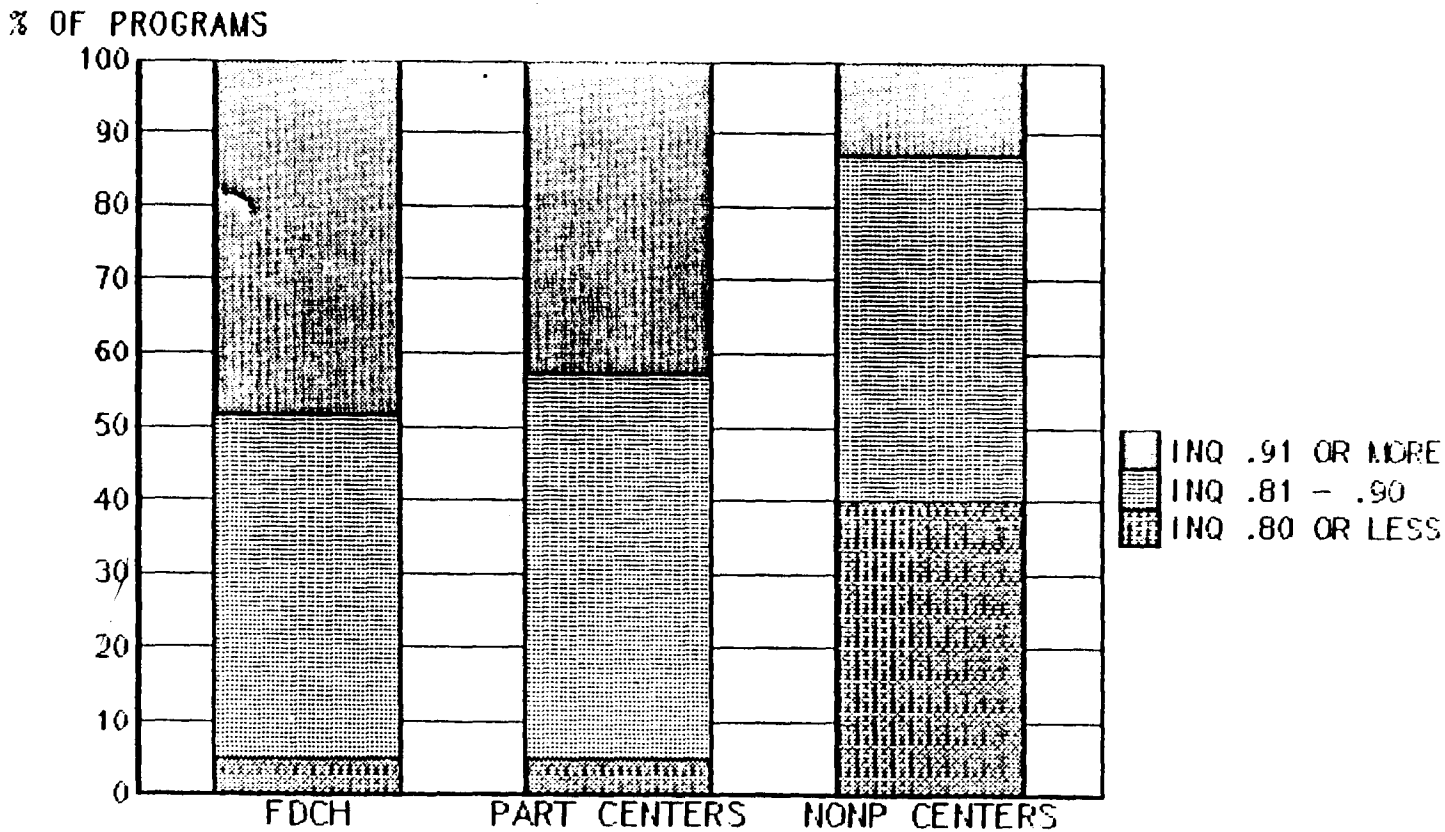
Table 4.5

MEAN COMPOSITE AND INDIVIDUAL NUTRIENT INQ SCORES FOR DIETS OFFERED IN PARTICIPATING AND NONPARTICIPATING PROGRAMS

	Program Type			Test of Center Differences	
		Day Care Centers			
	FDCH (n=62)	Participating (n=100)	Nonparticipating (n=60)	t statistic	Significance Level
Composite Score	0.88	0.88	0.82	7.66	p <.001
Nutrient Scores					
Protein	0.98	0.97	0.87	6.76	p <.001
Vitamin A	0.93	0.97	0.92	0.84	ns
Vitamin C	0.81	0.87	0.86	0.51	ns
Thiamine	0.95	0.97	0.90	4.33	p <.001
Riboflavin	0.98	0.96	0.84	7.36	p <.001
Niacin	0.84	0.86	0.80	2.84	p <.01
Calcium	0.93	0.89	0.77	5.30	p <.01
Iron	0.78	0.77	0.72	2.46	p <.01
Phosphorus	0.96	0.95	0.88	4.37	p <.001

Figure 4.4

DISTRIBUTION OF COMPOSITE INQ SCORES
WITHIN PROGRAM TYPE [a]



[a] There are no existing standards for the composite INQ score. The distribution of INQs in the study sample was used to establish the standards used here. INQs of less than 0.81 were considered Low; INQs between 0.81 and 0.90 were considered Medium; and INQs above 0.90 were considered High.

Table of Contents

Table 4.6

DISTRIBUTION OF COMPOSITE AND INDIVIDUAL MEAL INQ SCORES IN PARTICIPATING AND NONPARTICIPATING PROGRAMS

		Program Type			Test of Center Differences	
	INQ SCORE	FDCH	Participating Centers	Nonparticipating Centers	Chi Square	Significance Level
		Percent (number)	Percent (number)	Percent (number)		
COMPOSITE	High	40.3 (25)	30.0 (30)	10.0 (6)	41.33	p <.001
	Medium	54.9 (34)	65.0 (65)	43.3 (26)		
	Low	4.8 (3)	5.0 (5)	46.7 (28)		
BREAKFAST	High	79.1 (42)	84.5 (60)	71.4 (10)	1.38	ns
	Medium	19.0 (10)	15.5 (11)	28.6 (4)		
	Low	1.9 (1)	0	0		
AM SNACK	High	36.7 (22)	43.1 (25)	21.6 (11)	9.09	p <.01
	Medium	41.6 (25)	27.6 (16)	21.6 (11)		
	Low	21.7 (13)	29.3 (17)	56.9 (29)		
LUNCH	High	90.3 (56)	96.0 (96)	93.3 (56)	1.78	ns
	Medium	9.7 (6)	4.0 (4)	5.0 (3)		
	Low	0	0	1.7 (1)		
PM SNACK	High	0	0	0	4.28	p <.05
	Medium	35.1 (20)	23.9 (22)	8.9 (5)		
	Low	64.9 (37)	76.1 (70)	91.1 (51)		

As Table 4.6 shows, the differences in the composite INQ scores for participants and nonparticipants are, for the most part, attributable to the different types of snacks served in participating and nonparticipating programs. Although lunches served in participating programs generally provided greater amounts of calories and most nutrients (see Table 4.4), no significant differences were found in the overall nutritional quality of either the breakfasts or lunches served by participants and nonparticipants.

As was noted in the preceding section, snacks served in participating centers and homes provided significantly higher levels of calories and most nutrients except vitamin C, for which there were no significant differences. The INQ analyses revealed that snacks served by participants not only provide more nutrients, but are also of higher nutritional quality, as defined by the INQ. That is, as Tables 4.7 and 4.8 further demonstrate, the snacks served in participant programs are significantly better balanced in their overall nutrient:calorie ratio. This evidence suggests that participating programs serve fewer snacks comprised of high-calorie, low-nutrient foods.

Although participants had significantly higher INQ scores for both morning and afternoon snacks than nonparticipants, it is interesting to note that the INQ scores for afternoon snacks in both types of programs are substantially lower than those seen for morning snacks (see Tables 4.6 through 4.8). Examination of the three-day menus collected from each program revealed that morning snacks often look more like a breakfast in those programs where breakfast is not served. In addition, caregivers are more likely to serve sweets or dessert foods for the afternoon snack, possibly feeling that by that point in the day each child has had at least one or two good meals and another snack.

Table 4.7

MEAN COMPOSITE AND INDIVIDUAL NUTRIENT INQ SCORES FOR MORNING SNACKS IN PARTICIPATING AND NONPARTICIPATING PROGRAMS

	Program Type				
		Day Care Centers		Test of Center Differences	
	FDCH (n=60)	Participating (n=58)	Nonparticipating (n=51)	t statistic	Significance Level
Composite Score	0.83	0.87	0.77	4.21	p <.001
Nutrient Scores					
Protein	0.95	0.95	0.78	4.40	p <.001
Vitamin A	0.87	0.88	0.85	0.58	ns
Vitamin C	0.76	0.87	0.84	0.60	ns
Thiamine	0.96	0.96	0.87	2.80	p <.01
Riboflavin	0.95	0.91	0.73	4.55	p <.001
Niacin	0.81	0.86	0.76	2.29	p <.05
Calcium	0.83	0.75	0.64	1.93	p ≤.05
Iron	0.78	0.71	0.65	1.33	ns
Phosphorus	0.90	0.89	0.81	2.00	p ≤.05

Table of Contents

Table 4.8

MEAN COMPOSITE AND INDIVIDUAL NUTRIENT INQ SCORES FOR AFTERNOON SNACKS IN PARTICIPATING AND NONPARTICIPATING PROGRAMS

	Program Type				
		Day Care Centers		Test of Center Differences	
	FDCH (n=57)	Participating (n=92)	Nonparticipating (n=56)	t statistic	Significance Level
Composite Score	0.72	0.74	0.67	4.13	p <.001
Nutrient Scores					
Protein	0.98	0.92	0.78	4.15	p <.001
Vitamin A	0.88	0.90	0.92	--	ns
Vitamin C	0.67	0.77	0.83	--	ns
Thiamine	0.87	0.91	0.82	2.67	p <.01
Riboflavin	0.96	0.92	0.74	4.93	p <.001
Niacin	0.71	0.71	0.60	2.52	p <.01
Calcium	0.92	0.81	0.68	2.48	p <.05
Iron	0.65	0.63	0.55	2.06	p <.05
Phosphorus	0.95	0.88	0.81	2.00	p <.05

Table of Contents

In summary, the results of nutrient analyses show that:

- participating programs served more meals and snacks than nonparticipating programs, particularly breakfast;

- CCFP participants provided significantly greater amounts of calories and nine selected nutrients in an average day than nonparticipants;

- participants provided significantly greater amounts of calories and most nutrients on a meal-by-meal basis than nonparticipants;

- in general, breakfasts and lunches served in all types of programs were nutritionally well balanced; and

- CCFP participants provided snacks which contributed greater amounts of calories and nutrients to the overall diet, and were significantly better balanced than snacks served in nonparticipating programs.

4.2 Food Quality and Variety

The quality and variety of foods served in participating centers and homes was superior to that in nonparticipating centers. Unlike the nutrient content and nutritional quality findings, where variations in the composition of snacks accounted for many of the overall differences, differences between participants and nonparticipants in the quality and variety of foods served were found for each type of meal and snack (Table 4.9).

Table 4.9

MEAN AND EXTREME FQV SCORES FOR INDIVIDUAL MEALS AND SNACKS[a]

	Program Type						Test of Center Differences	
	Family Day Care Homes (n=62)		Day Care Centers					
			Participating (n=100)		Nonparticipating (n=60)		t statistic	Significance Level
Meal	Mean	Range	Mean	Range	Mean	Range		
Breakfast	0.49	0.24-0.67	0.43	0.22-0.69	0.36	0.20-0.55	2.68	$p < .01$
For Programs Serving Only AM Snack	0.27	0.15-0.33	0.42	0.31-0.54	0.11	0.05-0.15	3.29	$p \leq .05$
Lunch	0.56	0.25-0.71	0.61	0.37-0.65	0.54	0.33-1.00	4.10	$p < .001$
For Programs Serving Only PM Snack	0.27	0.21-0.33	0.37	0.18-0.56	0.22	0.08-0.33	3.85	$p < .001$
For Programs Serving Both Snacks	0.27	0.09-0.88	0.32	0.11-0.54	0.24	0.03-0.40	3.60	$p < .001$
Average Day (Composite Score)	0.44	0.21-0.64	0.49	0.28-0.73	0.38	0.22-0.64	6.95	$p < .001$

[a]Scores reflect the percentage of "ideal" FQV scores achieved for each meal/snack type.

Participating programs offer a greater variety of foods for all meals and snacks, in terms of both basic composition of meals and snacks (i.e., general categories of food used), and in specific types of food offered. Participants varied the general components in each meal and snack more frequently over the examined three-day period, as well as the specific types of food used. Nonparticipants, on the other hand, were more likely to serve the same set of basic foods on each of the three days. This practice occurred most frequently for breakfast and both snacks.

Participants served significantly greater amounts of the high-quality foods examined in this study. As Table 4.10 shows, participants served significantly more foods that contribute substantial amounts of vitamin A, vitamin C or iron. Participants also served significantly greater amounts of whole grain breads and bread products, as well as fruits and/or vegetables of all types. No differences between participants and nonparticipants were noted in the use of fresh fruits and vegetables.

Of particular interest is the finding that participants served significantly fewer concentrated sweets or dessert foods (Table 4.10). The increased use of concentrated sweets in nonparticipating centers results in an associated increase in the sucrose content of the diet. Separate analyses to assess the relative sucrose content of meals and snacks in participating and nonparticipating programs revealed that nonparticipating centers provide significantly greater amounts of sucrose (Figure 4.5 and Table 4.11). This is especially true of the snacks provided. In keeping with the INQ findings discussed previously, the sucrose content of afternoon snacks was notably higher than that of morning snacks.

Table 4.10

MEAN AND EXTREME FOOD QUALITY COMPONENT SCORES IN PARTICIPATING AND NONPARTICIPATING PROGRAMS[a]

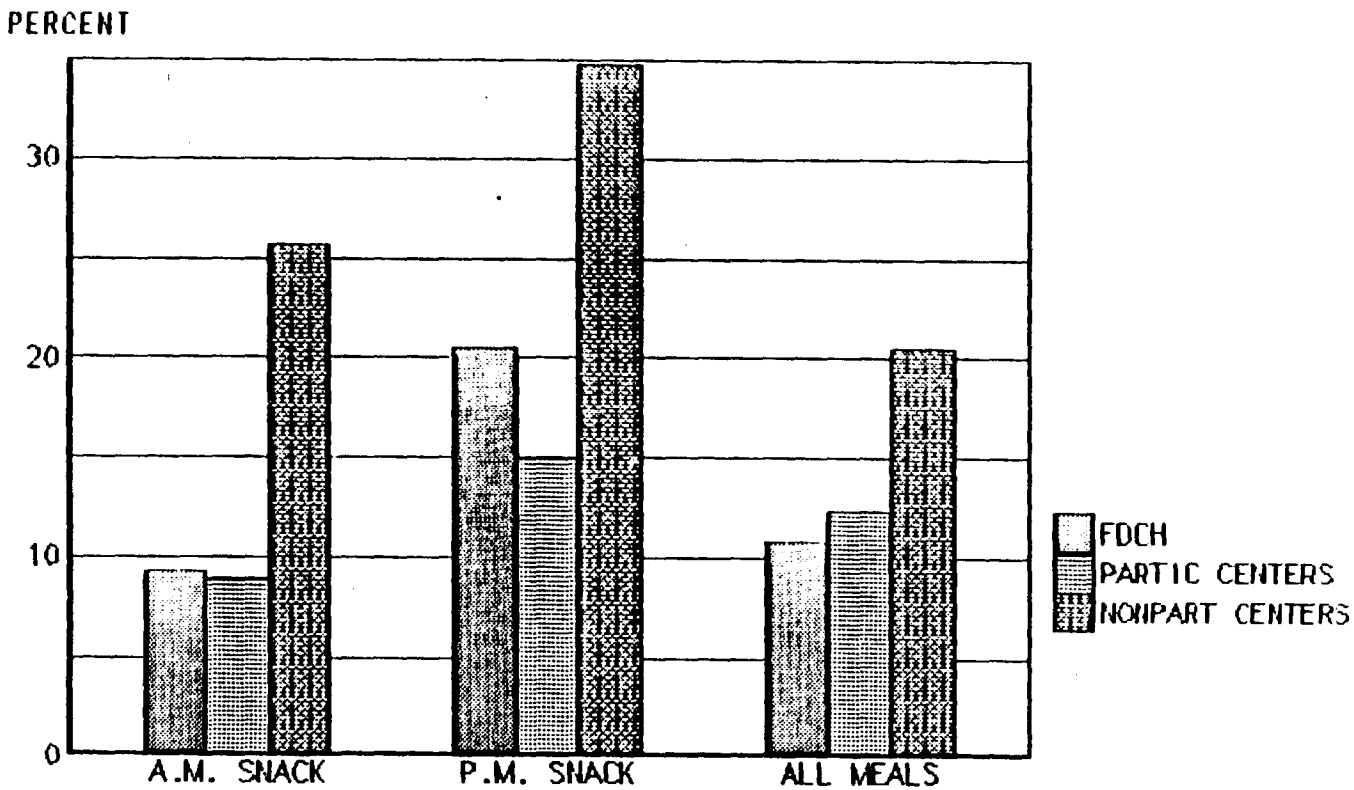
FOOD QUALITY COMPONENT	Program Type						Test of Center Differences	
	FDCH (n=62)		Participating Centers (n=100)		Nonparticipating Centers (n=60)		t statistic	Significance Level
	Mean	Range	Mean	Range	Mean	Range		
Vitamin C-Rich Foods	0.28	0.00-0.67	0.29	0.00-0.78	0.18	0.00-0.75	3.95	$p < .001$
Vitamin A-Rich Foods	0.21	0.02-0.50	0.29	0.00-0.50	0.21	0.00-0.50	4.20	$p < .001$
Iron-Rich Foods	0.25	0.00-0.67	0.23	0.00-0.75	0.18	0.00-0.66	2.21	$p \leq .05$
Whole Grains	0.22	0.00-1.00	0.21	0.00-1.00	0.14	0.00-0.75	2.00	$p \leq .05$
All Fruits, Vegetables, Juices	0.65	0.00-1.00	0.71	0.00-1.00	0.31	0.00-1.00	4.18	$p < .001$
Fresh Fruits and Vegetables	0.27	0.00-0.67	0.29	0.00-1.00	0.26	0.00-0.75	0.94	ns
Concentrated Sweets[b]	0.71	0.12-1.00	0.72	0.00-1.00	0.58	0.00-1.00	3.28	$p \leq .001$

[a] Scores represent a percentage of the "ideal score".

[b] Points were given for each time a concentrated sweet was not served.

Figure 4.5

MEAN PERCENT CARBOHYDRATE FROM SUCROSE PROVIDED BY PARTICIPATING AND NONPARTICIPATING PROGRAMS



It was also found that participants served greater amounts of milk for lunch and snacks, whereas nonparticipants tended to serve more fruit drinks at these meals. Since milk is a nutrient-dense food (protein, calcium, phosphorus, vitamin A, riboflavin, thiamine), this behavior, along with the differences in use of highly sugared foods, may be an important contributing factor to the differences seen in the overall nutritional quality (both proportion of RDAs contributed and INQ scores) between participants and nonparticipants.

In summary, the following significant differences between CCFP participants and nonparticipants were found in the quality and variety of foods served:

- CCFP participants provided significantly greater variety in the types of foods used for all meals and snacks; participants less frequently engaged in the practice of repeating the same meal/snack over a period of days.

- CCFP participants served significantly more of the naturally high-quality nutrient-source foods examined in this study (foods naturally rich in vitamins A or C, iron-rich foods, whole grain breads and bread products).

- CCFP participants provided significantly greater amounts of fruit, 100 percent fruit juice and vegetables across all meal and snack types, whereas nonparticipants served more fruit drinks.

- Participants served significantly fewer concentrated sweets and sweet dessert foods, especially for snacks, thereby supplying significantly lower levels of sucrose.

- Participants served significantly greater amounts of milk.

Table 4.11

MEAN PERCENT OF CARBOHYDRATE FROM SUCROSE PROVIDED BY PARTICIPATING AND NONPARTICIPATING PROGRAMS

Snack	Program Type			Test of Center Differences	
		Day Care Centers			
	FDCH (n=62)	Parti-cipating (n=100)	Nonparti-cipating (n=60)	t statistic	Significance Level
AM Snack	9.31 (n=60)	8.91 (n=58)	25.73 (n=51)	4.56	p <.001
PM Snack	20.52 (n=62)	15.04 (n=92)	34.82 (n=60)	6.21	p <.001
Average Day	10.84 (n=62)	12.25 (n=100)	20.52 (n=60)	5.93	p <.001

The differences in the quality and variety of foods served appear to be directly related to the effect of CCFP meal pattern regulations on food choices made by participating centers and homes.

4.3 Food Service Procedures

As noted earlier, it is inappropriate to compare food service procedures in family day care homes with those of day care centers. However, significant differences between participating and nonparticipating centers were noted for both of the food service procedure variables, quality control index (QCI) and meal service quality (MSQ).

Quality Control Procedures

Recall that the five major areas explored in the quality control (QCI) analyses were: food purchasing and storage procedures, food preparation and handling techniques, menu planning system, menu review/monitoring system, and general sanitation practices (See Section 2.3). Data obtained by observation of the preparation and service of lunch and one snack in each center revealed that participating centers employ superior food preparation and handling techniques. Participating centers were also noted to have more acceptable levels of general sanitation than nonparticipating centers (Table 4.12). For example, participants tended to more frequently employ techniques that minimize nutrient loss in food preparation. Similarly, participants had better procedures for storing foods and maintaining cooked foods at appropriate temperatures.

Table 4.12

MEAN AND EXTREME QUALITY CONTROL INDEX SCORES IN PARTICIPATING AND NONPARTICIPATING DAY CARE CENTERS[a]

QCI Component	Program Type: Day Care Centers: Participating (n=100) Mean	Participating Range	Nonparticipating (n=60) Mean	Nonparticipating Range	Test of Center Differences: t Statistic	Significance Level
Composite Score	0.43	0.18-0.53	0.38	0.21-0.55	4.51	$p < .001$
Food Purchasing Procedures	0.64	0.17-0.94	0.63	0.27-1.00	0.72	ns
Food Preparation and Handling	0.44	0.16-0.60	0.39	0.09-0.59	2.41	$p < .05$
Menu Planning	0.56	0.00-1.00	0.52	0.00-1.00	0.96	ns
General Sanitation	0.20	0.05-0.54	0.17	0.06-0.37	2.48	$p \leq .01$
Food Service Monitoring	0.37	0.00-1.00	0.01	0.00-0.33	6.67	$p < .001$
Food Transportation	0.37	0.14-0.53	0.33	0.12-0.49	2.42	$p < .05$

[a]Scores reflect the percentage of appropriate "ideal" behaviors or procedures observed within each QCI component category.

Table of Contents

Differences in the level of menu review/program monitoring were noted as well. Participating centers almost always had some type of active review system in place, although the completeness and effectiveness of the systems varied widely from program to program. Nonparticipants, on the other hand, rarely had any active review system in place with appropriate outside professionals. Planning and implementation of the food service programs in these centers frequently went on with little or no review, technical assistance or monitoring.

Meal Service Quality

Participating centers also scored significantly higher on the meal service quality index (MSQ) than nonparticipating centers (Table 4.13). These differences were not due to differences in the physical environment factors, but were accounted for by the two child-caregiver interaction factors (see Section 2.3). First, children in participating centers were more actively involved in food-related activities, such as helping to prepare meals, helping to set the tables and helping to clean up after meals. Second, caregivers in participating centers interacted more positively with children during mealtime. For example, caregivers in participating centers usually sat at the tables and ate with the children. In addition, caregivers in participating centers more often talked with the children about food and nutrition, encouraged children to try new foods, and attended appropriately to problem eaters.

Table 4.13

MEAN AND EXTREME MEAL SERVICE
QUALITY SCORE IN PARTICIPATING AND NONPARTICIPATING
DAY CARE CENTERS[a]

MSQ Component	Program Type: Day Care Centers: Participating Mean	Participating Range	Nonparticipating Mean	Nonparticipating Range	Test of Center Differences: t Statistic	Significance Level
Composite Score	0.71	0.52-0.91	0.68	0.46-0.88	2.15	<.05
Children's Involvement with Meal Service	0.46	0.0-1.0	0.31	0.0-0.75	3.35	<.001
Children's Reactions to Food	0.70	0.20-1.0	0.70	0.20-1.0	0.09	ns
Caregiver Behaviors	0.65	0.0-1.0	0.56	0.0-1.0	2.58	<.01
General Environment	0.82	0.60-1.0	0.81	0.44-1.0	0.68	ns

[a]Scores reflect the percentage of "ideal" behaviors observed within each MSQ component category.

Table of Contents

5.0 FACTORS AFFECTING MEAL QUALITY IN DAY CARE CENTERS

The preceding sections show quite clearly that there are significant differences in meal quality between participating and nonparticipating day care centers. An examination of food program costs showed that there are also significant differences in food program costs between participating and nonparticipating centers.[15] This section examines the relationship between food program costs and meal quality among participating centers.[16] The relationship between meal quality and degree of compliance with the CCFP meal requirements is also examined.

5.1 Administrative Cost and the Provision of Nutrition Training

While there is a substantial amount of variation in administrative costs from center to center, the total amount spent monthly to administer the food program in participating centers was unrelated to any of the measures of meal quality. This is not surprising since current program regulations stress administrative accountability. As such, administrative resources tend to be devoted primarily to accountability functions. For participants, 38% of the resources devoted to food program administration are accounted for by record keeping functions (Table 5.1). This allocation of resources may result in better overall program management, but had little to do with meal quality.

---

[15] The analyses of food program costs are reported in Glantz, F., An Examination of Food Program Costs in Day Care Centers and Family Day Care Homes (Abt Associates, 1982).

[16] Since most nonparticipating centers had both low cost and low meal quality, it was not possible to statistically separate the affects of participation from its impact on cost and meal quality.

Table of Contents

Table 5.1

ALLOCATION OF STAFF TIME TO
FOOD PROGRAM ADMINISTRATION TASKS

Task	Average Number of Person-Hours Per Month Spent on Food Program Administration Tasks			
	Program Type			
	Participating Centers		Nonparticipating Centers	
	Number of Hours	Percent of Time	Number of Hours	Percent of Time
Recordkeeping	42.8	37.7	10.8	25.6
Menu Preparation and Food Purchasing	33.7	29.7	16.0	38.0
Planning and Management	26.4	23.2	10.4	24.8
Nutrition Training	10.7	9.4	4.9	11.6
Total	113.6	100.0	42.1	100.0

Although total cost for food program administration was unrelated to meal quality (r_{INQ} = .07, n.s.; r_{FQV} = .10, n.s.), one aspect of food program administration, nutrition training, was consistently related to meal quality. Among participating center-based programs, the nutritional quality of the diet and the quality and variety of foods served improved as more resources were devoted to nutrition training. In addition, the quality of meal service was positively related to the amount of nutrition training provided (Table 5.2).

- Programs which devote more than 10 person-hours monthly per center to nutrition training had significantly higher scores for the INQ, FQV, and MSQ than other programs.

- Programs which use the services of a nutritionist had significantly higher scores for the INQ, FQV, and MSQ than programs without a nutritionist.

- Programs which conducted more than three training sessions annually for center staff had significantly higher scores for the INQ than other programs.

While participating programs currently devote considerably more person hours per month to nutrition training than nonparticipating programs, relatively few resources are devoted to nutrition training, even among participating programs (see Table 5.1 above) Nutrition training accounts for less than 10 percent of the staff time devoted to food program administration in participating programs. The relatively low priority attached to nutrition training probably stems from the fact that the CCFP regulations do not address nutrition training.

5.2 Food Service Delivery Costs

Food service delivery costs are comprised of two major elements: food and labor. While *a priori* one would expect a relationship between meal quality and the amount

Table 5.2

RELATIONSHIP OF MEAL QUALITY TO THE PROVISION OF NUTRITION TRAINING AND THE USE OF A NUTRITIONIST TO PLAN MEALS

Meal Quality Measure	Nutrition Training Centers		Test of Differences	
	Not more Than 10 Hours/Mth	More Than 10 Hours/Mth	T-Statistic	Significance Level
INQ	.88	.90	2.19	p<.05
FQV	.47	.52	2.31	p<.05
MSQ	.73	.77	2.27	p<.05
QCI	.42	.44	0.99	n.s.

Meal Quality Measure	Use of Nutritionist		Test of Differences	
	No	Yes	T-Statistic	Significance Level
INQ	.87	.90	2.44	p<.05
FQV	.46	.52	3.52	p<.001
MSQ	.73	.76	1.83	p<.01
QCI	.42	.44	1.27	n.s.

Meal Quality Measure	Use of Nutritionist		Test of Differences	
	Not More Than 3/Month	More Than 3/Month	T-Statistic	Significance Level
INQ	.88	.90	1.89	p<.10
FQV	.49	.49	0.05	n.s.
MSQ	.74	.78	1.98	p<.10
QCI	.43	.43	0.21	n.s.

spent for food, this is not the case. Food cost per meal was not significantly related to either the nutritional quality of the diet provided or the quality and variety of food served in participating day care centers. This finding is more easily interpreted in light of the finding on the effect of nutrition training. It would appear that meal quality is determined not by how much is spent for food, but rather what foods are purchased. With proper training in nutrition, it is possible to purchase more nutritious foods without necessarily incurring a higher cost.

Food service labor costs were not related to either of the nutritional quality indices (INQ or FQV). Labor costs, however, were significantly related to the quality of meal service (MSQ). This probably reflects the cost involved in caregivers eating with children and spending time to involve children in food related activities.

5.3 Compliance with CCFP Meal Requirements

As discussed previously, the CCFP meal requirements encourage the provision of nutritious meals by providing general food group guidelines for each type of meal, as well as suggested portion sizes for each component food. The requirements do not specifically address the nutritional quality of foods served, however. This study assessed compliance with CCFP requirements on the basis of components served at the lunch and snack observed during the one day site visit, as well as listed in the randomly selected three day menus. Compliance with the quantity requirements was assessed by weighing the portions of food served to or taken by the six randomly selected children involved in the "plate game". (See Technical Appendix).

Most centers served all, or all but one, of the required food components on the day of observation. However,

Table of Contents

Table 5.3

COMPLIANCE WITH CCFP MEAL COMPONENT AND QUANTITY REQUIREMENTS BASED ON ONE DAY OBSERVATIONS

LUNCH

Meal Component	Proportion of Participating Centers Meeting Requirement	
	Meal Component Served	Serving Size Met Regulations
Milk	95%	35%
Meat/Meat Alternate	100%	69%
Fruit/Vegetable	84%	65%
Bread/Bread Alternate	93%	89%

SNACK

Meal Component	Proportion of Participating Centers Meeting Requirement	
	Meal Component Served	Serving Size Met Regulations
Milk/Fruit	92%	46%
Bread/Bread Alternate	82%	61%

the weighted portion sizes tended to fall short of the quantities specified in the CCFP meal requirements (Table 16). Fewer than 10 percent of participating centers satisfied all component and quantity requirements. This failure to satisfy the CCFP meal requirements did not adversely affect meal quality, however. The degree of compliance with the CCFP meal requirement was not significantly related to the nutritional quality of the diets provided to children in participating day care centers (r_{INQ} = .12, n.s.) Based on results discussed previously (Sections 4.1 and 4.2), the component requirements, which affect food choices and compositions of meals and snacks, seem to be more important to meal quality than do the serving size requirements.

Conclusion

The primary goal of the Child Care Food Program is to provide nutritious meals to children in day care, in an attempt to improve the quality of their diets. Perhaps the single most important finding of this study is that the CCFP is successfully meeting this objective. A clear and consistent pattern of findings emerged from the meal quality analyses. The CCFP provides children in participating day care centers and family day care homes a considerable opportunity for receiving an adequate daily intake. In addition, the nutritional quality of the diet and the quality and variety of foods served in participating day care facilities are superior to those in nonparticipating facilities. Specifically, participating centers and homes:

- provide greater proportions of the Recommended Dietary Allowance for calories and key nutrients;
- provide higher quality meals and snacks i.e., serve foods that are high in nutrients in relation to calories;
- offer a greater variety of meals and foods;

- serve higher quality foods, i.e., foods that are less highly processed, foods that are naturally rich in nutrients and vitamins and contain less sugar, fat and salt; and

- provide a diet that contains significantly lower amounts of sucrose.

Participants are also more careful to handle, store and prepare foods appropriately to maintain nutrient integrity, and are apt to do so in an organized and sanitary environment. In addition, participants serve meals and snacks in an environment which is more likely to foster consumption, increase nutritional awareness, and improve children's nutritional habits.

The CCFP's impact on the nutritional quality of the diet provided in participating child care facilities comes about through two separate, but reinforcing, effects. First, participating facilities simply serve more meals and/or snacks. Participants are two to three times more likely to serve breakfast than nonparticipants, and thus have the opportunity to satisfy more of the child's nutritional needs than nonparticipants. Second, on a meal-by-meal basis participants provide higher levels of calories and nutrients than nonparticipants.

To a certain extent the fact that participants serve breakfast far more frequently than nonparticipants may reflect differences in the nutritional needs of the children served. Among participating day care centers, 54 percent of the children served are from families with incomes of less than $12,000 per year, whereas among nonparticipating centers fewer than 17 percent of the children served are from such low-income families. Similarly, one-third of the

children served by participating FDCHs are from low-income families.[17] Nevertheless, it is likely that the availability of CCFP reimbursement for breakfasts has increased the ability of participants to serve the breakfast meal, and probably accounts for much of the observed difference in meal patterns between participants and nonparticipants.

---

[17]Family income data are based upon a survey of randomly selected households conducted by Abt Associates in January 1982. The survey contained 450 households with children in participating centers, 392 households with children in nonparticipating centers, and 405 households with children in participating FDCHs.

6.0 CURRENT REGULATORY POLICY

Although the intent of the CCFP is to improve the diets of children in day care, current program requirements address the issue of meal quality only insofar as they specify minimum component and quantity requirements for meals and snacks served. As the previous discussions have indicated, these meal component requirements appear to have a positive impact on the nutritional quality of the meals served in participating day care facilities. The requirements stress serving milk and full-strength vegetable or fruit juice, both of which are served more frequently and in higher quantities in participating centers and homes. Since milk is a nutrient-dense food, the provision of more milk is a contributing factor to differences seen in the proportion of the RDAs provided by participants and nonparticipants, as well as the INQ scores.

Although the meal component requirements appear to have affected food choices and thereby the level of nutrients provided by the diets served in participating centers and homes, many participants are failing to satisfy serving size requirements. Similar findings regarding the degree of compliance with the meal requirements were reported by the General Accounting Office in its review of the CCFP (General Accounting Office, 1978). The results of the current evaluation, however, indicate that strict adherence to the meal requirements would increase the costs of the program without necessarily increasing the nutritional adequacy or nutritional quality of the diets provided by participating day care facilities. Statistical analyses indicate that the degree of compliance with the meal requirements is not related to the nutritional quality of the meals provided. Participating day care centers can, and do, provide high levels of calories and nutrients without necessarily

serving the minimum quantities of each of the food components specified in the regulations.

Conversely, adherence to the minimum requirements would not necessarily ensure the provision of higher levels of calories and nutrients, since it can not guarantee that children will consume all of the food offered. Indeed, there is reason to believe that increasing the quantities of food served would simply result in increased waste. Food service in day care is almost universally "family style." In some cases children serve themselves and in other cases children are served by caregivers, but in the day care centers included in this study, children were not limited in the amount of food they were allowed to consume. Despite the fact that observed (and weighed) quantities often fell short of the requirements, most children did not consume all the food that was taken.[18] This suggests that consumption by preschool children may be self-limiting--that is, children generally consume the amount of food they need (Williams, 1977). Serving the appropriate components, but in quantities somewhat less than those specified in the regulations, probably reflects an awareness of the needs of the children and a recognition that preparing and serving larger quantities would not result in increased consumption.

Improving Meal Quality

This study revealed that meal quality is not necessarily related to program costs. Statistical analyses failed to find a relationship between either food program administrative costs or food service delivery costs and any of the meal quality indices evaluated in this study.

---

[18] Plate waste was not measured either directly or indirectly. Observers simply recorded whether food was left on the child's plate at the end of the meal.

Interestingly, nutrition training, the one component of food program administrative costs which was consistently related to meal quality, is not currently a program requirement. The regulations call for the provision of staff training in CCFP duties and responsibilities but do not call for the provision of nutrition training to either food service personnel or caregivers. Relatively few administrative resources are currently devoted to nutrition training; on average, participants allocate less than 10 percent of their administrative staff time to nutrition training.

The finding that food costs are not related to any of the indices of meal quality should be viewed in the context of the finding regarding nutrition training. With proper nutrition training, it is possible to purchase and prepare more nutritious meals without necessarily incurring higher food costs.

The results that have emerged from this study suggest that meal quality can be improved through changes in regulatory policy:

- Recommendation: The CCFP meal requirements should be framed in terms of nutrient standard menus rather than specific food components and quantities. Further, the standards used should recognize that the current RDA for calories may exceed many children's requirements.

- Recommendation: To facilitate a nutrient standard approach to menu planning, or to improve the traditional food component approach, CCFP meal requirements should incorporate the concept of nutritional quality--that is, nutrient density--of foods.

- Recommendation: The CCFP requirements should include a nutrition training component. Further, this component should specify the frequency, content, and types of personnel to be included in the training sessions.

The meal requirements do not now address minimum nutritional standards or the nutritional quality of the diets provided. By casting the requirements in terms of nutrient standards, the program would facilitate compliance by allowing day care facilities more flexibility in the choices and quantities of foods served. By emphasizing the nutritional quality of individual foods within major food categories, the program would improve the food choices made by menu planners, thereby improving not only the nutrient content of the diets, but the overall nutritional quality as well. The program would also gain the satisfaction of knowing that compliance with meal requirements in fact signified that a participant was meeting the nutritional needs of the children in care.

In addition, framing the requirements in terms of nutrient standards could explicitly recognize that more than one meal is served in day care. For example, two-thirds of participating day care centers serve breakfast, lunch, and at least one snack. The nutrient standard requirements should recognize the amount of time a child is in care during the day and allow programs the flexibility to fulfill varying amounts of the child's daily nutritional needs, depending on the portion of a day the child is in care.

By providing flexibility, the nutrient standard approach would enable day care facilities to reduce the waste often associated with quantity requirements. Nutrient standard requirements would not increase the monitoring

burden on state administrative staff: program monitors would need to identify the quantities of each food served, as under the current regulations. The calculation of the amount of each nutrient provided can be obtained by reference to standard tables or more simplified "exchange lists."[19]

It must be emphasized, however, that nutrient standard requirements are feasible only if menus are prepared by trained staff. Nutrition training would therefore be necessary to obtain the intended benefits of nutrient standard requirements. Apart from providing the necessary support for a nutrient standard requirement, nutrition training has been shown to have a significant positive effect on the nutritional quality of the diet provided and on the quality and variety of foods served in participating day care centers. While it is not possible on the basis of this study's results to recommend a specific training requirement as optimal, available evidence suggests that the frequency of training sessions is an important consideration. A requirement to conduct at least three training sessions per year, using the services of a trained nutritionist, is supported by the findings that programs that conducted at least three training sessions annually for center staff, and programs that used the services of a professional nutritionist, both had significantly higher

---

[19] Exchange lists are commonly used by nutritionists working with persons on diabetic, weight reduction or other diets Foods are grouped according to nutrient content; foods with similar calorie and other nutrient content are grouped together. A reasonable estimation of percent of nutrient standard supplied can be made by summarizing the number of servings within each exchange group and computing the total nutrient contribution. Particular problem nutrients (e.g., iron and in some cases Vitamin C) can be addressed with exchange lists focusing on foods supplying significant amounts of the target nutrients.

Table of Contents

nutrient density scores than other programs. Adoption of such a requirement would be likely to have a minimal impact on program costs.[20]

---

[20] Three two-hour training sessions conducted by a consultant nutritionist would add an estimated $300 to $600 per year to food program costs. On average this represents only 2-4 percent of food program costs in participating centers Since many programs already conduct such sessions, the additional cost would be lower than these estimates.

Table of Contents

APPENDIX A: DESCRIPTION OF SURVEY PLAN

This appendix describes the essential sampling characteristics of the evaluation design for the entire study, both Wave I and Wave II; the two waves are interrelated. The plans presented here are based upon the Child Care Food Program (CCFP) Evaluation Design submitted August 16, 1979 and the Wave II Design, submitted September 5, 1980.

A.1 The Universe of Respondents and Sampling Procedures

A.1.1 Wave I Respondents and Sampling Procedures

Telephone Survey

The first phase of the Evaluation of the Child Care Food Program included a national telephone survey of sample respondents from three distinct levels of the CCFP organization--FNS regions, sponsors, and providers. At the regional level the survey incorporated a complete census of all seven FNS Regional Directors. At the sponsor level the Child Care Food Program operates through three kinds of sponsoring agencies--independent child care center (ICCC), sponsored child care centers (SCCC) and family day care home (FDCH) systems. Independent child care centers are self-sponsored; that is, the sponsor is also the provider. Sponsored child care centers are the administering agencies for two or more child care centers (providers) which either choose not to be, or cannot be, self-sponsored. On average there are 3.4 providers for each such sponsor. The last group of sponsors are umbrella sponsors for family day care homes.

Because separate generalizations were to be drawn for CCCs and FDCHs, child care center sponsors and family day care home sponsors were sampled independently.

Table of Contents

Center Sponsors

CCC sponsors were sampled by means of a two-stage random sample. First, the 53 states were stratified into two groups, "large" and "small", where state size was determined by the number of participating CCC sponsors in the state. The 20 states in the "large" stratum accounted for approximately 70 percent of all participating CCC sponsors. From these 20 states, a probability sample of nine states was drawn for the evaluation. These states were selected in proportion to the number of participating CCC sponsors in each state.

$$\text{Probability of selecting any given large state} = \frac{\text{\# participating CCC sponsors in state}}{\text{Total \# participating CCC sponsors in all 20 large states}}$$

Subsequently, from each large state chosen, 23 CCC sponsors were randomly sampled from the CCC participant list. This produced a sample of 207 (9 states x 23 sponsors/ state) CCC sponsors.

In like fashion, nine states were sampled from the "small" state stratum. For the small states the probability of selection was again proportional to the number of participating CCC sponsors in each state.

$$\text{Probability of selecting any given small state} = \frac{\text{\# participating CCC sponsors in state}}{\text{Total \# participating CCC sponsors in all 33 small states}}$$

Table of Contents

From each small state so chosen, 9 CCC sponsors[21] were randomly sampled. This produced a sample of 81 (9 x 9) CCC sponsors for the small states. Figure A.1 summarizes the selection of CCC sponsors.

Figure A.1

COMPOSITION OF THE WAVE I TELEPHONE SURVEY
CHILD CARE CENTER (CCC) SPONSOR SAMPLE

53 States

Stage 1:	9 Large States	9 Small States
Stage 2:	207 CCC Sponsors (23/State)	81 CCC Sponsors (10/State)

Total Sample: 288 CCC Sponsors

The states that were selected based on the sampling design were:

Nine (9) Large States	Nine (9) Small States
New York	Arkansas
Virginia	Louisiana
Alabama	Oklahoma
Florida	Iowa
North Carolina	North Dakota
Ohio	Nevada
Wisconsin	Maryland
Texas	Mississippi
California	South Carolina

The third stage of the center selection process required selecting providers (i.e. day care centers) for each of the CCC sponsors selected in Stage 2. The distribution of independent child care centers (ICCC) and sponsored child

[21] Some small states have only nine sponsors. In this case, all were sampled. Most states, however, have a greater participant pool.

care centers (SCCC) participating in the CCFP was: 193 ICCC and 95 SCCC.

Each ICCC sponsors corresponds to only one center. In Stage 3 this one center was selected for a total of 193 ICCC centers. Most SCCC sponsors had at least two centers, and two centers were sampled from each such sponsor; from sponsors with a single center, that center was selected. A total of 154 SCCCs were selected. Thus 347 day care centers were included in the National Telephone Survey.

Family Day Care Sponsors

As indicated above, FDCH umbrella sponsors are distributed independently from CCC sponsors, and consequently a separate state sample was drawn for FDCHs. The sample design for FDCH sponsors was a two-stage random sample just as it was for center sponsors. The first stage called for the stratification of the 53 states into a large/medium/small trichotomy. State size was determined both by the number of participating FDCH sponsors per state and the number of FDCHs per state.

The number of FDCHs per sponsor is extremely variable from state to state; five states had 24 percent of the entire FDCH sample but only 3 percent of the FDCH sponsors. Because of this lack of correlation between the number of sponsors and homes, three state were required to construct a sampling stratification which was efficient both for sponsors and homes. In order to maximize the representativeness of the selected sample for both homes and sponsors simultaneously, all sponsors were selected from the large stratum. From the remaining two strata, a proportional sample of sponsors were selected.

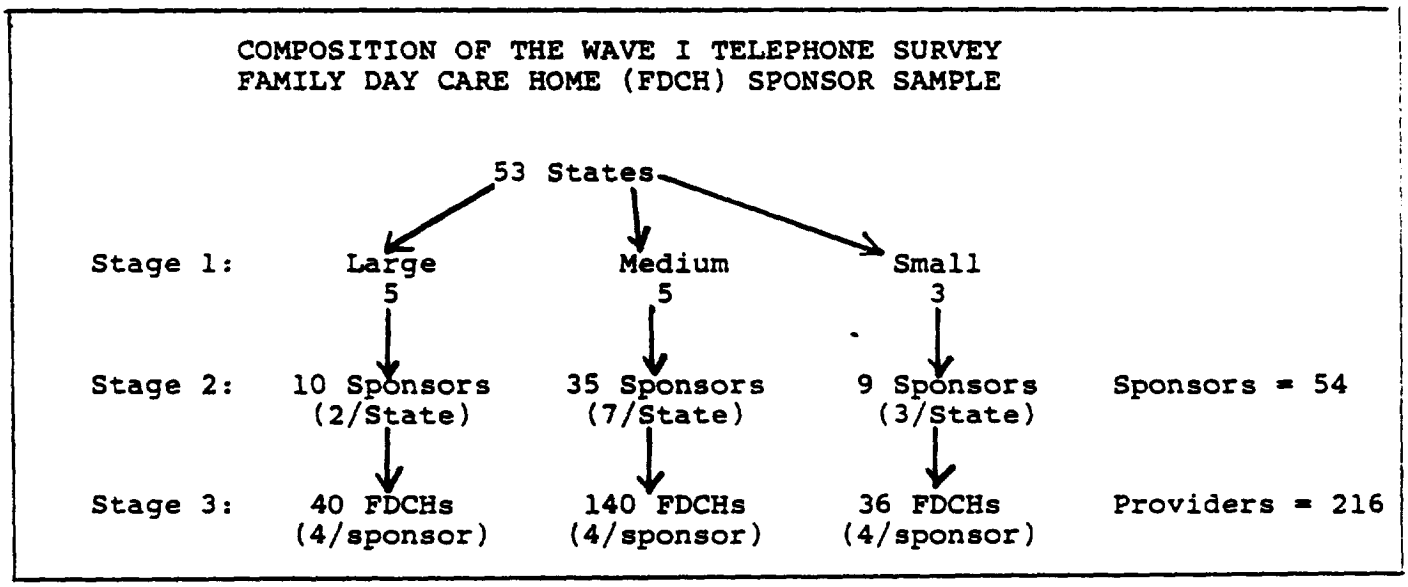
Table of Contents

The states that were selected based on the sampling design are:

Large	Medium	Small
Michigan	New York	Illinois
New Mexico	Pennsylvania	Ohio
Colorado	Indiana	Kansas
Maryland	Minnesota	
Rhode Island	Oregon	

Figure A.2 gives the composition of the Wave I Telephone Survey for the Family Day Care Home sponsor and provider samples.

Figure A.2



The In-Depth Study

The Wave I In-Depth Study, like the Telephone Survey, included sample respondents from all four administrative levels of the CCFP--regions, states, sponsors and providers. The units sampled are a subset of the units sampled for the Telephone Survey, creating a

completely integrated data base. In this manner, the In-Depth Study served as a validation study for the Telephone Survey.

A census was taken of all seven FNS regions. The state sample for the In-Depth Study consists of those states from which sponsors were sampled in the National Telephone Survey. This results in a state sample size of 28. That is, 18 states were sampled for the center sample and 13 states for the FDCH sample; three states were selected in both samples.

In keeping with the design of the National Telephone Survey, FDCH sponsors and CCC sponsors for the In-Depth Study were sampled independently. From each of the nine large states, 8 sponsors were randomly selected from among the 23 CCC sponsors included in the National Telephone Survey. This provided a sample of 72 (9 sites x 8 sponsors) participating CCC sponsors. From each of the nine small states, three CCC sponsors were randomly sampled from among the nine sponsors previously selected. This resulted in 27 (9 x 3) CCC sponsors sampled from small states. In all, 99 participating child care center sponsors were sampled. This resulted in a sample of 72 ICCCs and 27 SCCCs.

All of the FDCH umbrella sponsors sampled for the National Telephone Survey were included in the In-Depth Study. The provider sample for the In-Depth Study was drawn at the rate of one provider per sponsor (irrespective of sponsor type) except for the 10 FDCH sponsors sampled in the large stratum. In this one case, because of the large number of providers per sponsor, two providers were sampled for each sponsor.

A.1.2 Wave II Sample

The Wave II design also called for both a telephone survey and on-site interviews. The potential participants were nested within the Wave I sample.

Telephone Survey

The objective of the telephone survey was to collect program description data on a large number of programs to determine if programs that participated in the CCFP under the old regulations had changed their behavior since the implementation of the new regulations.

Wave I provided the baseline data for measuring changes in participant programs' behavior. The principal technique to be used in this investigation was a simple t-Test (two-sided) for the difference between two means. Each of the key variables identified in the Wave I analysis would be subject to such a test at a .01 level of confidence. Using a .01 level of confidence for univariate t-Tests would permit joint hypothesis testing for ten variables at a .10 level of confidence.

The power to detect significant differences depends upon the size of the difference we wished to be able to detect (effect size), the level of confidence chosen, and the number of programs sampled.

While the acceptable statistical power adopted is arbitrary, .80 represented a reasonably conservative power to detect a difference of .50 between the two means. We therefore proposed to use a sample of 90 Wave I center-based programs for the telephone survey. Based on Wave I data, we expected this to include 66 sponsors and 24 independent

centers. For FDC sponsors, we proposed to include all 53[22] Wave I sponsors in the telephone survey.

On-Site Interviews

While a telephone survey can efficiently be used to obtain information on administrative practices and procedures, our experience with cost data collection indicated that such data can only be validly obtained in a face-to-face interview situation. Therefore, for the collection of cost data, we conducted face-to-face interviews.

In Wave I, models were developed and estimated which can be used to estimate the effects of variation, or changes, in administrative tasks or other program characteristics on administrative and food service costs. The general form of the model is:

$$C_1 = b_0 + b_1X_{1i} + b_2X_{2i} \quad . \; . \; . + b_mX_{mi}$$

where C_i = cost of program i

$X_{1i} \; . \; . \; . \; X_{mi}$ = set of explanatory variables for program i, including such factors as the frequency of monitoring and training visits, and the number of sites administered by program i.

Wave I data were used to estimate the coefficients of the model (i.e., the values for b_0, b_i, ... b_m).

---

[22] Wave I sampling plan called for 54 sponsors but one state did not have the requisite number so the final sample was 53 FDCH sponsors.

Table of Contents

The estimated model could then be used to predict the cost of program i by setting the values of the explanatory variables at the levels that obtain for program i (i.e., X_{1i}, X_{2i}, . . . , X_{mi}). The program's predicted cost, C_i, can then be compared with the program's actual cost, C_i. To determine the predictive accuracy of the model after the implementation of the new regulations, it was necessary to compare predicted to actual costs for a sample of programs operating under the new regulations. Using Wave II values for the exploratory variables we obtain predicted values for the program's costs:

$$C_{2i} = b_o^2 + b_1 X_{1j}^{\ 2} + b_2 X_{2i}^{\ 2} + b_m x_{mi}$$

where X_{1i}^2 . . $X_{mi}^{\ 2}$ = Wave II values for the explanatory variables for program i (e.g., the number of monitoring visits done by program i under the new regulations.)

C_{2i} = predicted cost of program i in Wave II.

If the model predicted well, then the Wave II residuals (C_{2i} - C_{2i}) would be distributed around 0 (zero), with half of the programs having actual costs in excess of predicted costs. Because of sampling error, the proportions of Wave II programs with residuals greater than 0 would differ from the expected .50. By performing a t-test for the equality of two proportions, we could determine if the model was underpredicting costs under the new regulations.

The sample size needed to conduct these tests is dependent on the desired power to detect significant changes

and the size of the effects one wishes to detect. Table A.1 presents the sample sizes required to detect differences in the proportions of .20 and .25.

Table A.1

SAMPLE SIZES FOR T-TEST OF THE EQUALITY OF TWO PROPORTIONS (P = .50), GIVEN POWER AND EFFECT SIZES[a]

Power	Effect Size	
	.20 s.d.	25 s.d.
.60	23	16
.70	30	18
.80	37	23

[a] Table entries are sample sizes required in each group to detect a given effect size with a given power. Tests are directional at the .05 level.

On-site interviews of 40 programs yielded an adequate number of cases to confirm the reimbursement model and to identify where potential adjustments needed to be made. Five cf the large states and five of the small states were randomly selected, and 40 programs randomly selected from the Wave I sample of center-based programs in the on-site survey.

Table A.2 presents a summary of the sample for Wave II. Figures A.3 and A.4 show the composition of all FDCH and CCC sponsor samples.

Table of Contents

Table A.2

WAVE II SAMPLE SIZES

	Telephone Survey	On-Site Survey
FAMILY DAY CARE SPONSORS	53	--
CENTER-BASED PROGRAMS		
Sponsors	(est) 66	29
Sponsored Centers	(est) 66	29
Independent Centers	(est) 24	11

Total Sponsors	119	29
Total Centers	90	40

Table of Contents

Figure A.3

COMPOSITION OF THE FDCH SPONSOR SAMPLE

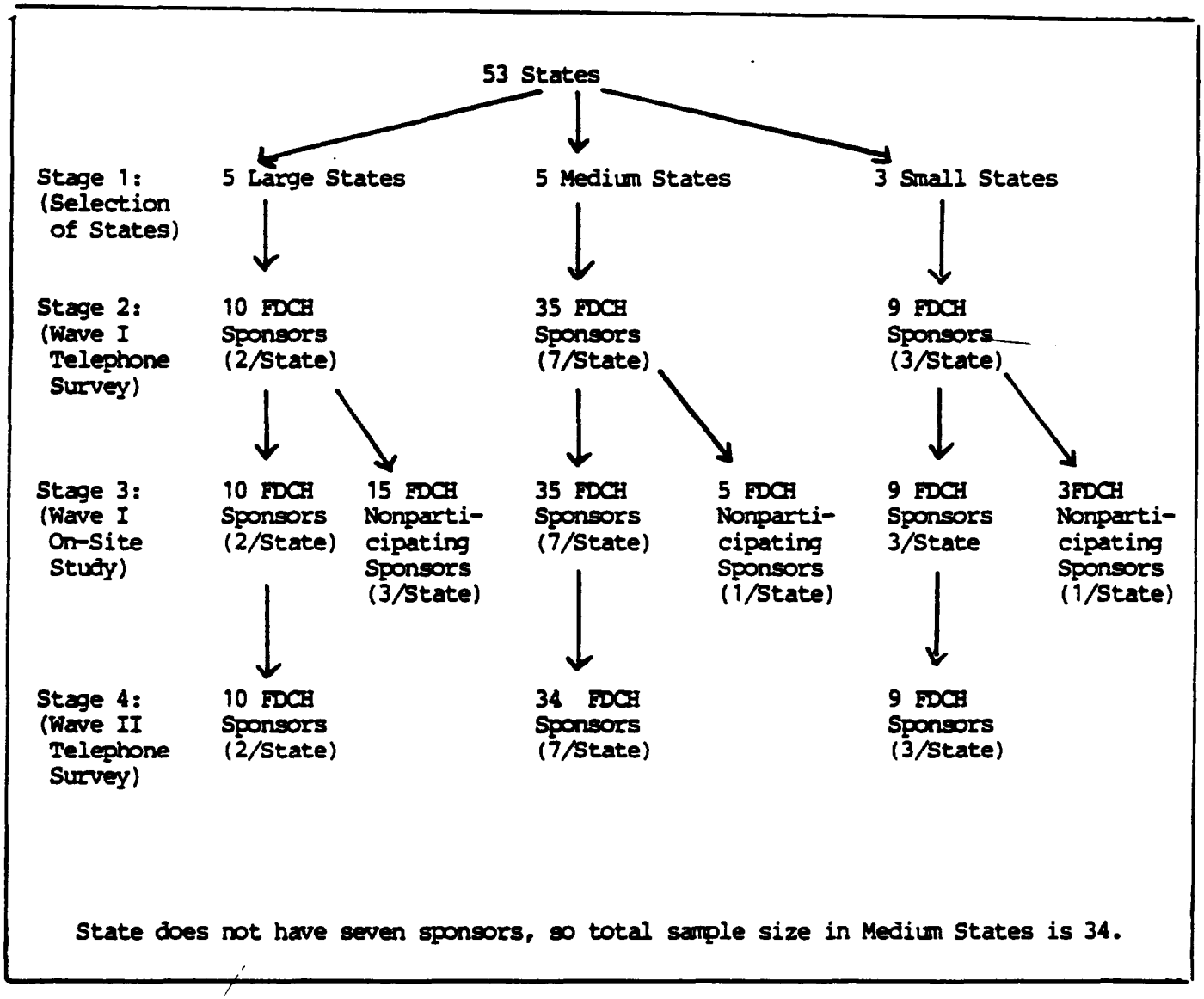


Table of Contents

Figure A.4

COMPOSITION OF THE CCC SPONSOR SAMPLE

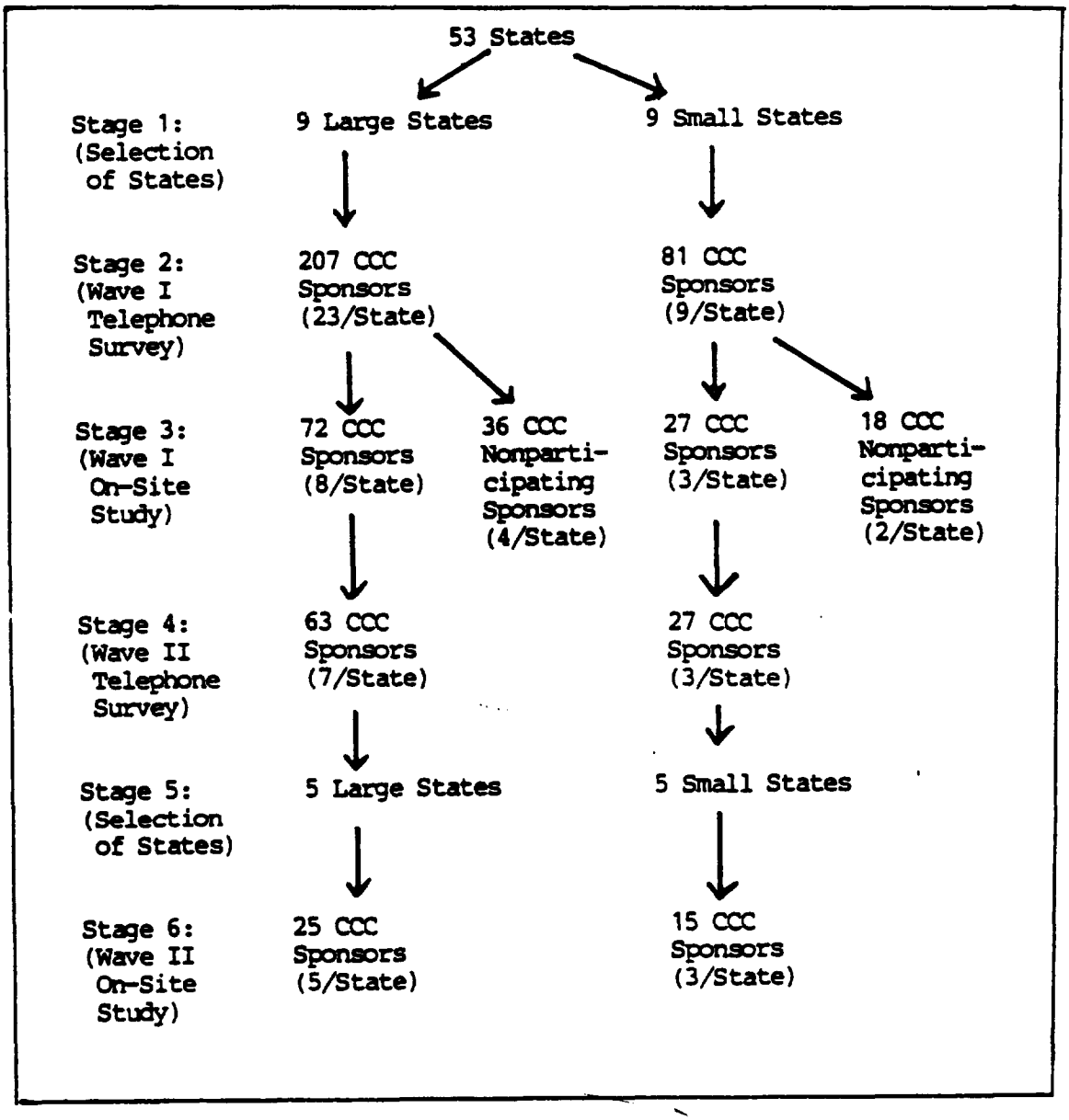


Table of Contents

REFERENCES

Abdel-Ghany, M. "Evaluation of Household Diets by the Index of Nutritional Quality", Journal of Nutrition Education, Vol. 10, No. 2, April-June, 1978. p. 79-81.

General Accounting Office, The CCFP: Better Management Will Yield Better Nutrition and Fiscal Integrity. (Washington, D.C.: Government Printing Offices, 1978.)

Litschauer, J., Boehm, W., Davis, D.W., Belongia, M., and Matsumoto, M., "Meal Quality and Costs in the Summer Food Service Program". School Foodservice Research Review, Vol. 2, No. 2, 1978, p. 106-109.

National Academy of Sciences, Recommended Dietary Allowances, 1980.

Sorenson, W., and Hansen, R.G., "Index of Food Quality" Journal of Nutrition Education, Vol. 7, No. 2, April-June, 1975, p. 53-57.

Sorenson, W., Wyse, B., Wittwer, A., and Hansen, R.G., "An Index of Nutritional Quality for a Balanced Diet," Journal of the American Dietetic Association, Volume 68, March 1976, p. 236-242.

Williams, S. "Contribution of Food Service Programs in Preschool Centers to Children's Nutritional Needs." Journal of the American Dietetic Assocation, Vol. 7, December, 1977, p. 610.

Table of Contents

Part III

Cost

Table of Contents

ABT ASSOCIATES INC.
55 WHEELER STREET, CAMBRIDGE, MASSACHUSETTS 02138
TELEPHONE • AREA 617-492-7100
TWX: 710-3201382

AN EXAMINATION OF FOOD PROGRAM COSTS IN DAY CARE CENTERS AND FAMILY DAY CARE HOMES

May 27, 1982

Contract No.: 53-3198-9-40

Principal Author:
Frederic B. Glantz

Editor:
Nancy Irwin

Submitted to:

Dr. Theodore F. Macaluso, Project Officer
United States Department of Agriculture
Food and Nutrition Service
Alexandria, Virginia 22302

Contract Manager	Quality Control Reviewer	Management Reviewer

Table of Contents

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
	1.1 Overview of the Study Design	6
	1.2 Organization of this Report	7
2.0	MEASURING FOOD PROGRAM COSTS	8
	2.1 Functional Cost Accounting System	8
	2.2 Organizational Structure	12
	2.3 Differences in the Number of Children and the Pattern of Meals Served	21
3.0	CENTER-BASED DAY CARE	23
	3.1 Administrative Costs	25
	3.2 Food Service Delivery Costs	41
	3.3 Food Program Costs and CCFP Reimbursements	48
	3.4 Wave II Cost Estimates	52
4.0	FAMILY DAY CARE	57
	4.1 FDCH Umbrella Sponsors	57
	4.2 Administrative Costs	63
	4.3 Wave II Cost Estimates	75
5.0	SUMMARY AND CONCLUSIONS	82
	5.1 Center-Based Day Care	82
	5.2 Family Day Care	85
	5.3 Food Program Costs and CCFP Reimbursements	88
APPENDIX A	DESCRIPTION OF SURVEY PLAN: THE UNIVERSE OF RESPONDENTS AND SAMPLING PROCEDURES	90
	A.1 Wave I Respondents and Sampling Procedures	90
	A.2 Wave II Sample	96
APPENDIX B	FAMILY DAY CARE ADMINISTRATIVE COST REIMBURSEMENT RATE SIMULATIONS	103
References		129

Table of Contents

LIST OF TABLES

		Page
Table 1.1	INCREASE IN CCFP PARTICIPATION SINCE 1978	4
Table 1.2	GROWTH OF THE CCFP SINCE ITS INCEPTION IN 1969	4
Table 2.1	LIST OF SPONSOR TASKS USED TO DEFINE SPONSOR TYPE	19
Table 2.2	DISTRIBUTION OF STUDY SAMPLE BY TYPE OF SPONSOR	21
Table 3.1	COMPONENTS OF FOOD PROGRAM COSTS FOR PARTICIPATING AND NONPARTICIPATING CENTER-BASED PROGRAMS	24
Table 3.2	COMPONENTS OF FOOD PROGRAM COSTS FOR PARTICIPATING CENTER-BASED PROGRAMS BY TYPE OF SPONSOR	37
Table 3.3	AVERAGE COST PER MEAL AND CCFP REIMBURSEMENT RATES: JANUARY-JUNE 1980	49
Table 3.4	COMPARISON OF WAVE I AND WAVE II FOOD PROGRAM COSTS	54
Table 3.5	COMPARISON OF WAVE I AND WAVE II LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM TASKS	56
Table 4.1	NATIONAL CENSUS AND STUDY SAMPLE DISTRIBUTIONS OF FDCH SPONSORS BY THE NUMBER OF HOMES SPONSORED	59
Table 4.2	NUMBER OF SPONSORS IN WEIGHTED STUDY SAMPLE BY SPONSOR TYPE AND SIZE	62
Table 4.3	COMPONENTS FOR FOOD PROGRAM COSTS FOR PARTICIPATING FDC PROGRAMS BY SIZE AND TYPE OF SPONSOR	64
Table 4.4	DIFFERENCES IN THE SCOPE OF MONITORING ACTIVITIES BETWEEN SINGLE- AND MULTI-PURPOSE SPONSORS	68
Table 4.5	AVERAGE FOOD SERVICE COSTS PER MEAL AND CCFP REIMBURSEMENT RATES FOR FDCHs	73

Table of Contents

LIST OF TABLES

		Page
Table 4.6	CHANGE IN ADMINISTRATIVE PRACTICES OF FDCH UMBRELLA SPONSORS BY EXTENT OF MONITORING DONE PRIOR TO THE CHANGE IN REGULATIONS	77
Table 4.7	CHANGE IN THE LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATION BY THE CHANGE IN FREQUENCY OF MONITORING VISITS AND CHANGE IN SPONSOR SIZE	80
Table A.1	SAMPLE SIZES FOR T-TEST OF THE EQUALITY OF TWO PROPORTIONS (P = .50), GIVEN POWER AND EFFECT SIZES	99
Table A.2	WAVE II SAMPLE SIZES	100

Table of Contents

LIST OF FIGURES

		Page
Figure 2.1	COMPARISON OF FUNCTIONAL COST CATEGORIES WITH TYPICAL COST CATEGORIES IN DAY CARE COST STUDIES	10
Figure 2.2	ORGANIZATIONAL MODEL OF CCFP SPONSOR	14
Figure 3.1	FOOD PROGRAM ADMINISTRATIVE COST AS A PERCENTAGE OF TOTAL FOOD PROGRAM COST. CENTER-BASED PROGRAMS	26
Figure 3.2	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATIVE TASKS IN CENTER-BASED PROGRAMS	28
Figure 3.3	DISTRIBUTION OF CENTER-BASED PROGRAMS BY MONTHLY FOOD PROGRAM ADMINISTRATIVE COST PER CENTER	30
Figure 3.4A	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATIVE TASKS IN PARTICIPATING CENTER-BASED PROGRAMS BY RANGE OF MONTHLY ADMINISTRATIVE COST	32
Figure 3.4B	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATION IN PARTICIPATING CENTER-BASED PROGRAMS BY RANGE OF MONTHLY ADMINISTRATIVE COST	33
Figure 3.4C	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATIVE TASKS IN CENTER-BASED PROGRAMS BY PARTICIPATION STATUS AND RANGE OF MONTHLY COST	34
Figure 3.5	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATION IN PARTICIPATION CENTER-BASED PROGRAMS BY TYPE OF SPONSOR	38
Figure 3.6	FOOD PROGRAM ADMINISTRATIVE COST PER LUNCH EQUIVALENT (LEQ): DISTRIBUTION OF CENTER-BASED PROGRAMS	40
Figure 3.7A	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATION BY ADMINISTRATIVE COST PER LUNCH EQUIVALENT (LEQ) FOR CENTER-BASED PROGRAMS	42
Figure 3.7B	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATIVE TASKS BY ADMINISTRATIVE COST PER LUNCH EQUIVALENT (LEQ) FOR CENTER-BASED PROGRAMS	43

LIST OF FIGURES (Cont'd)

		Page
Figure 3.8	TOTAL FOOD SERVICE DELIVERY COST PER LUNCH EQUIVALENT (LEQ): DISTRIBUTION OF CENTER-BASED PROGRAMS	44
Figure 3.9	FOOD COST PER LUNCH EQUIVALENT (LEQ): DISTRIBUTION OF PARTICIPATING AND NONPARTICIPATING CENTER-BASED PROGRAMS	46
Figure 3.10	LEVEL OF EFFORT DEVOTED TO FOOD SERVICE TASKS IN CENTER-BASED PROGRAMS BY THE NUMBER OF LUNCH EQUIVALENTS (LEQs) SERVED WEEKLY	47
Figure 3.11	CCFP REIMBURSEMENTS AS A PERCENT OF COST: CUMULATIVE DISTRIBUTION OF CENTER-BASED PROGRAMS (JANUARY 1980 RATES)	50
Figure 4.1	CCFP ADMINISTRATIVE COST REIMBURSEMENTS AS A PERCENT OF SPONSOR'S TOTAL INCOME: DISTRIBUTION OF SPONSORS	61
Figure 4.2	FOOD PROGRAM ADMINISTRATIVE COST FOR PARTICIPATING FAMILY DAY CARE SPONSORS	66
Figure 4.3A	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATION PER HOME BY PARTICIPATING FAMILY DAY CARE SPONSORS: DISTRIBUTION BY NUMBER OF HOMES SPONSORED	67
Figure 4.3B	LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATION PER HOME BY PARTICIPATING FAMILY DAY CARE SPONSORS: DISTRIBUTION BY PERCENT OF INCOME FROM CCFP	67
Figure 4.4A	COMPONENTS OF FOOD PROGRAM COSTS PER LUNCH EQUIVALENT FOR PARTICPATING FAMILY DAY CARE PROGRAMS: DISTRIBUTION BY NUMBER OF HOMES SPONSORED	71
Figure 4.4B	COMPONENTS OF FOOD PROGRAM COSTS PER LUNCH EQUIVALENT FOR PARTICPATING FAMILY DAY CARE PROGRAMS: DISTRIBUTION BY PERCENT OF INCOME FROM CCFP	71
Figure 4.5	DISTRIBUTION OF PARTICIPATING FDCHs BY FOOD COST AND PROVIDER'S TOTAL COST PER LUNCH EQUIVALENT	74

Table of Contents

LIST OF FIGURES (Cont'd)

		Page
Figure A.1	COMPOSITION OF THE WAVE I TELEPHONE SURVEY CHILD CARE CENTER (CCC) SPONSOR SAMPLE	92
Figure A.2	COMPOSITION OF THE WAVE I TELEPHONE SURVEY FAMILY DAY CARE HOME (FDCH) SPONSOR SAMPLE	94
Figure A.3	COMPOSITION OF THE FDCH SPONSOR SAMPLE	101
Figure A.4	COMPOSITION OF THE CCC SPONSOR SAMPLE	102

Table of Contents

1.0 INTRODUCTION

The Child Care Food Program (CCFP) was established in 1968 as the year-round component of the Special Food Service Program for Children, a three-year pilot program that also included a summer food service component. The CCFP was originally designed to provide federal grants for meals served in nonresidential day care centers for preschool children of low-income families and working mothers. By 1975 the CCFP had evolved as a separate program, and eligibility was expanded to include all nonprofit day care centers as well as licensed family day care homes (FDCHs) affiliated with umbrella sponsors.

The 1975 Amendments were intended to expand program participation, particularly among the many children receiving care in FDCHs. The number of children receiving CCFP benefits did expand considerably in response to the broadening of the program's eligibility requirements, but by 1978 the program was still reaching only a small proportion of the children in out-of-home day care. Three years after FDCHs became eligible, fewer than 12,000 FDCHs (serving only 51,000 children) were participating in the program. During the same period, the rate of participation among eligible day care centers also remained relatively low. In 1978, as in 1976, only 60 percent of nonprofit day care centers were participating in the CCFP.[1]

The Child Nutrition Amendments of 1978 permanently authorized the CCFP and changed several program regulations

---

[1]The estimated 1976 participation rate is derived from data from an earlier study of center-based day care (Coelen, Glantz & Calore, 1979). The estimated 1978 participation rate is based upon data obtained in the present study through telephone interviews with a random sample of 775 nonprofit day care centers as part of the effort to recruit participating and nonparticipating centers for the on-site survey.

in order to facilitate participation in the program. In addition, the 1978 Amendments restructured reimbursement procedures. For day care centers, "tiering" was established as an alternative method of computing reimbursement ceilings.[2] The effect of the tiering option was to simplify the calculation of the reimbursement ceiling and, for most eligible day care centers, to increase this ceiling. The changes affecting family day care were far more dramatic:

- Reimbursements for umbrella sponsors' administrative costs were separated from reimbursements for food and food service.

- Separate income eligibility categories for free, reduced-price, and paid rate reimbursements were eliminated. Reimbursements for all meals served in FDCHs were to be made at the "free" rate regardless of the income of the children served.

- State administering agencies were required to establish alternative licensing procedures for FDCHs in cases where no such procedures existed or where a lengthy licensing backlog existed.

- Start-up and expansion funds were provided for family day care sponsors.

The net effect of these legislative changes was to make the program less obtrusive and to greatly increase the level of reimbursements going to family day care homes for food and food preparation.

---

[2]Under the tiering system of reimbursement, day care centers were reimbursed for all children at one rate (free, reduced-price, or paid), according to the eligibility make-up of the group as a whole, regardless of the income of the individual children served.

Table of Contents

The impact of the 1978 Amendments is clearly visible in the recent growth in program participation. While the program experienced a modest increase in the number of participating day care centers (an 8 percent increase between June and December 1980[3]), the number of FDCHs participating in the CCFP more than doubled during this same period (Table 1.1).

The 1978 Amendments followed the pattern set by previous amendments affecting the program--they extended and expanded the CCFP by opening up program participation to new groups of children in out-of-home day care. Along with the increases in the number of children served came a substantial increase in program outlays. What started in 1969 as a small program serving 40,000 children at an annual cost of $2.8 million was serving almost 900,000 children at an annual cost of $280 million by 1981 (Table 1.2).

The rapid expansion of the program following the 1978 Amendments raised anew concerns that the CCFP was becoming a growing source of support for middle income and upper income groups (Forman, 1978). More than one-half of the children attending eligible (i.e., nonprofit) day care centers are from middle- and upper-income families (Coelen, et al., 1978, Table 54). Similarly, nearly three-quarters of the children in family day care are from such families.[4]

These concerns were reflected in the sweeping changes initiated by the Omnibus Reconciliation Act of 1981 (P.L. 97-35). This new legislation is intended to contain the cost of the CCFP, while at the same time ensuring that

---

[3]The final regulations were published in the Federal Register January 22, 1980 and became effective on May 1, 1980.

[4]National Child Care Consumer Study, Unco, Inc. 1975.

Table of Contents

Table 1.1

INCREASE IN CCFP PARTICIPATION SINCE 1978

Month	Number of Operating Day Care Facilities		Number of FDCH Sponsors	Average Daily Attendance		
	Centers	FDCHs		Centers	FDCHs	Total
December 1978	15,493	11,573	411	526,636	50,716	577,352
June 1979	14,803	13,757	434	529,924	55,762	585,686
December 1979	16,439	16,059	430	601,560	70,374	671,934
June 1980	15,518	17,452	429	592,679	78,340	671,019
December 1980	16,712	36,545	453	629,129	130,382	759,511
March 1981	17,050	43,155	600	686,091	163,273	849,364

Source: USDA, Program Reporting Section Reports for the CCFP: June 1981, August 1980, and August 1979.

Table 1.2

GROWTH OF THE CCFP SINCE ITS INCEPTION IN 1969

Fiscal Year	Average Daily Attendance (000's)	Obligations (000's)
1969	39.8	$ 2,844
1970	93.3	5,132
1971	175.6	13,067
1972	215.5	15,980
1973	225.3	19,380
1974	377.2	30,419
1975	457.1	47,248
1976	463.1	114,000
Transition Quarter	551.6	19,657
1977	534.4	78,300
1978	580.0	131,000
1979	665.0	158,800
1980	741.0	207,800
1981	853.4	279,700[a]

Source: United States Department of Agriculture

[a]Preliminary estimate based on the first nine months of the year

the subsidies available through the program are more directly targeted at low-income children. To this end, P.L. 97-35 made the following changes:

- Subsidies for meals and administrative expenses are reduced and tiering has been eliminated as a method for calculating reimbursement ceilings for day care centers.

- Income eligibility guidelines have been revised to expand the number of low-income children eligible for the full free meal reimbursement by raising the threshold for free meals from 125 to 130 percent of the poverty line. At the same time, the number of middle-income children eligible for reduced-price meals has been decreased by lowering the cut-off for reduced-price meals from 195 to 185 percent of the poverty line.

- In an effort to reach low-income children in for-profit day care centers, eligibility has been extended to for-profit centers in which at least 25 percent of the children receive day care subsidies through Title XX.

One probable and intended consequence of the new legislation is to reduce substantially program participation by middle-income children. However, as many low-income children attend day care facilities that will now elect not to participate in the CCFP, the changes may also reduce participation by children from poor and near-poor families.

Table of Contents

1.1 Overview of the Study Design

The Child Care Food Program Evaluation was mandated by P.L. 95-627, the Child Nutrition Amendments of 1978. The 1978 Amendments directed the Food and Nutrition Service of the Department of Agriculture to study:

- the administrative costs of participating institutions;
- the costs of food service and their relationship to meal quality; and
- licensing and other barriers to participation in the CCFP.

The primary aim of the CCFP evaluation is to complete the three studies mandated by P.L. 95-627 and to place the findings of these studies within the context of an accurate description of existing program operations and an assessment of program impact.

The overall study design recognized that the regulatory changes were likely to affect some of the areas under study in the evaluation. Two data collection efforts were conducted. The first data collection effort (Wave I) was conducted between January 1980 and March 1980, prior to the implementation of the regulatory changes stemming from the 1978 Amendments. A second data collection (Wave II) was conducted between January 1981 and March 1981, following the implementation of the new regulations on May 1, 1980.

Wave I provided baseline data on program costs, administrative practices, and program participation as well as an assessment of meal quality. Wave II provided comparative data used to assess the impact of the regulatory

Table of Contents

changes.[5] Both data collection efforts included respondents at each level of the CCFP organization--states and FNS Regional offices, sponsors and day care providers (i.e., centers and family day care homes). A description of the Wave I and II survey plans is presented in Appendix A.

1.2 Organization of this Report

This report examines the structure of food program costs in day care centers and family day care homes. The study was mandated by P.L. 95-627 and was intended to provide the Secretary with information needed to set reimbursement rates. Section 2 describes the techniques used to measure food program costs. Section 3 examines the administrative and food service delivery costs in participating day care centers and compares the costs of participating centers to those of nonparticipating centers. The structure of food program costs in participating family day care programs is examined in Section 4. The findings of the cost analyses are summarized in Section 5.

---

[5] Following the recommendations of the study's Advisory Panel, Wave II did not collect data on meal quality since the new regulations were not expected to affect meal quality.

2.0 MEASURING FOOD PROGRAM COSTS

Meaningful cost analysis requires a clear definition of the costs being compared. Upon examination of the information reported on CCFP reimbursement claims, an apparent lack of uniformity in what is reported under each of the reporting categories was uncovered. Some of this lack of uniformity reflects the variety of accounting practices used by participating institutions and some of it no doubt is attributable to interstate variation in the definition of "allowable" costs.[6] For the purposes of this Evaluation it was necessary to ensure that costs were measured uniformly across the study sample. To accomplish this, a cost accounting system was developed which:

- allocated costs across functional categories;
- recognized the variation in organizational structure and the diversity of sponsor/provider responsibilities; and
- adjusted for differences in the number of children and the pattern of meals served.

2.1 Functional Cost Accounting System

Although the accounting practices used by day care programs are quite varied, most day care programs use some form of traditional line item accounts. These line item accounting systems identify food (and often food service supplies) as a separate line item. They do not, however, identify the labor costs associated with food preparation and food service administration. All labor costs are

---

[6] The regulations permit the individual states to define allowable costs for purposes of reimbursement Federal Register, January 22, 1980, p. 4980. Regionally administered programs uniformly used FNS Instruction 796-2 for definitions of allowable costs. Some states also used this document to define allowable costs.

usually combined into a single line item--personnel. In order to examine food service operating costs and food program administrative costs, it was necessary to develop a functional cost accounting system which isolated food program costs from the costs of the other services performed by the organization.

Functional Categories

Functional cost analysis involves the allocation of total resource costs (both direct and indirect) across the service functions performed by a program. In order to reduce the measurement error that usually results from focusing narrowly on one aspect of a program's total operations,[7] the functional categories used in this study accounted for all of the activities associated with the operation of a day care program. However, because of the objectives of the study, the costs associated with food service were collected in greater detail than those for other service categories. Figure 2.1 shows the relationship of the functional categories used in this study to those usually used in day care cost studies.[8] All non-food program functions were combined into two functional categories: (1) general administration; and (2) other day care services. Food program administration was disaggregated into four component functions: (1) planning and management; (2) recordkeeping, budgeting for food monies, and CCFP

---

[7]When data collection efforts focus solely on one aspect of program operations, overestimates are usually obtained. Concentration on food-related costs to the exclusion of other types of costs would probably have led to an overemphasis on and, ultimately, overestimates of food-related costs.

[8]See for example, Jean E. Bedger et al., Financial Reporting and Cost Analysis Manual for Day Care, Head Start and Other Programs, (Council for Community Services in Metropolitan Chicago, 1973).

Figure 2.1

COMPARISON OF FUNCTIONAL COST CATEGORIES
WITH TYPICAL COST CATEGORIES IN DAY
CARE COST STUDIES

Cost Categories Typically Used	Functional Categories Used in This Study
Administration	Food Program Administration
• food program	• Planning and Management • Recordkeeping, Budgeting, and Reimbursement Procedures • Nutrition Training • Menu Preparation and Food Purchasing
• Other	Non-Food Program Functions • General Administration
Occupancy Teaching and Child Care Parent Education and Counseling Health and Social Services Staff Development Transportation	• Day Care Services
Food Service	Food Service Operations • Cooking • Serving and Cleaning Up

reimbursement procedures; (3) nutrition training; and (4) menu preparation and food purchasing. Actual food service operations were divided into two component tasks: (1) cooking; and (2) serving and cleaning up.

Allocating Costs Across Functions

Total costs were those reported on the programs' annual Statement of Income and Expense for the year ending December 31, 1979.[9] The line item costs were allocated across the functional categories in proportion to the distribution of labor costs among the functions.

Labor cost for each function was determined by estimating the amount of time each staff person devoted to the various functions and applying the appropriate wage rates:

$$(1) \qquad LC_i = \sum_j T_{ij} W_j$$

where LC_i = labor cost for function i;
T_{ij} = total hours staff person j devotes to function i; and
W_j = hourly wage rate for person j.

The total wage bill was obtained by summing across functions:

$$(2) \quad WAGES = \sum_i LC_i = \sum_i \sum_j T_{ij} W_j$$

---

[9] For programs whose fiscal year ended before December 31, 1979 adjustments were made to reflect price and wage rate increases between the end of the fiscal year and the end of the calendar year. These adjustments are detailed in the Technical Appendix.

Table of Contents

The ratio of LC_i to WAGES is the proportion of labor costs devoted to function i.[10] One exception was made to this allocation formula. The line item for food was allocated entirely to the food service function.

2.2 Organizational Structure

Public Law 95-627 permitted the Secretary to establish separate reimbursement rates to cover the administrative costs of participating institutions. Since May 1, 1980, family day care home (FDCH) sponsors have been reimbursed separately for their administrative costs and for the food and food preparation costs incurred by the FDCHs under their sponsorship. Reimbursements to day care centers and their sponsors continue to be based upon the combined cost of administrative and food service operations. The primary motivation for the creation of separate administrative payments is to achieve greater accountability on the part of sponsors; that is, to ensure that:

- sponsoring institutions do not claim excessive administrative costs at the expense of providers; and

- food service reimbursements are actually passed through to providers.

---

[10] The line item for personnel includes salaries, payroll taxes, and fringe benefits. These sub-items are allocated in the same manner as other line items. The total labor cost for function i equals:

$$\text{PERSONNEL } X\left(\frac{LC_i}{\text{WAGES}}\right)$$

Most importantly, it is anticipated that a separate administrative rate will result in a more equitable distribution of reimbursement monies between sponsors and providers. In order to achieve a uniform definition and measure of administrative costs, it was necessary to recognize important variation in organizational structure and the diversity of sponsor/provider responsibilities.

- There is a multiplicity of sponsoring organizations, ranging from the small, single-purpose child care agency, through large multipurpose agencies, to statewide and county-wide public sponsors.

- In this variety of settings there is no uniform division of responsibilities between sponsor and provider. Administrative functions are performed at both the sponsor and provider levels, and at a variety of levels within sponsoring organizations.

Measuring Administrative Costs

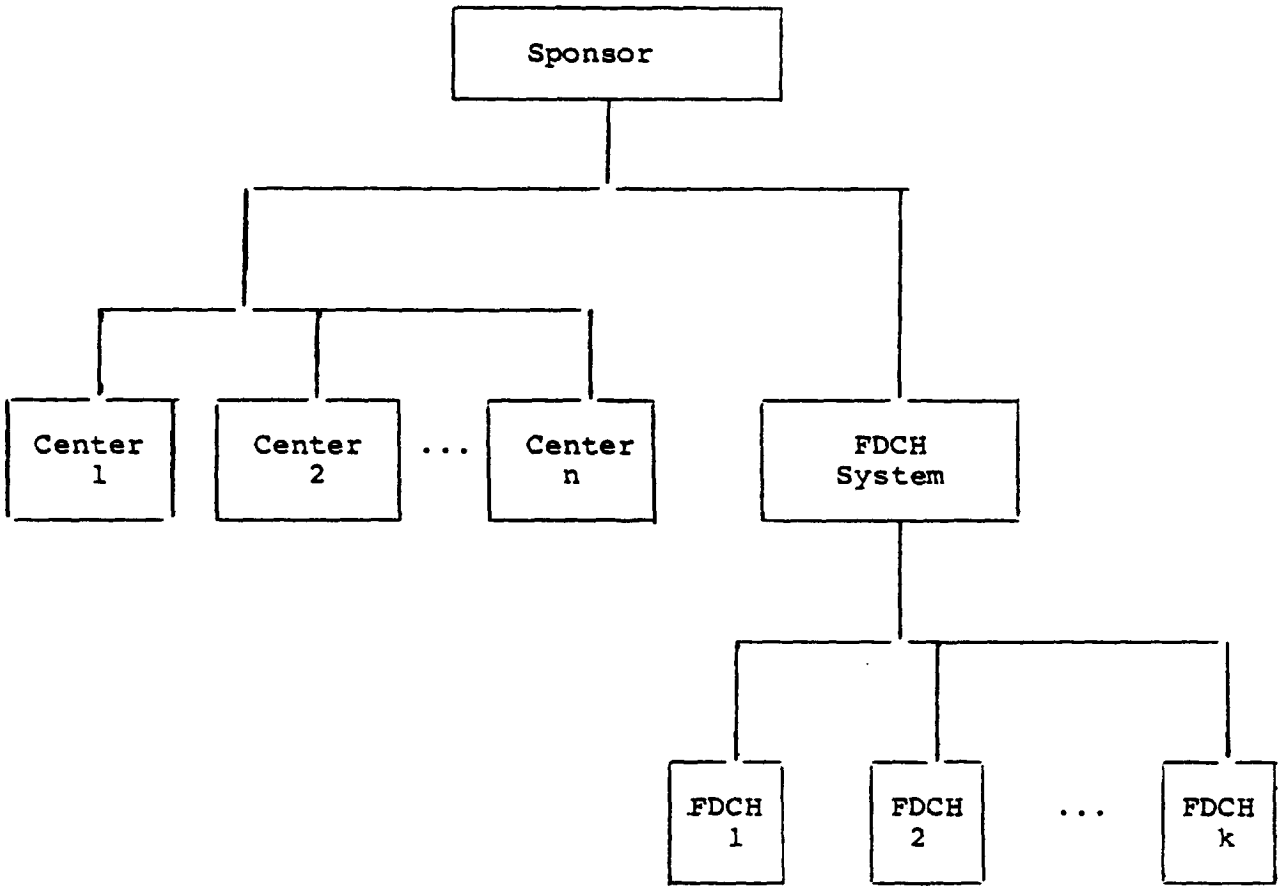
Food program administrative costs include costs incurred at both the sponsor and provider levels. Time-use information was collected for program staff at both sponsor and provider levels for each of the functional categories. These data were combined with the appropriate income and expense data to construct sponsor- and provider-level variables for administrative and food service delivery costs.

While the provider-level data pertain to the individual provider, the sponsor-level data encompass all providers that fall under the sponsor's umbrella. Figure 2.2 presents a simplified organizational model of a CCFP sponsor and

Table of Contents

Figure 2.2

ORGANIZATIONAL MODEL OF CCFP SPONSOR



illustrates how sponsors' administrative costs were allocated across the sponsored centers and homes. In this illustration the sponsor is "administratively responsible"[11] for "n" day care centers and "k" FDCHs.

Food program administrative costs were measured separately at each organizational level using the procedures outlined in Section 2.1. At the sponsor level, the total administrative cost incurred by the sponsor was obtained by applying the sponsor's time-use information to the sponsor's Statement of Income and Expense. The sponsor's total administrative cost reflects the cost of administering the program in all n centers and k homes. It was therefore necessary to prorate the sponsor's costs across the centers and homes sponsored in order to obtain an estimate of the sponsor's administrative costs attributable to each individual center and FDCH. A three-step procedure was used to reflect the different organizational levels of centers and homes. The family day care system is at the same organizational level as the day care centers and is given equal weight in prorating sponsor-level administrative costs. Thus, the sponsor-level administrative costs attributed to the family day care system are equal to those attributed to each day. care center; and this figure is obtained by dividing the total sponsor-level administrative costs by the number of centers (n) plus the number of systems (one).

$$(3)\quad ADM_c^s = ADM_f^s = SPONADM/(n+1)$$

where ADM_c^s = sponsor-level administrative cost attributable to each center;[12]

---

[11]The CCFP regulations stipulate that the sponsor is the legal entity responsible for the administration of the CCFP Federal Register, January 22, 1980.

[12]For ICCCs, which are self-sponsored, the sponsor-level administrative cost equals zero, hence $ADM_c^s = 0$

Table of Contents

ADM_f^s = sponsor-level administrative cost attributable to the FDCH system;

SPONADM = total sponsor-level administrative cost; and

n = number of day care centers sponsored.

In the second step the center-level and FDCH system-level administrative costs were obtained using the center's (or FDCH system's) time-use data and Statement of Income and Expense. These center-level (or system-level) costs were then added to the sponsor-level costs already attributed to the center (or system), to obtain the total cost of administering the CCFP for the center (or system). Thus, for each day care center or FDCH system the total cost of administering the CCFP is expressed as:

$$(4)\quad ADMTOTAL_c^i = ADM_c^s + ADMCENT_i$$ [13]

$$(5)\quad ADMTOTAL_f = ADM_f^s + ADMSYST$$

where $ADMTOTAL_c^i$ = total cost of administering the food program for day care center i;

ADM_c^s = sponsor-level administrative costs attributable to each center; and

$ADMCENT_i$ = center-level cost of administering the food program at day care center i;

$ADMTOTAL_f$ = total cost of administering the food program for all homes sponsored by the FDCH system;

ADM_f^s = sponsor-level administrative costs attributable to the family day care system

ADMSYST = FDCH system-level cost of administering the food program for sponsored homes.

---

[13] Recall that for ICCCs, $ADM_c^s = 0$

Table of Contents

The third step prorated $ADMTOTAL_f$ across all of the homes sponsored to obtain the administrative cost per home, or ADMHOME:

$$(6)\ ADMHOME = ADMTOTAL_f/k$$

where k = number of family day care homes sponsored.

Division of Responsibilities between Centers and Sponsors

Implicit in the CCFP regulations and claiming procedures is a single program model, which presumes that sponsoring institutions are largely administrative entities and that providers, whether centers or homes, perform primarily food service functions. While this is certainly the case for participating FDCHs, it is not necessarily the case for sponsored day care centers. There is in fact great diversity in the division of administrative responsibilities between centers and their sponsors.

Legally, it is the sponsoring institution which enters into a contractual relationship with the CCFP and assumes administrative and financial responsibility for the centers (and/or homes) sponsored. However, many sponsored day care centers assume some or all of the administrative responsibility for the CCFP. The legal distinction that is made between sponsored child care centers (SCCCs) and independent or self-sponsored child care centers (ICCCs) does not always square with a functional definition of sponsorship.

The concept of a functional sponsor was developed in recognition of the actual division of responsibilities between a participating center and its legal sponsor, which varies along a continuum. At one extreme, the legal sponsor performs none of the administrative or food service functions associated with participation in the CCFP. The legal sponsor in this case is simply a "corporate shell" under which centers may participate. At the other extreme, the legal sponsor may perform all administrative and food service functions. From an analytic perspective, it is the functional sponsor that incurs costs in this case. Because the new regulations place differing responsibilities on the sponsors of centers than they do on independent centers, the legal definition of sponsorship raises the additional issue of regulatory compliance.

The operational definition of functional sponsorship is based on a scale of 13 key tasks associated with the administration of a food program in a participating day care center (Table 2.1). These tasks include some that pertain specifically to the CCFP, such as application renewal and completion of the claims for reimbursement, and some that belong to the operation of any food program, such as menu planning. Using this scale, sponsored child care centers (SCCCs) were grouped into four functional categories.

- Shell sponsors. These are legal sponsors that perform none of the key food program tasks examined. The shell sponsors have virtually no involvement with the administration of the food program in the centers they sponsor. Centers sponsored by a shell sponsor function as independent child care centers (ICCCs), although legally they are SCCCs.

- Low-functional sponsors. SCCCs that perform relatively few of the 13 food program tasks (from one to four tasks) were classified as

Table of Contents

Table 2.1

LIST OF SPONSOR TASKS USED TO DEFINE SPONSOR TYPE

Monitors Food Service

Has primary responsibility for:

- CCFP Application Renewal
- Food Program Recordkeeping
- Filing CCFP Claims
- Menu Planning

Keeps CCFP Administrative Cost Records

Keeps Records of Food and Food-Related Costs

Reviews:

- CCFP Requirements
- CCFP Applications Renewal
- Meal Preparation
- Nutritional Quality of Meals
- Menu Planning
- Food Program Administrative Records

low-functional sponsors. Their involvement with the administration of the food program is very limited, and as is shown below, the primary locus of responsibility for the food program is at the center level.

- Medium-functional sponsors. These sponsors perform between five and nine of the key tasks. Their involvement with the administration of the food program is substantial and typically extends well beyond the simple recordkeeping tasks. They are often involved in the planning and management of the food program in the centers which they sponsor.

- High-functional sponsors. The high-functional sponsors are active in virtually all aspects of food program administration. They perform at least 10 of the 13 functions examined. Typically, the high-functional sponsor's involvement with its centers extends well beyond its food program. These sponsors tend to be involved in the overall provision and supervision of day care services far more frequently than either the low- or medium-functional sponsors.[14]

The nonparticipating sponsors were not grouped according to their level of functional sponsorship. Virtually all nonparticipating sponsors were either independent centers or programs that would have been classified as shell sponsors by virtue of their minimal involvement with the

---

[14] In addition to examining the number of functions performed by the sponsor, analyses were undertaken to determine if a hierarchical structure exists in the performance of food program administrative functions. The analyses revealed a hierarchy of activities: medium-functional sponsors perform those tasks carried out by low-functional sponsors plus others; similarly, high-functional sponsors perform those tasks carried out by medium-functional sponsors plus others. Guttman scaling of individual items within each of the broad functional areas was used in these analyses. The coefficients of reproducibility and scalability always exceeded 0.90, indicating that groups of activities were performed by sponsors in a hierarchical order. The results of these analyses are presented in the Technical Appendix.

food program in their sponsored centers. Table 2.2 shows the distribution of the study sample by type of sponsor.

2.3 Differences in the Number of Children and the Pattern of Meals Served

Although the center or home is the appropriate unit of analysis for administrative costs, it is necessary to consider the number of children and meals served when analyzing food service delivery costs. Clearly a center serving 100 children each day would be expected to incur substantially higher food service costs than a center

Table 2.2.

DISTRIBUTION OF STUDY SAMPLE BY TYPE OF SPONSOR

Type of Sponsor	Number of Programs
ICCC	27
Shell Sponsor	10
Functional Sponsors	63
Low	18
Medium	28
High	17

serving only 25 children daily. Similarly, food service costs would be expected to reflect the pattern of meals and supplements served. A center or home serving breakfast, lunch, and a snack would be expected to incur different costs from one serving lunch and two snacks. In order to compare food service delivery costs across programs it was necessary to standardize these costs by

the total number of meals and snacks served. A system of weights was developed by the study staff to permit the aggregation of different meals (i.e., breakfast, lunch/supper, and snack) into a single metric which would represent the total number of meals served by a program.

The weights were based on the concept of a lunch equivalent (LEQ), whereby all configurations of meal patterns are expressed as multiples of a "standard" lunch. Six menus for each type of meal or snack were randomly selected from the study sample and costed using the prevailing supermarket prices in the Boston area. In order to reflect the range of prices for each item, one menu was costed using the lowest prices available; one using the highest prices; and four using mid-range prices. The average cost of each meal type was computed: breakfast, $0.25; lunch/supper, $0.55; and snack, $0.20. Using the cost of a lunch as the basis for comparison, these costs were converted into LEQs: breakfast, 0.455 (.25/.55); lunch, 1.000 (.55/.55); and snack, 0.364 (.20/.55). Thus a program serving 50 breakfasts, 100 lunches and 100 afternoon snacks would be serving 159.2 LEQs [(50 x 0.455) + (100 x 1.000) + (100 x 0.364)], while a program serving 50 breakfasts, 50 lunches, and 75 afternoon snacks would be serving 100.1 LEQs [(50 x 0.455) + (50 x 1.000) + (75 x 0.364)]. The concept of the LEQ allows the comparison of programs serving different numbers of children varying combinations of meals and snacks. Food service delivery costs are expressed in terms of cost per LEQ.

3.0 CENTER-BASED DAY CARE

This section presents an overview of the food program cost structure of center-based day care programs. The data reflect costs as they existed in January 1980 and as such understate the current cost of providing food services. In comparing the food program costs of participating and nonparticipating programs, it must be emphasized at the outset that the differences in costs are explainable, in part, by differences in meal quality. Although participating programs have significantly higher costs than nonparticipating programs, they also have significantly higher levels of meal quality.[15]

But causal relationship has not been tested

Table 3.1 presents an overview of the cost structure in participating and nonparticipating center-based programs. It is clear that there are significant and substantial differences between them in almost every cost component.

- The monthly food program cost per center in participating programs is more than twice that of nonparticipating programs ($3,830 vs. $1,790).

- Program administration accounts for a much larger proportion of total food program costs among participants than among nonparticipants (17.0% vs. 12.2%).

- Food service delivery costs in participating programs are 62 percent higher than in nonparticipating programs ($1.57 per LEQ vs. $0.97 per LEQ).

- Labor is the largest cost element of food service delivery, accounting for about one-half of the cost of food service for both participating and nonparticipating programs. Yet participants spend two-thirds more per LEQ for labor than do nonparticipants ($0.82 vs. $0.49).

---

[15] The analyses of meal quality are reported in Fox, M. & Glantz, F., An Examination of Meal Quality in Day Care Centers and Family Day Care Homes (Abt Associates, 1982).

Table 3.1

COMPONENTS OF FOOD PROGRAM COSTS[a] FOR PARTICIPATING AND NONPARTICIPATING CENTER-BASED PROGRAMS

Cost Component	Program Type		Test of Differences	
	Participating	Nonparticipating	t-Statistic	Significance Level
Monthly Food Program Cost Per Center	$ 3,830	$ 1,790	5.68	P <.001
Monthly Food Program Administrative Cost Per Center	$ 636	$ 184	6.85	P <.001
Monthly Food Service Delivery Cost Per Center	$ 3,194	$ 1,606	4.97	P <.001
Food	$ 969	$ 518	4.27	P <.001
Labor	$ 1,593	$ 818	4.61	P <.001
Other	$ 632	$ 270	4.42	P <.001
Number Lunch Equivalent Meals Per Center Per Month	2,279	1,708	2.57	P< .05
FTE Children Per Center	61.8	53.8	1.15	n.s
Food Program Cost Per Lunch Equivalent Meal	$ 1.91	$ 1.10	5.88	P <.001
Administrative Cost Per Lunch Equivalent Meal	$ 0.34	$ .13	5.45	P <.001
Food Service Delivery Cost Per Lunch Equivalent Meal	$ 1.57	$ 0.97	5.16	P <.001
Food	$ 0.43	$ 0.30	4.65	P <.001
Labor	$ 0.82	$ 0.49	4.67	P <.001
Other	$ 0.32	$ 0.18	2.92	P <.005
Administrative Cost as a Percent of Total Food Program Cost	17.0%	12.2%	2.52	P< .05
Sponsor's Administrative Cost as a Percent of Total Administrative Cost	15.8%	12.8%	0.70	n.s.
Sponsor's Food Service Delivery Cost as a Percent of Total Food Service Delivery Cost	1.2%	3.2%	0.90	n.s.
	N = 93	N = 42		

[a] Data reflect costs as they existed in January 1980.

3.1 Administrative Costs

This section examines the differences in administrative costs between participants and nonparticipants, and across the different types of sponsors among participating programs.

Differences Between Participants and Nonparticipants

In view of the administrative requirements associated with CCFP participation, it is not surprising to find that administrative costs accounted for a much larger proportion of food program costs in participating programs. Participants spent an average of $636 monthly per center to administer the food program compared to an average of only $184 per month for nonparticipants.

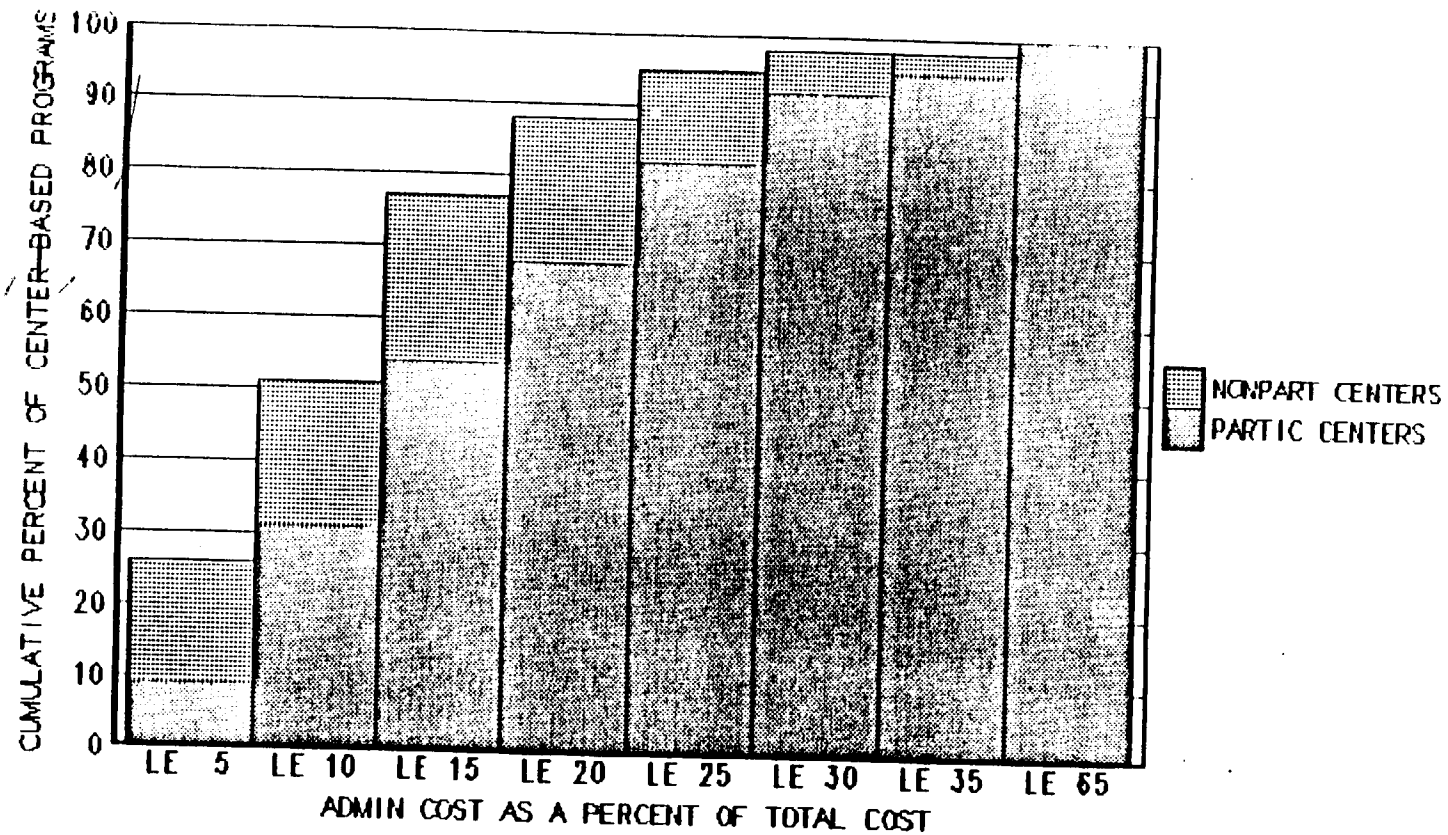
The distribution of programs by the proportion of their food program costs accounted for by administration is very revealing (Figure 3.1).[16] For one out of every two nonparticipants, administrative costs represented less than 10 percent of total food program costs. By contrast, for only about one-third of participants was the proportion of costs devoted to administration this low. At the other extreme, one out of five participants devoted more than 25 percent of its food program dollars to administration. Less than 5 percent of nonparticipants devoted as much to administration.

---

[16] Figure 3.1 presents the cumulative distribution of center-based programs (participating and nonparticipating) by administrative costs as a percent of total food program cost. For readers unfamiliar with this type of presentation, it is important to note that each bar in the graph builds upon the preceding bar until 100 percent of the programs are accounted for. Thus, for example, Figure 3.1 shows that nine percent of participants have administrative costs that do not exceed 5 percent of total food program costs, while 31 percent do not exceed 10 percent of total costs (i.e., 22 percent have administrative costs between 5 and 10 percent of total costs. Similarly, 17 percent of nonparticipants have administrative costs which do not exceed 5 percent of total costs, while 20 percent do not exceed 10 percent of total costs.

Figure 3.1

Food Program Administrative Cost as a Percentage of Total Food Program Cost: Center-Based Programs



Participation in the CCFP carries with it certain administrative requirements.[17] Participants must:

- maintain records of:
  - current income and eligibility status of enrolled children,
  - number of meals served daily by type and eligibility status of children served,
  - administrative and food service costs incurred, including invoices, receipts, and other documentation,
  - number and content of training sessions, including a list of participants, and
  - daily menus;
- provide staff training in CCFP duties and responsibilities at least once per year; and
- visit each day care center at least three times per year to review compliance with meal pattern and other program requirements.

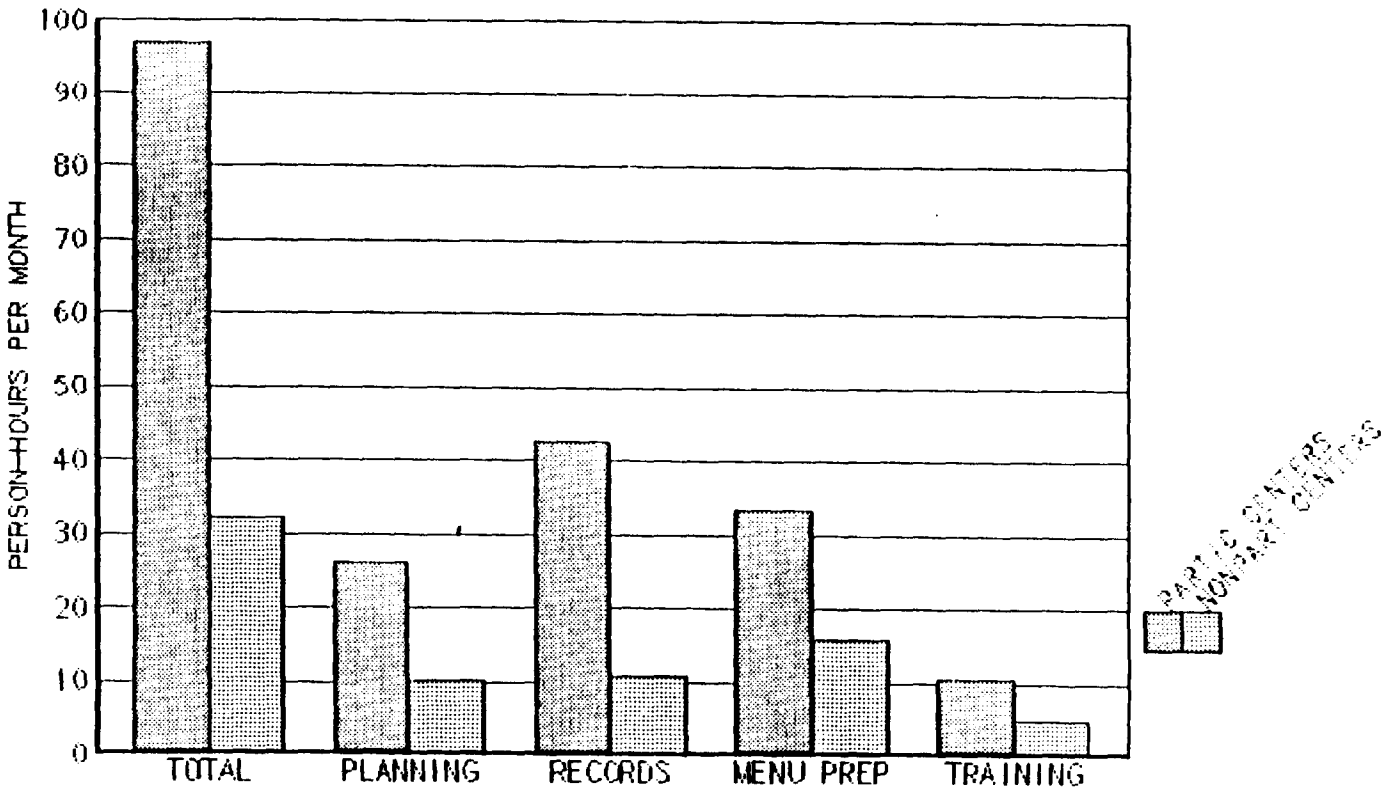
The effect of these requirements on participants' administrative costs is clearly visible in the allocation of staff time across four broad food program administrative tasks: (1) food program planning and management; (2) nutrition training; (3) menu preparation and food purchasing, (4) and recordkeeping, budgeting and reimbursement procedures. Figure 3.2 presents the level of effort devoted to these tasks in participating and nonparticipating programs. Participants devote an average of 99 person-hours per month

---

[17] Program requirements are detailed in the Federal Register, January 22, 1980, p. 4983-4989.

Figure 3.2

Level of Effort Devoted to Food Program Administrative Tasks in Center-Based Programs



to food program administration compared to an average of 32 person-hours per month for nonparticipants. Participants devote four times as much effort to the recordkeeping tasks as do nonparticipants, an average of 44 person-hours of staff time per center monthly compared to an average of only 10 person-hours per month for nonparticipants. Although data are not available at the subtask level, it is not unreasonable to assume that a large part of the difference in the level of effort devoted to these recordkeeping tasks is attributable to the compilation of meal counts and attendance records and the completion of monthly reimbursement forms for the CCFP in participating programs. Similarly, participants devote an average of 27 person-hours monthly per center to food program planning and management compared to only 11 person-hours for nonparticipants. Part of this difference is no doubt due to the monitoring, supervision and coordination tasks associated with the CCFP. Participants devote more staff time to recordkeeping and reimbursement-related tasks than nonparticipants devote to all food program administrative tasks combined.

There is, to be sure, a substantial amount of variation in food program administration within the participating programs that is clearly visible in the ranges in administrative cost per center. Administrative costs ranged from under $200 monthly per center to over $2,000 monthly per center among participating programs. Among nonparticipants there was far less variation. Over 60 percent of nonparticipants spent $200 monthly or less per center on food program administration, while another 30 percent spent between $201 and $400 monthly per center (see Figure 3.3).

Figure 3.3

Distribution of Center-Based Programs by Monthly Food Program Administrative Cost per Center

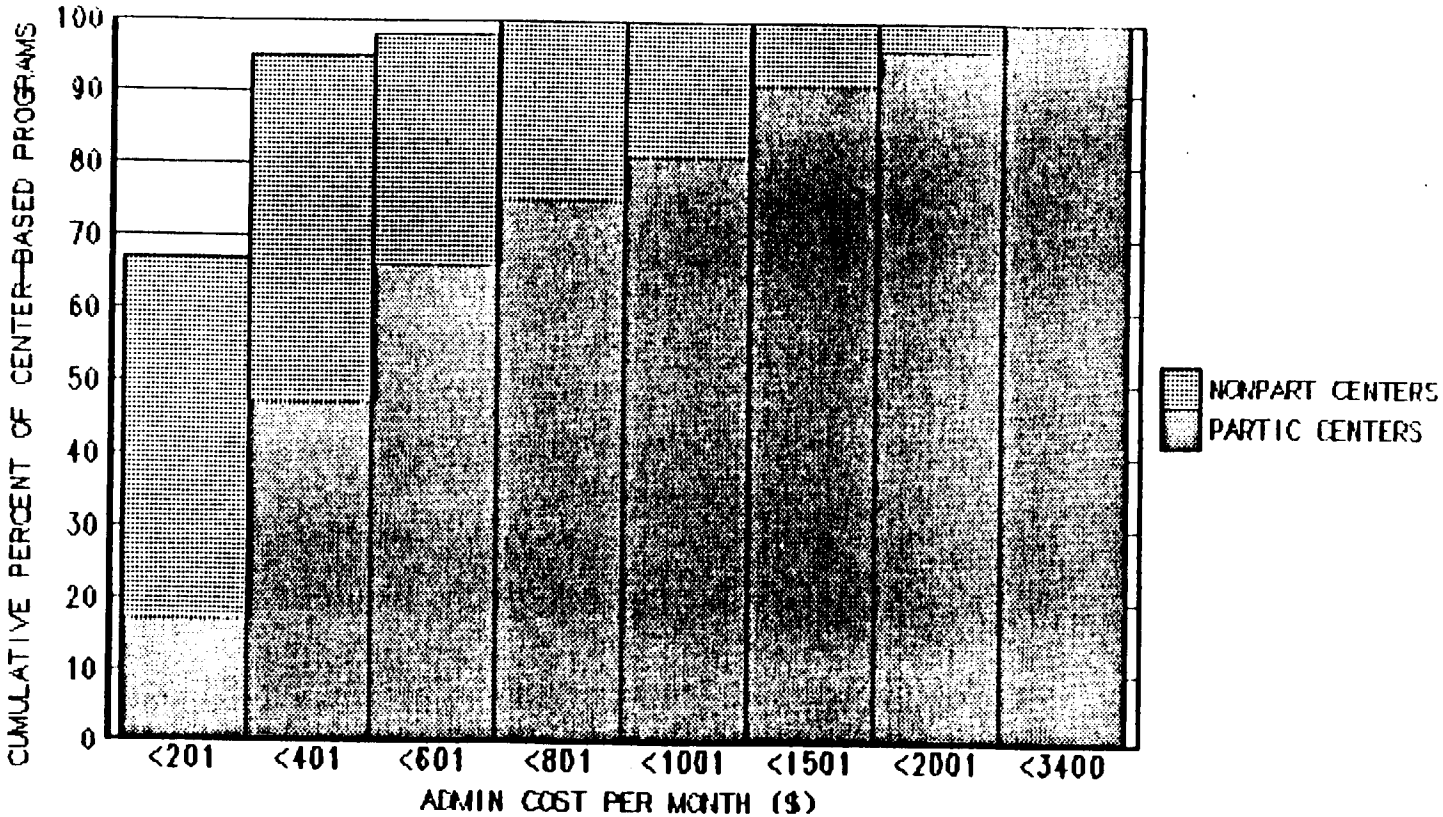


Figure 3.4A examines the level of effort devoted to various food program administrative tasks in relation to administrative costs (Figure 3.4B examines the total level of effort devoted to food program administration). As administrative costs increase, programs allocate more staff time to all administrative functions. The level of effort devoted to recordkeeping and reimbursement procedures increases markedly, as does the staff time devoted to planning and management. It is interesting to note that little time is devoted to nutrition training, except for those participants in the upper range of food program administrative cost; even then, the proportion of staff time allocated to nutrition training is relatively low. Although in absolute terms programs spending over $1,000 per center monthly for food program administration devote an average of 30 person-hours monthly to nutrition training, this constitutes only 12 percent of the total staff time spent on all food program administration tasks.

In comparing participating and nonparticipating programs it is clear from Figure 3.4C that with the exception of the recordkeeping/reimbursement tasks, the low administrative cost participants are quite similar to nonparticipants in the amount of staff time devoted to food program administrative tasks. The difference in the amount of staff time spent on recordkeeping/reimbursement tasks most probably reflects the inherent staff time required by participants to complete the subtasks associated with the CCFP reimbursement process--compilation of meal counts and filling out claims for reimbursement.

Figure 3.4A

Level of Effort Devoted to Food Program Administrative Tasks in Participating Center-Based Programs by Range of Monthly Administrative Cost

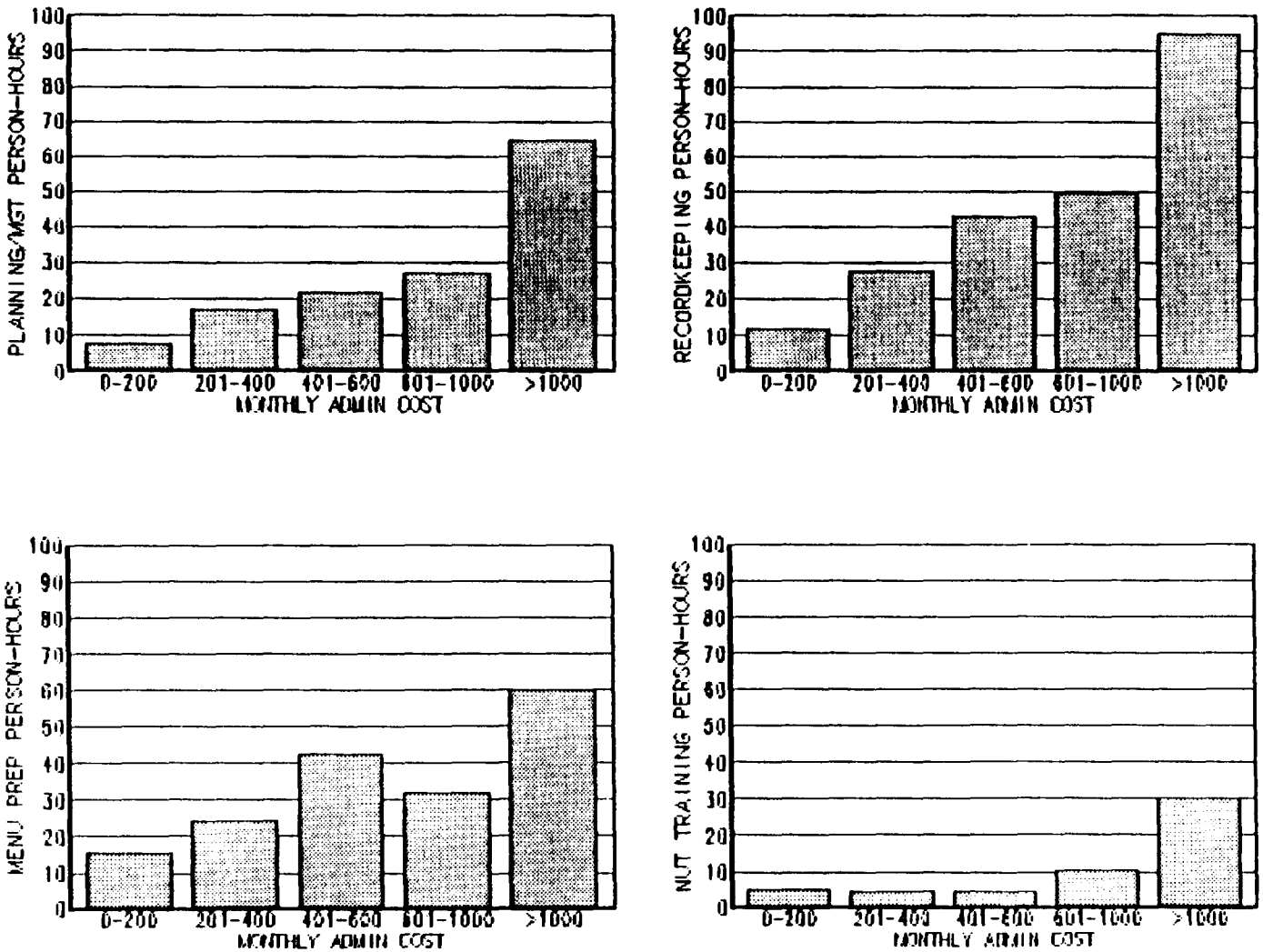


Figure 3.4B

Level of Effort Devoted to Food Program Administration in Participating Center-Based Programs, by Range of Monthly Administrative Cost

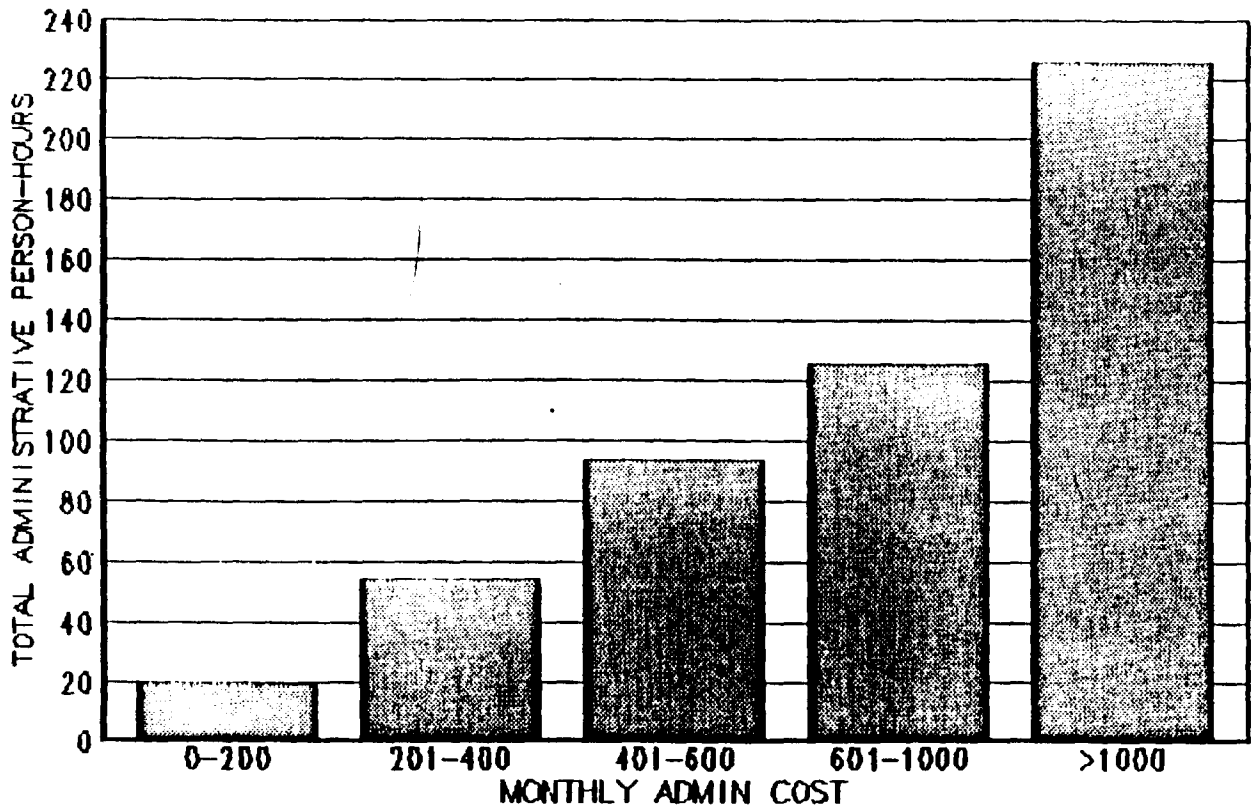
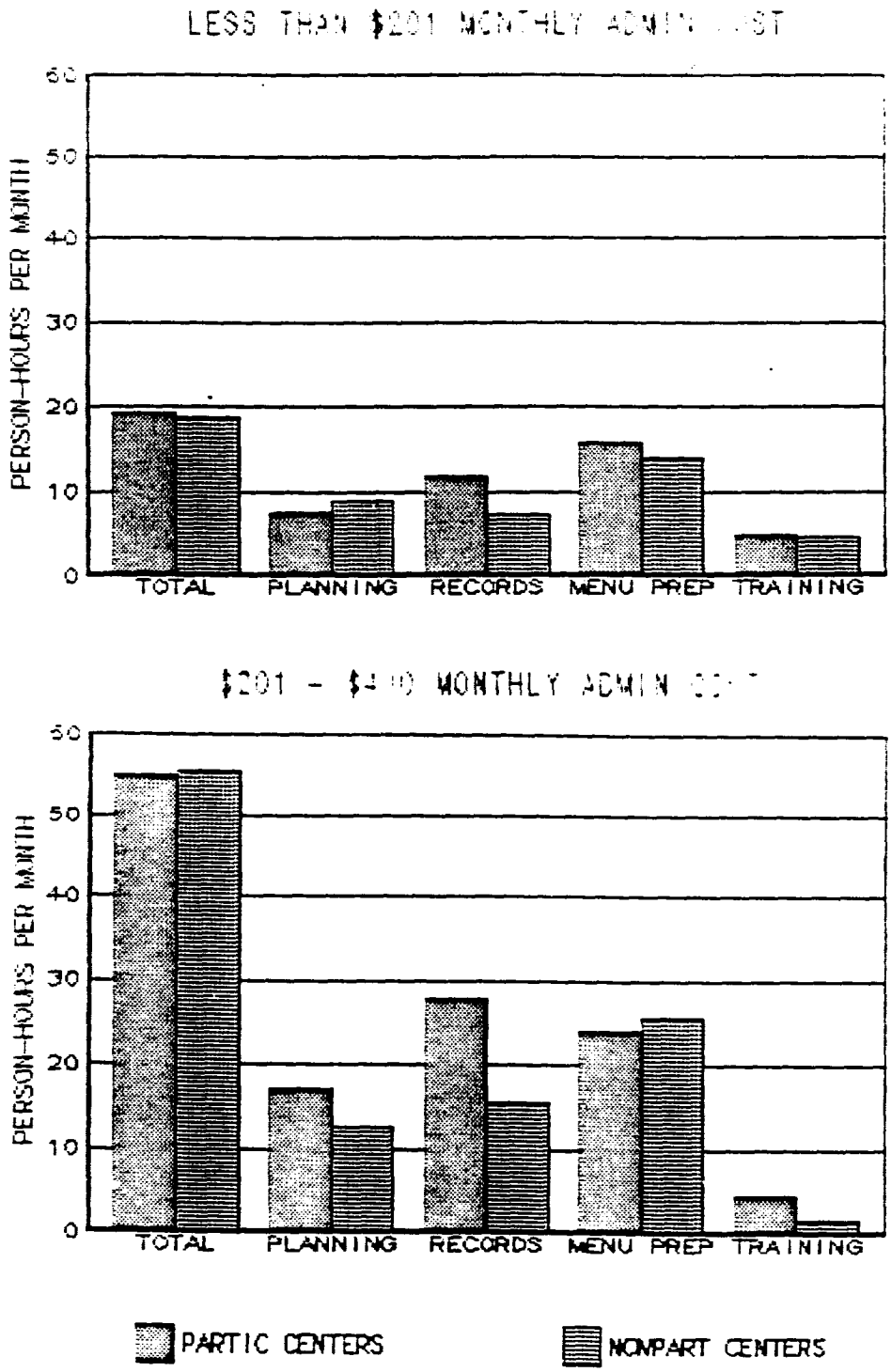


Figure 3.4C

Level of Effort Devoted to Food Program Administrative Tasks in Center-Based Programs by Participation Status and Range of Monthly Cost



Differences Across Sponsor Types for Participating Programs

As indicated above, there is a substantial amount of diversity in the division of responsibility for food program administration between sponsor and center. For ICCCs the center and sponsor are synonomous. However, among SCCCs the "shell sponsors" are sponsors only in a legal sense. Operationally, the shells function as ICCCs and as a consequence, the legal sponsor assumes none of the administrative burden or cost. Among functional sponsors, the share of food program administrative costs borne by the sponsor increases along with the sponsor's responsibilities for administrative tasks. On average, functional sponsors assume 25 percent of the cost of food program administration. The low-functional sponsors do little besides basic record-keeping, and on average these sponsors account for only 5 percent of the total cost of administration. By contrast, the high-functional sponsors account an average of 39 percent of the cost of food program administration. Perhaps most interesting is the fact that even among the high-functional sponsors it is the center rather than the sponsor that incurs most of the cost of food program administration (Table 3.2).

In comparing the total food program administrative cost per center across sponsor types there is some evidence of economies of scale. Sponsor-level costs are prorated across all of the centers sponsored. As the number of centers sponsored increases, the sponsor's cost per center decreases. The high-functional sponsors spend substantially more to administer the food program than either the low or medium functional sponsors. However, because the high-functional sponsors sponsor far more centers than the other sponsor types, the sponsor's administrative cost per center

is actually lower than that of the medium-functional sponsors[18] (Table 3.2). As the sponsor assumes greater administrative responsibility for the program, the costs incurred at the center level decrease. At the center level, centers sponsored by the high-functional sponsors spend considerably less than centers sponsored by the medium-functional sponsors ($329 vs. $419 per month). The total food program administrative cost per center (the sum of the sponsor's cost per center and the cost incurred by the center) is therefore lower because:

- for centers, the sponsor does more; and
- for sponsors, there are more centers to spread costs over (i.e., there are economies of scale at the sponsor level).

The economies of scale are quite visible in the record-keeping/reimbursement and planning/management tasks. These tasks are, for the most part, performed by the sponsor in the high functional sponsor programs. Figure 3.5 shows the total amount of staff time per center devoted to administration by the program (i.e., sponsor plus center) by type of sponsor. The amount of time per center devoted to record-keeping/reimbursement and planning/management is considerably lower for the high-functional sponsors than for the low- and medium-functional sponsors.

It should be noted that while the concept of functional sponsorship is useful in explaining some of the variation in administrative cost among participating center-based programs, its utility as a management tool by FNS is somewhat limited. The CCFP regulations require center sponsors to perform certain administrative tasks. Clearly the shell sponsors and many of the low functional sponsors

---

[18] The low-functional sponsors do little to administer the program and incur total costs of only $14 per month. The low-functional sponsors are in fact little more than shell sponsors.

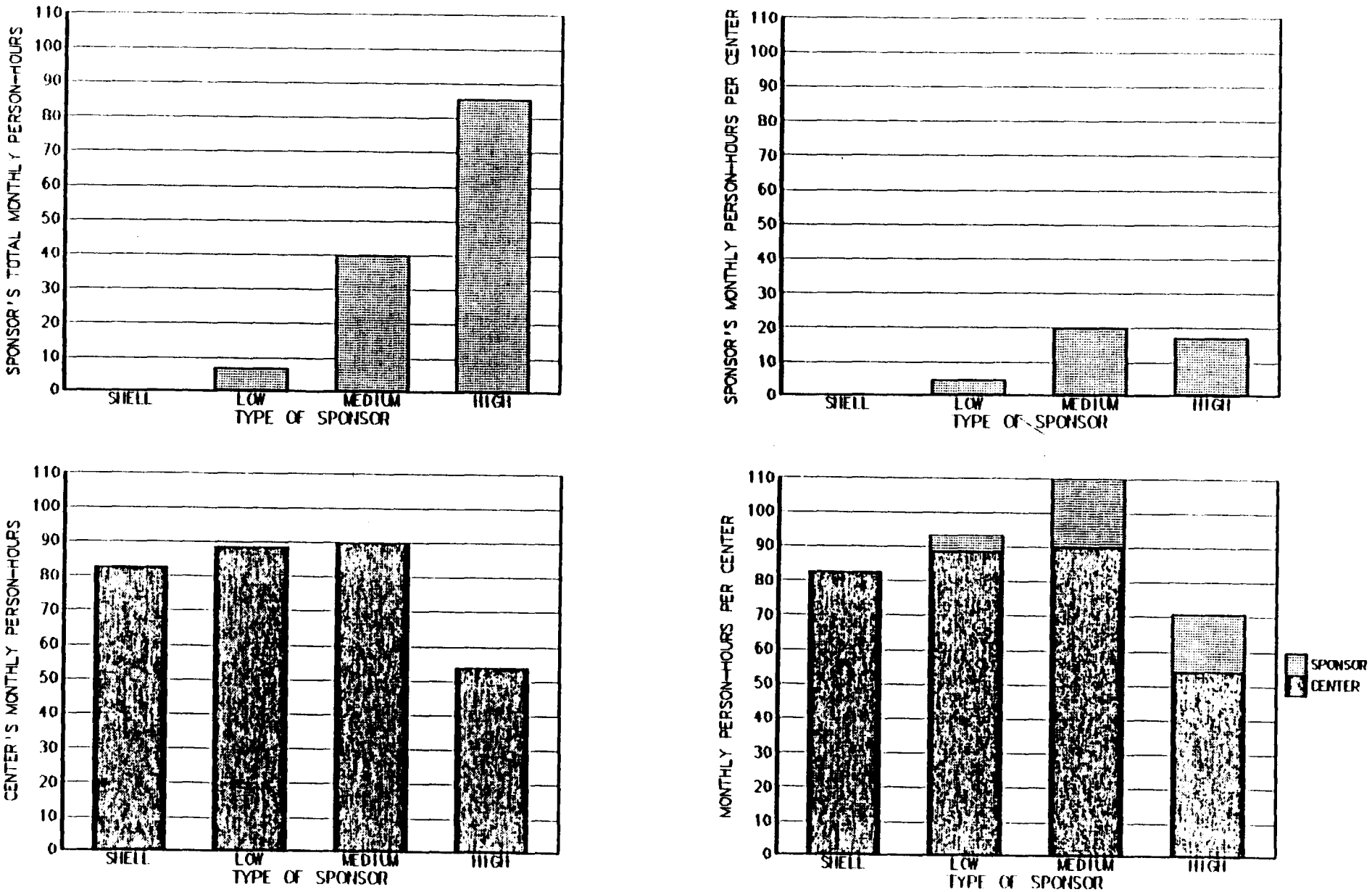
Table 3.2

COMPONENTS OF FOOD PROGRAM COSTS FOR PARTICIPATING CENTER-BASED PROGRAMS BY TYPE OF SPONSOR

Cost Component	Type of Sponsor				
			Functional Sponsors		
	ICCC	Shell	Low	Medium	High
Sponsor's Monthly Total Food Program Administrative Cost	n.a.	0	$25	$479	$739
Number of Centers Sponsored	1.0	1.3	1.3	2.2	4.1
Sponsor's Monthly Food Program Administrative Cost Per Center	n.a.	0	$ 18	$ 186	$ 145
Center's Monthly Food Program Administrative Cost	$ 520	$ 354	$ 338	$ 419	$ 329
Total Monthly Food Program Administrative Cost Per Center	$ 520	$354	$ 356	$ 605	$ 474
Sponsor's Share of Total Administrative Cost Per Center	n.a.	0.0%	4.5%	31.2%	39%
	N=27	N=10	N=18	N=28	N=15

Figure 3.5

Level of Effort Devoted to Food Program Administration in Participating Center-Based Programs by Type of Sponsor



are not even performing the required tasks. However, the extent to which a sponsor is in compliance with the regulations was not examined in this study due to the lack of specificity in the regulations as to what shall be taken as evidence of compliance.

Administrative Cost Per LEQ

Under existing CCFP regulations the reimbursement ceiling for center-based programs is determined by the number and type of meals and supplements served and the income distribution of children served.[19] Inasmuch as programs are reimbursed on a per-meal basis it is necessary to examine administrative costs on a per-meal basis, so that total food program costs per meal can be examined in the context of the existing reimbursement structure.

Because the number of children and meals served in participating centers is greater than in nonparticipating centers, the differential in administrative cost per LEQ is somewhat less than the differential in administrative cost per center. Participants spent an average of $0.34 per LEQ to administer the food program while nonparticipants spent an average of only $0.15 per LEQ. (Recall that on a per-center basis the average monthly costs for administration were $636 and $184 respectively.) Figure 3.6 shows that while nearly one-third of participants did not spend more than $0.15 per LEQ for food program administration, 5 percent spent more than $1.00 per LEQ for administration. Among nonparticipants, nearly 70 percent had food program administrative costs that did not exceed $0.15 per LEQ, and in no case did such costs exceed $1.00 per LEQ.

[19] Historically, programs have been reimbursed for their actual cost up to the maximum set by the reimbursement formula. The Omnibus Reconciliation Act of 1981 (P.L. 97-35) deleted all reference to cost and cost-based accountability for the CCFP. Effective January 1, 1982 programs will be reimbursed by an amount determined by the formula irrespective of their actual costs.

Figure 3.6

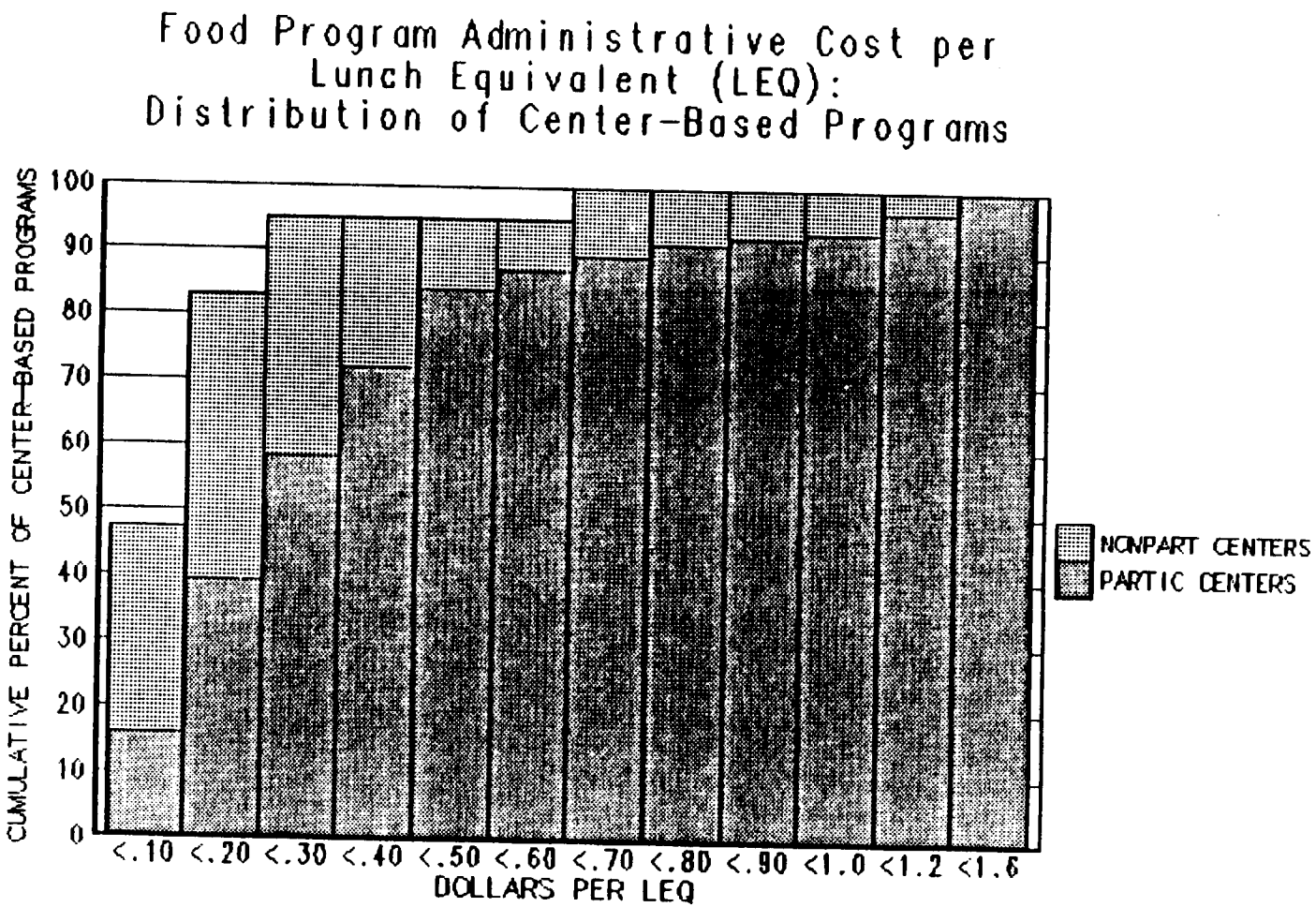

Food Program Administrative Cost per
Lunch Equivalent (LEQ):
Distribution of Center-Based Programs
CUMULATIVE PERCENT OF CENTER-BASED PROGRAMS
100
90
80
70
60
50
40
30
20
10
0
<.10 <.20 <.30 <.40 <.50 <.60 <.70 <.80 <.90 <1.0 <1.2 <1.6
DOLLARS PER LEQ
NONPART CENTERS
PARTIC CENTERS

Table of Contents

The level of effort devoted to food program administrative tasks is shown on a per-meal basis in Figure 3.7. While nonparticipating programs devote considerably less staff time to food program administration than do participating programs, it is clear from Figure 3.7 that their allocation of staff time across administrative tasks is quite similar to that of those participating programs at the low end of the distribution (i.e., those participants that spent $0.15 or less per LEQ on food program administration. It is also clear from Figure 3.7 that on a per-meal basis, as on a per-center basis, relatively little staff time is devoted to either food program planning and management or nutrition training, except for those participants that devote considerable staff resources to food program administration.

3.2 Food Service Delivery Costs

Food service delivery accounted for the bulk of food program costs in both participating and nonparticipating programs. Food service delivery--the actual provision of meals and snacks to children--is performed almost exclusively at the center level. As in the case of administrative costs, participating programs spent significantly more for food service delivery than nonparticipating programs. On average, participants spent $0.60 more per LEQ than nonparticipants ($1.57 vs. $0.97). Both participants and nonparticipants exhibited a wide range in food service cost per meal (see Figure 3.8), yet the distributions were quite different. Among participants 27 percent of the programs had food service costs of less than $1.00 per LEQ, and 35 percent had costs in excess of $1.60 per LEQ. By contrast, 55 percent of nonparticipants had food service costs of less than $1.00 per LEQ, and only 5 percent had costs greater than $1.60 per LEQ.

Figure 3.7A

Level of Effort Devoted to Food Program Administration by Administrative Cost per Lunch Equivalent (LEQ) for Center-Based Programs

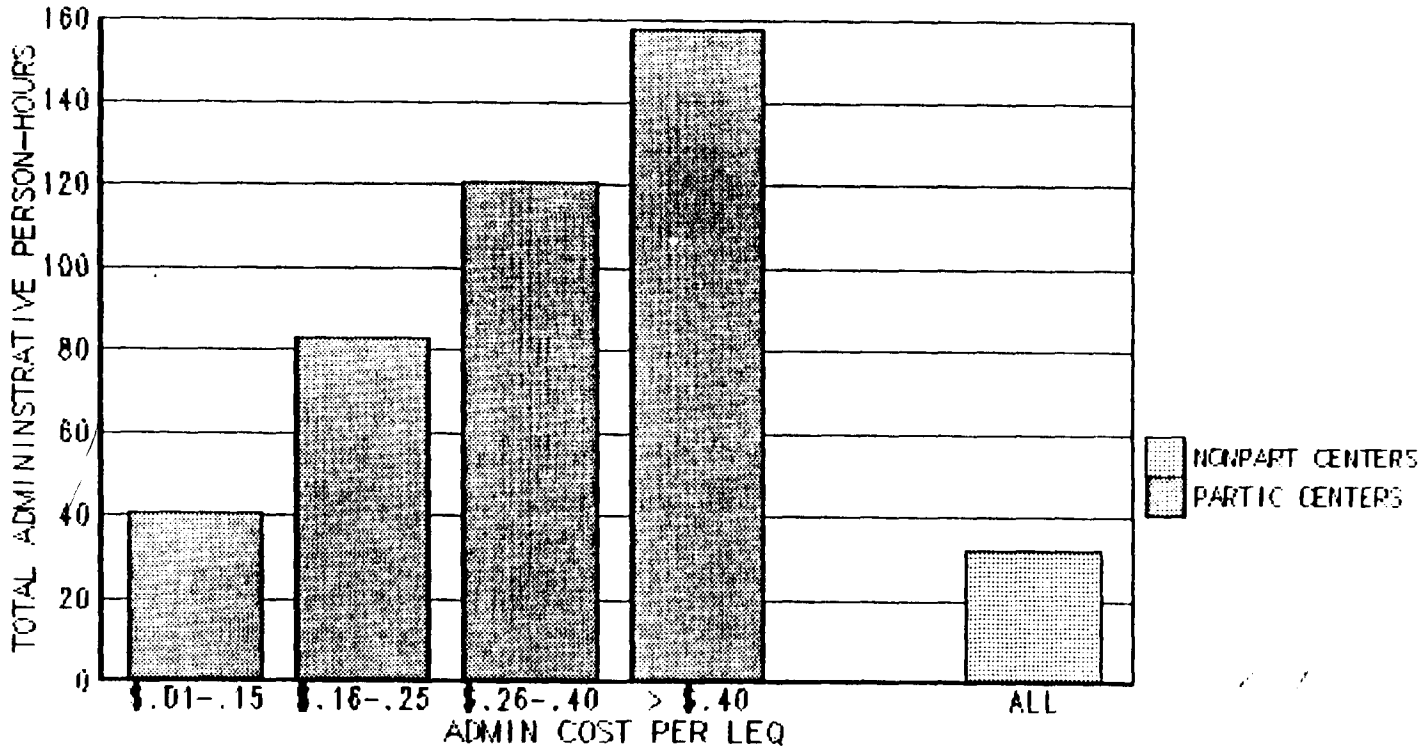


Figure 3.7B

Level of Effort Devoted to Food Program Administrative Tasks by Administrative Cost per Lunch Equivalent (LEQ) for Center-Based Programs

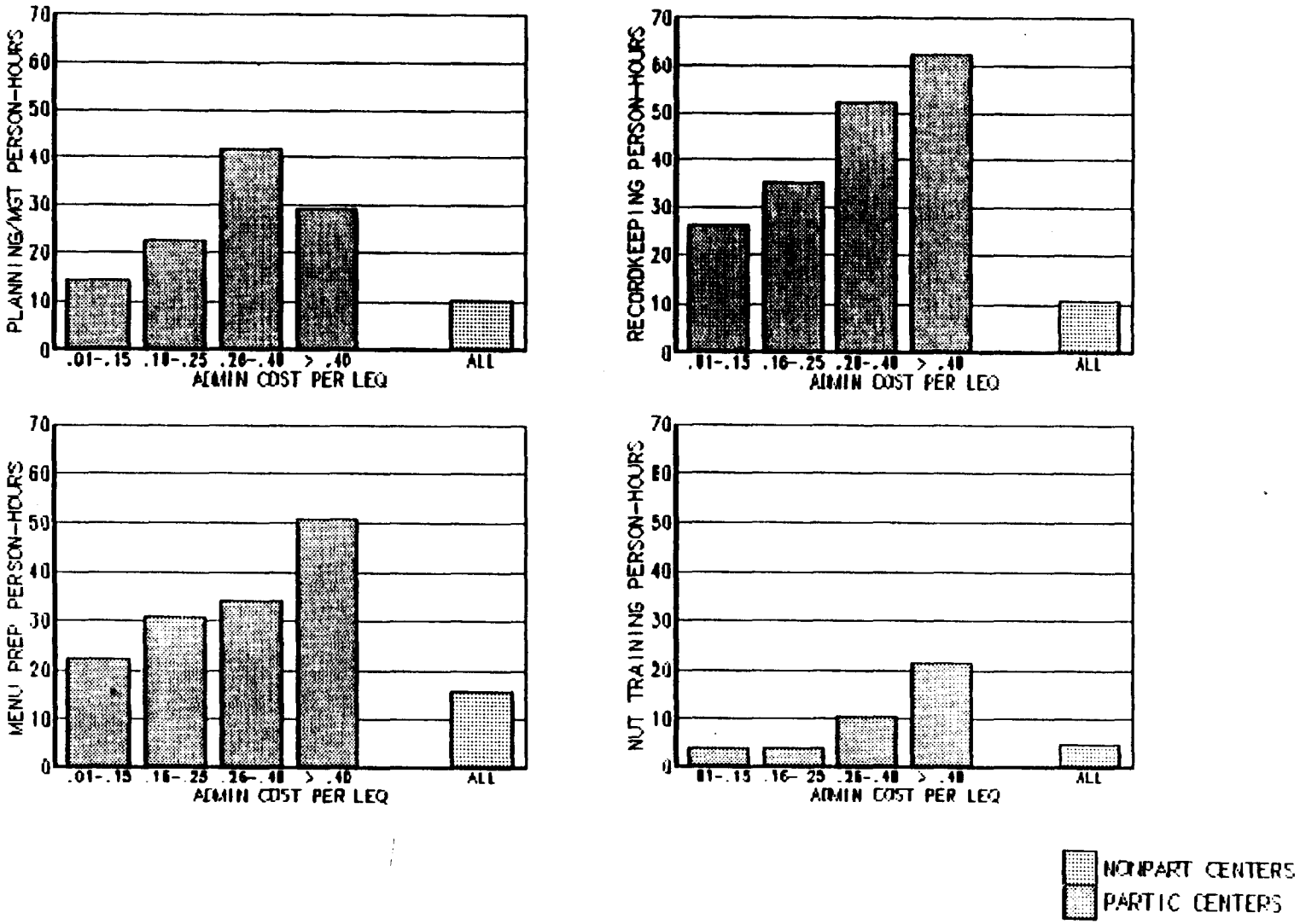
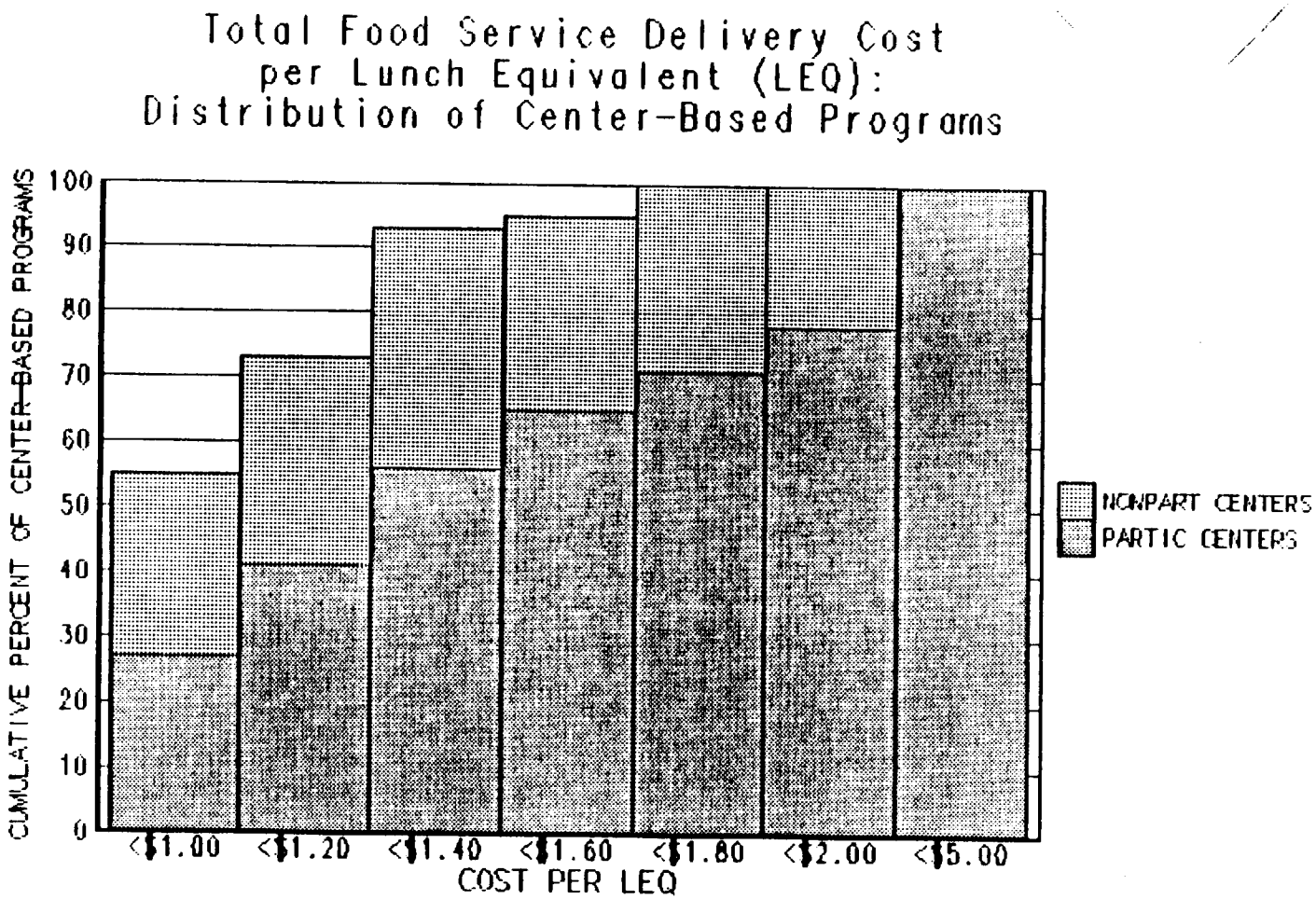


Figure 3.8


Total Food Service Delivery Cost
per Lunch Equivalent (LEQ):
Distribution of Center-Based Programs
CUMULATIVE PERCENT OF CENTER-BASED PROGRAMS
100
90
80
70
60
50
40
30
20
10
0
<$1.00
<$1.20
<$1.40
<$1.60
<$1.80
<$2.00
<$5.00
COST PER LEQ
NONPART CENTERS
PARTIC CENTERS

Expenditures for food account for a considerably smaller percentage of food service costs than one might expect. On average, across all program types, food accounts for about one-third of the total cost of food service. Food costs account for a relatively small part of the difference in food service costs per meal. Participants spent an average of $0.43 per LEQ compared to $0.30 for nonparticipants. However, proportionally four times as many participants spent more than $0.50 per LEQ than nonparticipants (27 vs. 7 percent; see Figure 3.9).

Fully half of the difference in food service delivery costs is attributable to differences in food service labor costs (i.e., cooking, serving and cleaning up). Labor costs averaged $0.82 per LEQ for participants as compared with $0.49 for nonparticipants. Participants devoted an average of 13 minutes of staff time per LEQ to food service delivery. By contrast, nonparticipants devoted only 9 minutes to food service tasks. Most of this difference is attributable to time spent preparing meals and snacks. Meal preparation in participating programs took an average of 10 minutes per LEQ, whereas nonparticipating programs averaged 7 minutes per LEQ.

There is evidence of economies of scale in meal preparation. Centers which serve relatively few children and meals devote markedly more time per meal to meal preparation. This is true of both participating and nonparticipating programs, although the overall level of effort is higher for participating programs. Figure 3.10 shows that there is a substantial drop in the average time per meal spent preparing meals and snacks after 200 LEQs per week (roughly equivalent to serving 16-20 FTE children). For participating programs, staff time per LEQ declines from 15 minutes for centers serving not more than 200 LEQs

Figure 3.9

Food Cost per Lunch Equivalent (LEQ): Distribution of Participating and Nonparticipating Center-Based Programs

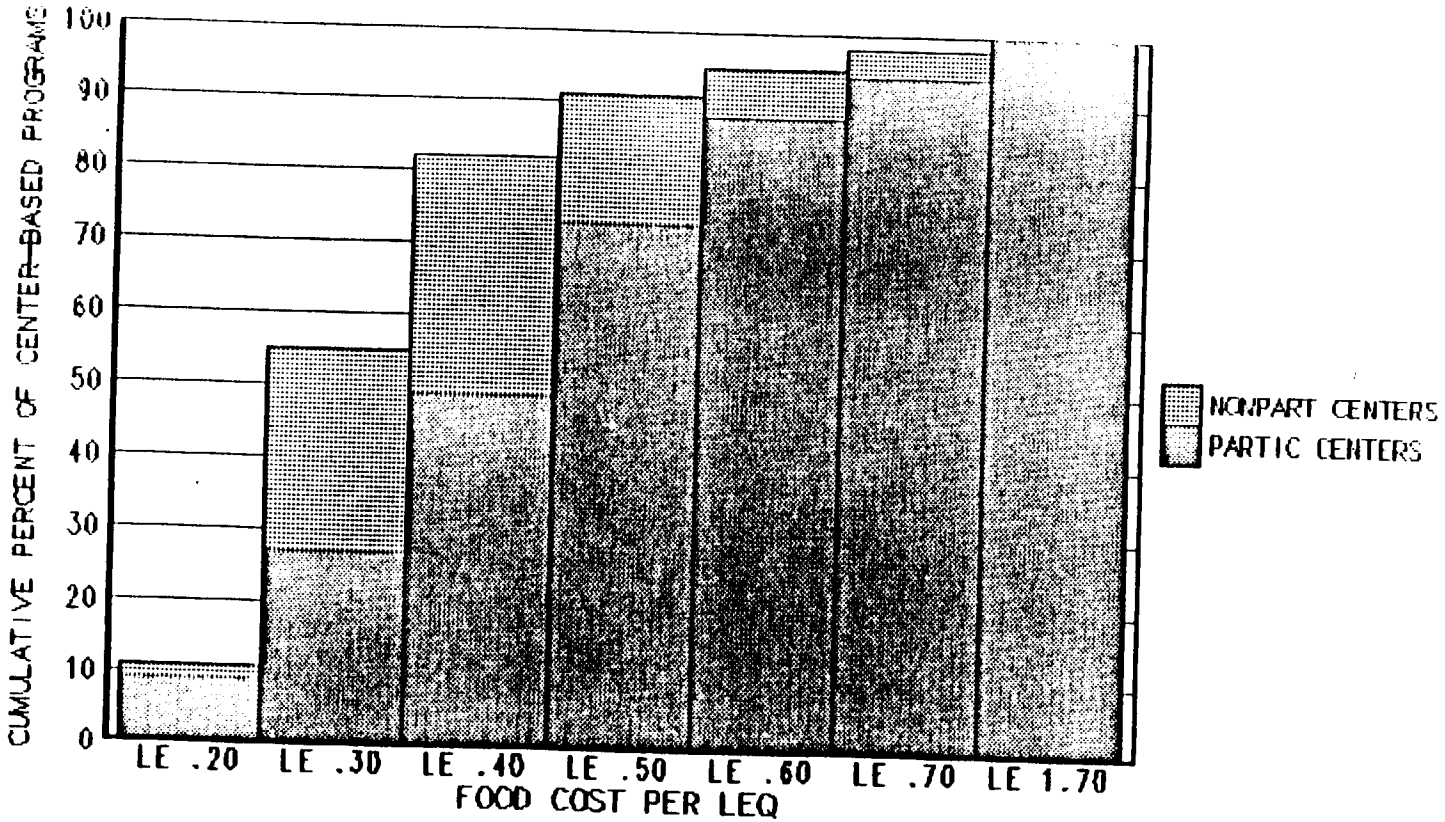
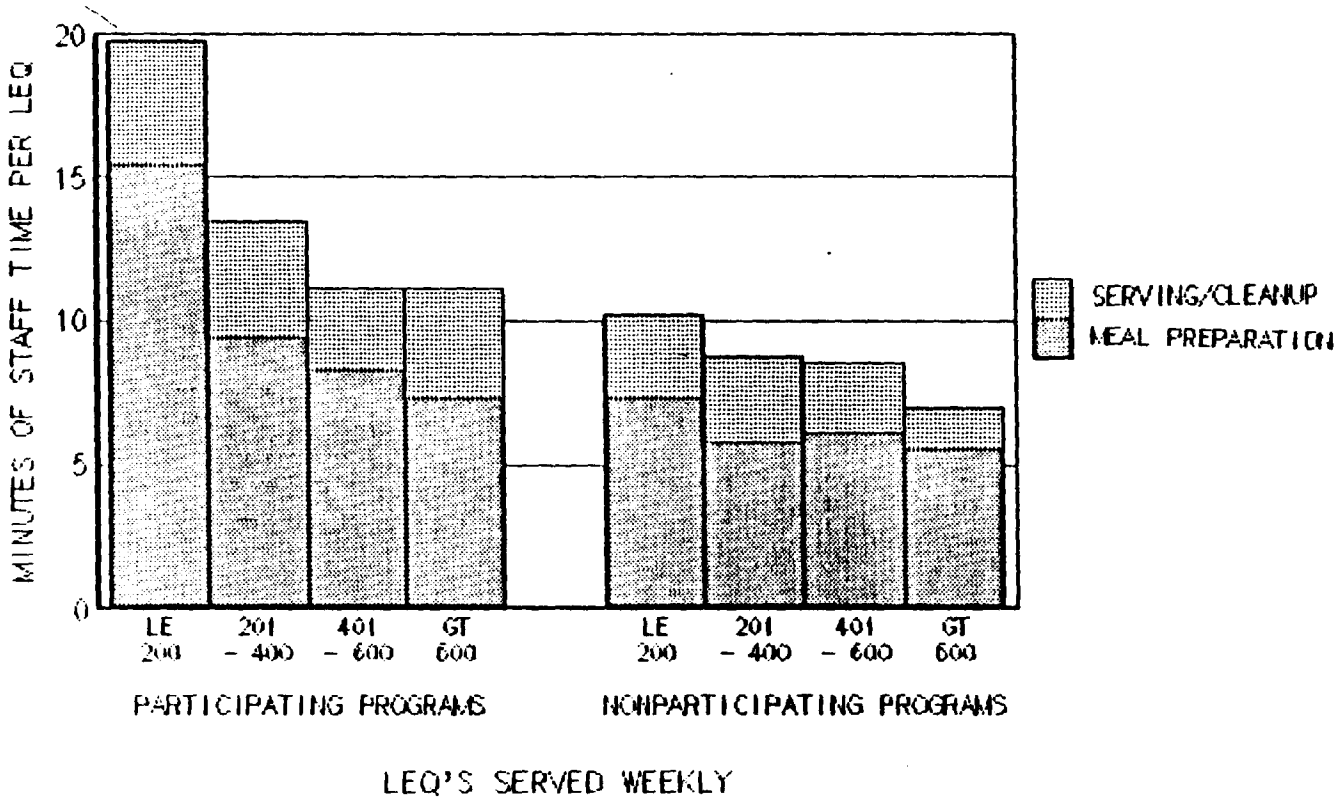


Figure 3.10

Level of Effort devoted to Food Service Tasks in Center-Based Programs by the Number of Lunch Equivalents (LEQ's) Served Weekly



per week to 9 minutes for centers serving between 200 and 400 per week. The decline in staff time is more gradual after this threshold. Similarly, for nonparticipating centers average staff time per LEQ spent on meal preparation drops from 7 minutes to 6 minutes at 200 LEQs per week.

3.3 Food Program Costs and CCFP Reimbursements

As indicated above, reimbursements to center-based programs are determined by the number and type of meals served to children in each of three income eligibility categories. The CCFP reimbursement rates are considerably less than food program costs (Table 3.3). On average, the CCFP reimbursed participants for only 36 percent of their total food program costs. Reimbursements were sufficient to cover costs for only 2 percent of participating programs (Figure 3.11). More than 80 percent of participants had less than one-half of their costs reimbursed.

Part of the gap between reimbursements and food program costs reflects the income of the children served; the reduced-price and paid rates are considerably lower than the free rate. One would therefore expect reimbursements to be less than food program costs in programs serving middle-income children. Reimbursing all meals at the free rate would significantly reduce the gap between reimbursements and costs. On average, participants would have been reimbursed for 68 percent of their costs if all meals were reimbursed at the free rate.[20] Under this assumption 16 percent of participating programs would have the cost of their food program covered by CCFP reimbursements and

---

[20]The difference between the actual percentage of costs reimbursed (36%) and the percentage of costs that would be covered at the free rate (68%) is significant at better than the .001 level of confidence (T-statistic = 10.5).

Table 3.3

AVERAGE COST PER MEAL AND CCFP REIMBURSEMENT RATES: JANUARY-JUNE 1980

Type of Meal	Average Cost[a]	Reimbursement Rate[b]: January 1980		
		Free	Reduced	Paid
Breakfast	$0.86	$0.4925	$0.4050	$0.1400
Lunch	$1.91	$0.9725	$0.8725	$0.1775
Snack	$0.69	$0.2175	$0.1475	$0.0725

[a]The average costs of breakfast and snacks are based on the average cost of a lunch equivalent. The weights for breakfast and snacks are 0.45 and 0.36 respectively.

[b]In January 1980 the income eligibility categories were:

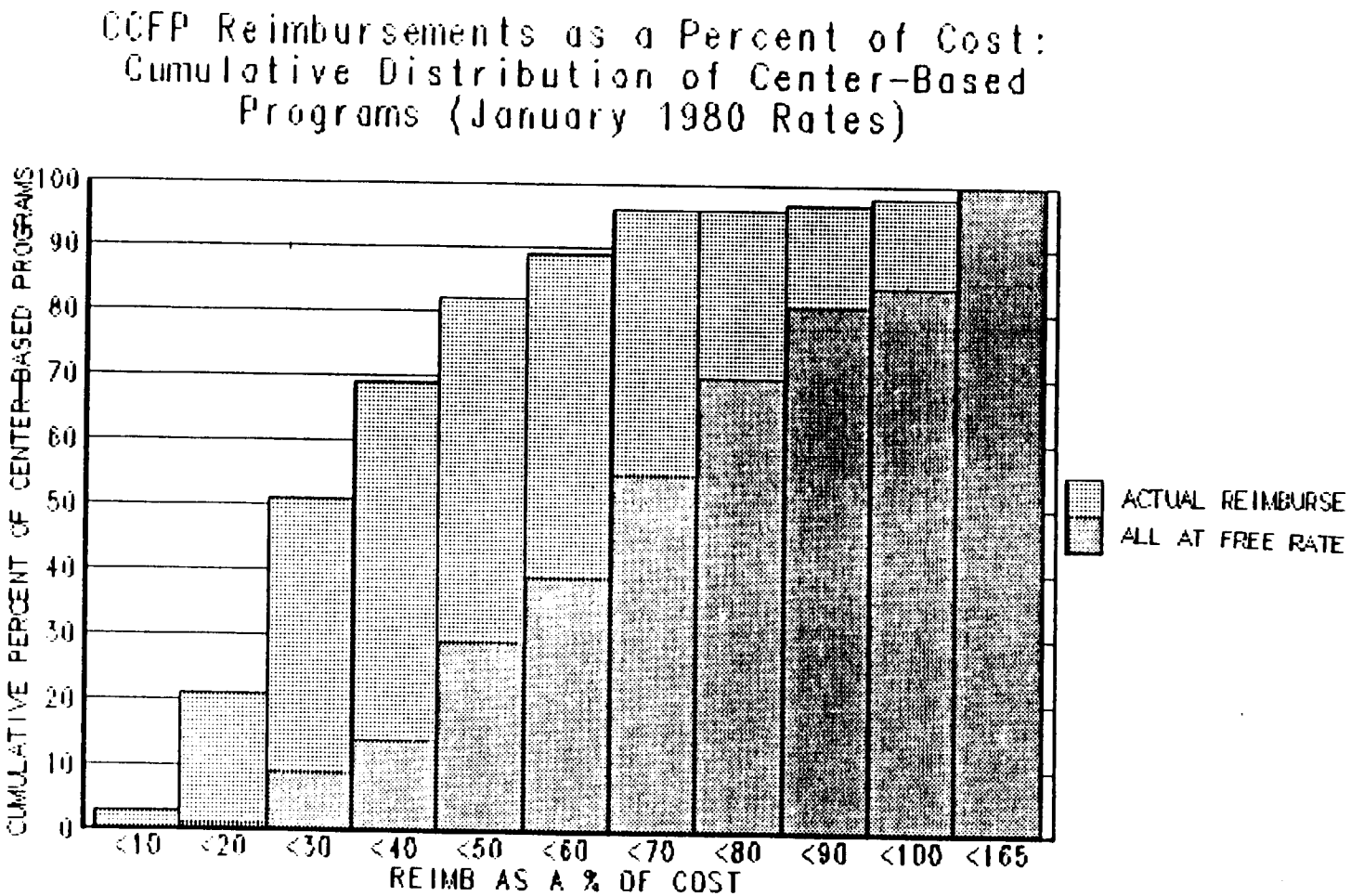
free: income not more than 125 percent of federally defined poverty level;

reduced-price: income between 125 and 195 percent of the poverty level; and

paid. income greater than 195 percent of poverty level.

P.L. 97-35 changed the break-points for free and reduced-price meals. Effective January 1982, the break-points are 130 percent and 185 percent of the poverty level.

Figure 3.11


CCFP Reimbursements as a Percent of Cost:
Cumulative Distribution of Center-Based
Programs (January 1980 Rates)
CUMULATIVE PERCENT OF CENTER-BASED PROGRAMS
100
90
80
70
60
50
40
30
20
10
0
<10
<20
<30
<40
<50
<60
<70
<80
<90
<100
<165
REIMB AS A % OF COST
ACTUAL REIMBURSE
ALL AT FREE RATE

one-half would have had at least two-thirds of their costs covered. By contrast, only 5 percent of the programs had actual reimbursements sufficient to cover at least two-thirds of their costs (Figure 3.11).

Historically, reimbursement for centers has been viewed as a subsidy rather than a total payment for costs incurred. Fractional reimbursement (i.e., the establishment of three distinct income eligibility categories) is designed to reduce the subsidy for meals for middle- and upper-income children.[21]

From a policy perspective there are three factors to consider in assessing the relative adequacy of reimbursements:

- program costs (reimbursements should not exceed the cost of producing and serving meals);
- the extent to which the government should subsidize the cost of providing nutritious meals to low-income children; and
- the extent to which the level of subsidy should be reduced (if at all) as the income of children increases.

The above analyses indicate that the existing rate for children in the free income eligibility category is covering a substantial proportion of the cost of providing nutritious meals to children in participating day care centers. In considering potential increases in the "free rates," it is important to recognize that cost is no longer

---

[21] Clearly the cost of producing and serving a meal is independent of the income of the children served.

a ceiling for reimbursement. P.L. 97-35, enacted in August 1981, eliminated all reference to cost and cost-based accountability in the CCFP. Raising the "free rates" would result in many programs (which primarily serve low-income children) being reimbursed in excess of costs incurred. Figure 3.11 shows that the free rate exceeded costs for 16 percent of participating programs. Increasing the free rate would increase the proportion of such centers. In the absence of a cost ceiling these centers would be eligible to receive excessive reimbursement.

The primary reason for the large gap between actual reimbursements and program costs is fractional reimbursement. Not all children served by participating centers are from low-income families. Reduced-price meals are reimbursed at approximately 82 percent of the free rate, while the paid rate is less than 29 percent of the free rate. As the proportion of children in the middle- and upper-income groups increases, the percent of cost covered decreases. In January 1980, only 67 percent of the meals served in participating centers were reimbursed at the free rate; 14 percent were reimbursed at the reduced-price rate and 19 percent at the paid rate.[22]

3.4 Wave II Cost Estimates

The analyses presented above were based on costs as they existed in January 1980, prior to the implementation in May 1980 of the regulatory changes stemming from the 1978 Child Nutrition Amendments. These amendments established tiering as an alternative method of computing the reimbursement ceiling for participating day care centers, but did not change program requirements for such centers. Wave II was conducted following the implementation of the regulatory

---

[22] Program Reporting Section CCFP Report (USDA, August 1980).

changes and provides comparative cost data for 37 of the 99 Wave I center-based programs.[23]

Table 3.4 presents the components of food program costs for the 37 Wave II centers. In order to isolate the cost changes which might have resulted from a change in program administration or operations, the Wave I data were adjusted to reflect differences in prices and wage rates between Waves I and II.[24] In terms of total food program costs per center there are no significant differences in either administrative costs or food service delivery costs, although there was a small increase in food service delivery labor cost between Waves I and II ($1,943 vs. $2,157 per month; $p<.10$).

Food service delivery costs per LEQ, however, were significantly higher in Wave II than in Wave I. This is due almost entirely to a decrease in the number of LEQs served per month in participating centers (2,563 vs. 2,281 LEQs per month). Day care centers are able to adjust the amount of food purchased to reflect changes in enrollment and/or a change in the pattern of meals served.[25] Thus there are no significant differences in food cost per LEQ despite a significant decrease in LEQs. Labor costs, however, are

---

[23]The Wave II sample included 40 Wave I centers; however, reliable cost data were obtained for only 37 of these programs.

[24]The technique used to make these adjustments is presented in the Technical Appendix.

[25]Slightly more than one-half of the Wave II sample (21 of 37) showed a decrease in the number of LEQs. There was no consistent pattern to the reasons for these decreases. In some cases there was a change in the number of children served or the composition of enrollment between full- and part-time children. In other cases there was a change in the pattern of meals served to all children, while in other cases there was a change in the pattern of meals served to some children.

Table of Contents

Table 3.4

COMPARISON OF WAVE I AND WAVE II FOOD PROGRAM COSTS

Cost Component	Wave I		Wave II	Test of Significance Between Adjusted Wave I and Wave II	
	Unadjusted	Adjusted		t-Statistic	Sig. Level
Monthly Food Program Cost Per Center	$ 4,125	$ 4,620	$4,788	0.78	n.s.
Monthly Food Program Administrative Cost Per Center	$ 553	$ 636	$ 591	-0.46	n.s.
Monthly Food Service Delivery Cost Per Center	$ 3,555	$ 3,984	$4,198	1.16	n.s.
Food	$ 1,123	$ 1,300	$1,196	-0.99	n.s.
Labor	$ 1,713	$ 1,943	$2,157	1.79	p <.10
Other	$ 692	$ 741	$ 845	0.96	n.s.
Number Lunch Equivalents Per Center Per Month	2,563	2,563	2,218	-3.40	p <.05
FTE Children Per Center	68.2	68.2	66.8	-0.67	n.s.
Food Program Cost Per Lunch Equivalent	$ 1.71	$ 1.94	$ 2.25	1.83	p <.10
Administrative Cost Per Lunch Equivalent	$ 0.24	$ 0.29	$ 0.31	0.40	n.s.
Food Service Delivery Cost Per Lunch Equivalent	$ 1.52	$ 1.65	$ 1.94	2.01	p <.10.
Food	$ 0.45	$ 0.51	$ 0.54	0.60	n.s.
Labor	$ 0.75	$ 0.83	$ 0.99	1.80	p <.10
Other	$ 0.28	$ 0.31	$ 0.41	1.97	p <.10.
Administrative Cost as a Percent of Total Food Program Cost	14.1%	14.1%	13.1%	-0.54	n.s.
Sample Size	37	37	37		

more difficult to adjust. This is especially true of the labor needed for food preparation. The services of a cook are needed regardless of the specific number of LEQs served. As the number of LEQs served decreases, the cook's time is spread across fewer meals; hence, the level of effort per LEQ increases. Table 3.5 shows the change in the level of effort per meal. The level of effort for food service delivery increased from 12.4 to 14.8 minutes per LEQ ($p<.10$). There was no change in the level of effort devoted to program administration.

Table 3.5

COMPARISON OF WAVE I AND WAVE II
LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM TASKS

	Minutes per LEQ		Test of Significance	
	Wave I	Wave II	t-Statistic	Sig. Level
Total Food Program	14.9	17.4	1.75	p <.10
Administration	2.4	2.6	0.38	n.s.
Food Service Delivery	12.4	14.8	1.87	p <.10
Sample Size	39	39		

Table of Contents

4.0 FAMILY DAY CARE

The family day care home (FDCH) setting is quite different from that of center-based care. Unlike day care centers where meals are prepared and served in an institutional setting to large numbers of children (the average day care center participating in the CCFP serves 63 FTE children), the family day care provider serves a small number of children in her own home. The typical FDC provider participating in the CCFP serves an average of five FTE children. Food purchased for children in her care is purchased along with food for the provider's own family in local markets. This is in marked contrast to the large purchases made by day care centers from institutional suppliers. The FDC provider rarely separates food for children in care from that for her own family and hardly ever keeps records of her purchases of food for children in care. The CCFP regulations now explicitly recognize the "family" nature of FDC and no longer require FDC providers to maintain records of the cost of food. A food cost factor is used for reimbursement purposes rather than the actual cost of food purchased. In order to obtain information on the cost of food in FDCHs, study staff reviewed the providers' recent food purchases and had the providers estimate what was spent for children in care. Despite the lack of cost records, providers were able to recall what was spent for children in care.

4.1 FDCH Umbrella Sponsors

Whereas day care centers may sponsor themselves for participation in the CCFP, FDCHs must be sponsored by a tax-exempt, nonprofit institution. The sponsor assumes all administrative responsibility for the CCFP for FDCHs under its umbrella. The number of FDCHs sponsored ranges from fewer than five to more than 1000. While there are very few sponsors nationwide with over 200 homes, such sponsors account for over one-half of all participating homes.

Table 4.1 presents the size distribution of FDCH sponsors for the study sample and for the CCFP nationwide.[26] Because of the limited number of sponsors included in this study and the importance of large sponsors nationally, the large sponsors were purposefully oversampled.[27] Each case in the study sample was then weighted such that the weighted sample was representative of the CCFP nationwide.[28]

The conceptual model for the umbrella sponsors is the family day care system. Family day care systems were developed to provide an alternative to center-based day care, particularly for infants and toddlers, but also for preschoolers and school-aged children. These systems provide services to caregivers which enhance their caregiving skills. Training sessions, workshops, caregiver evaluations and on-going feedback from systems contribute to the safety and quality of child care in family day care homes. At the time of the study, such systems were expanding at a rapid rate, and virtually all such systems participate in the CCFP.[29]

---

[26]The nationwide data was obtained from a census of state administering agencies and FNS regional offices conducted in June 1981.

[27]See Appendix A for a discussion of the sampling plan.

[28]The weight for sponsors in size class i is.

$$w_i = \left(\frac{N_i}{\sum_i N_i}\right) \Big/ \left(\frac{n_i}{\sum_i n_i}\right)$$

where N_i = number of sponsors nationwide in size class i

n_i = number of sponsors in the sample in size class i

[29]This study set out to identify both participating and nonparticipating FDC sponsors. Nearly every nonprofit organization located that had what it considered to be a sponsoroing relationship with family day care homes was already participating in the CCFP. The only organizations identified that were not already participating were agencies that could be sponsors but were not. These were often resource and referral agencies, or welfare or social service agencies that had no steady and consistent clientele of FDCHs.

Table of Contents

Table 4.1

NATIONAL CENSUS AND STUDY SAMPLE DISTRIBUTIONS OF FDCH SPONSORS BY THE NUMBER OF HOMES SPONSORED

Sponsor Size (Number of Homes)	Nationwide[a]		Study Sample[b]	
	No. of Sponsors	No. of Homes	No. of Sponsors	No. of Homes
1-10	171	864	8	36
11-20	127	1,943	11	176
21-30	90	2,296	4	100
31-40	72	2,476	6	216
41-50	32	1,406	1	42
51-75	54	3,367	3	170
76-100	23	2,001	5	410
101-200	53	7,248	3	437
201-1000	32	12,776	8	3,407
1001+	6	13,511	2	2,520
Total	660	47,888	51	7,514

[a]Based upon a census of state administering agencies and FNS regional offices conducted in June 1981.

[b]Data collected during March 1980. FNS reported 437 sponsors with a total of 17,659 homes during March 1980.

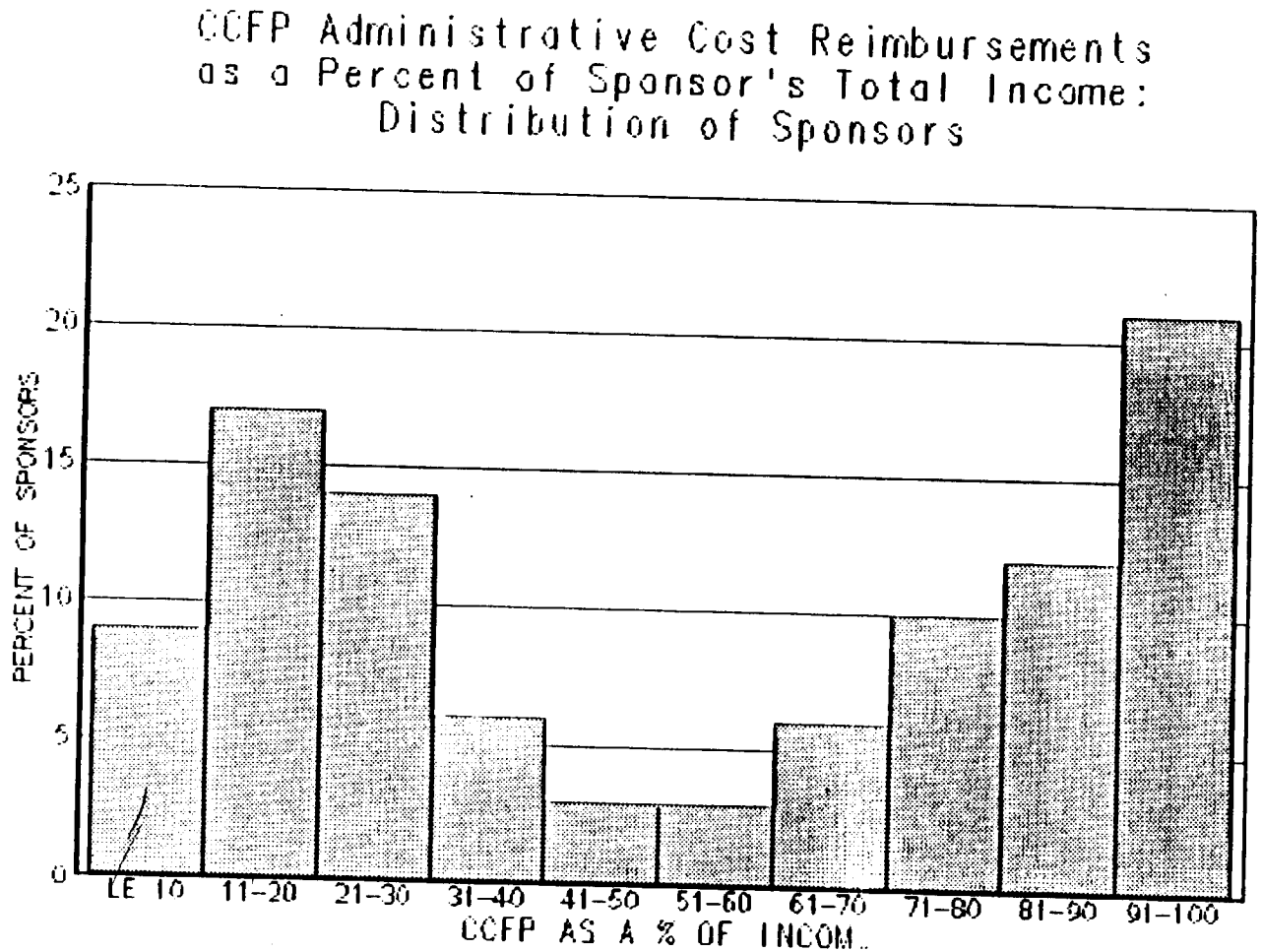
In addition to traditional family day care systems, the CCFP has fostered the creation of a new type of family day care sponsor--sponsors whose sole link to their homes is the CCFP. Nearly one out of five family day care sponsors in the study sample indicated that it had been formed in order to participate in the CCFP. These sponsors are quite different from the traditional systems. For the most part, they do not provide any general day care services; their activities are more limited and focus primarily on functions required of CCFP sponsors. In effect, these sponsors perform a brokerage function--they perform the administrative tasks necessary to enable essentially independent FDCHs to participate in the program.

In some cases CCFP sponsorship has resulted in a change in the focus of pre-existing institutions. The CCFP has become the primary focus for several family day care systems and other social service agencies. While these sponsors were not formed in order to participate in the program, and have not necessarily discontinued their other functions, their income now tends to be derived almost entirely from administrative cost reimbursement. In order to be viable organizations in spite of their narrow focus, these sponsors tend to be very large, sponsoring far more homes than traditional family day care systems and other multi-purpose sponsors.

Figure 4.1 shows the national distribution of FDCH sponsors by the percent of their income derived from CCFP administrative reimbursements. The distribution is bimodal--there are clearly two distinct types of umbrella sponsors:

- Multi-purpose sponsors for whom the CCFP is usually a small part of their activities. These sponsors include traditional family day care systems that provide an array of services to

Figure 4.1


CCFP Administrative Cost Reimbursements
as a Percent of Sponsor's Total Income:
Distribution of Sponsors
PERCENT OF SPONSORS
25
20
15
10
5
0
LE 10
11-20
21-30
31-40
41-50
51-60
61-70
71-80
81-90
91-100
CCFP AS A % OF INCOM

their FDCHs above and beyond those required for CCFP participation. The group also includes social service agencies that are involved in a variety of activities apart from day care.

- Single-purpose sponsors for whom the CCFP is the mainstay of the organization. While many of these sponsors are involved in other activities, they derive virtually all of their income from CCFP administrative cost reimbursements.

In the analyses presented below, results are shown separately for the single- and multi-purpose sponsors. Single-purpose sponsors have been defined as those that receive at least 67 percent of their income from CCFP reimbursements.[30] The small sample of FDCH sponsors included in this study makes it impossible to separate the effects of size from those of sponsor type. For this reason, data are presented by both type of sponsor and sponsor size. Table 4.2 shows the distribution of the weighted study sample by sponsor type and size. While there is a tendency for large sponsors

Table 4.2

NUMBER OF SPONSORS IN WEIGHTED STUDY SAMPLE BY SPONSOR TYPE AND SIZE[a]

	Sponsor Size	
Sponsor Type	Less than 200 Homes	200 or More Homes
Multi-Purpose	30	1
Single-Purpose	15	2

[a]Three sponsors could not be classified as to type.

[30]The multi-purpose sponsors receive an average of 25 percent of their income from the CCFP, while the single-purpose sponsors receive an average of 90 percent of their income from the CCFP.

to be single-purpose institutions, most single-purpose sponsors are small, sponsoring fewer than 200 homes. Table 4.3 shows components of food program costs for participating FDC sponsors by size and type of sponsor.

4.2 Administrative Costs

The Child Nutrition Amendments of 1978 (P.L. 95-627) resulted in the changes in the CCFP regulations which altered the reimbursement structure for participating family day care sponsors. The regulations operationally distinguished, and established separate ceilings for, food program administrative costs and food service delivery costs. The ceiling for administrative cost is determined solely on the basis of the number of homes sponsored. As of May 1, 1980, sponsors were to be reimbursed for their actual costs up to a maximum of:

- $45 per month for the first 25 FDCHs;
- $35 per month for the next 50 FDCHs; and
- $30 per month for each additional FDCH.

In addition, administrative reimbursements were not to exceed 30 percent of the total CCFP reimbursement.[31]

In January 1980 FDCH sponsors spent an average of $38 per month per home to administer the CCFP. This "average" cost, however, is somewhat misleading in that sponsors' administrative costs were widely distributed. Nearly 40 percent of all FDC sponsors had average administrative costs

---

[31]The regulations further stipulated that these rates are to be adjusted semi-annually to reflect changes in the Consumer Price Index. As indicated above, P.L. 97-35 eliminated all reference to cost and cost-based accountability for the CCFP. P.L. 97-35 also mandated certain cuts in the reimbursement rates for umbrella sponsors This legislation is discussed in Appendix B.

Table 4.3

COMPONENTS FOR FOOD PROGRAM COSTS FOR PARTICIPATING FDC PROGRAMS BY SIZE AND TYPE OF SPONSOR

Cost Component	Type of Sponsor[a]		Size of FDC Sponsor		
	Multi-Purpose	Single-Purpose	Less Than 200 Homes	200 or More Homes	All FDC[b] Sponsors
Monthly Food Program Cost Per Home	$ 518	$ 515	$ 514	$ 684	$ 524
Monthly Food Program Administrative Cost Per Home	$ 43	$ 33	$ 39	$ 18	$ 38
Provider's Cost Per Month	$ 475	$ 482	$ 474	$ 665	$ 485
Food	$ 193	$ 203	$ 193	$ 292	$ 199
Labor	$ 260	$ 266	$ 261	$ 343	$ 265
Other	$ 22	$ 13	$ 20	$ 30	$ 21
Number Lunch Equivalents Per Month	226	193	216	260	225
Total Food Program Cost Per Lunch Equivalent	$ 2.57	$ 3.15	$ 2.78	$ 2.66	$ 2.77
Administrative Cost Per Lunch Equivalent	$ 0.21	$ 0.25	$ 0.25	$ 0.08	$ 0.21
Provider's Cost Per LEQ	$2.34	$ 2.90	$ 2.54	$ 2.58	$ 2.54
Food	$0.86	$ 1.15	$ 0.94	$ 1.11	$ 0.95
Labor	$1.38	$ 1.67	$ 1.49	$ 1.35	$ 1.48
Other	$0.11	$ 0.07	$ 0.10	$ 0.12	$ 0.10
Number of FTE Children	4.8	4.8	4.8	5.2	4.8
Standard Meals Per FTE	50.2	41.5	46.8	54.4	47.3
Weighted Sample Size	N = 31	N = 17	N = 48	N = 3	N = 51

[a] Type of sponsor is defined in terms of the percent of the sponsor's total income derived from the CCFP. The single-purpose sponsors receive at least 67 percent of their income from the CCFP. They sometimes engage in other activities, but their primary source of income is CCFP reimbursements.

[b] Based on total sample of 51 programs (3 programs could not be classified as to sponsor type).

which did not exceed $20 per month per home, while nearly one-quarter of the FDC sponsors had average costs in excess of $60 per month per home (see Figure 4.2). Size appears to be a key determinant of FDC sponsors' administrative cost per home. Large sponsors' administrative costs were considerably lower than those of small sponsors. Sponsors with 200 or more homes had an average monthly cost of $18 per home compared with $39 per home for sponsors with fewer than 200 homes. Multi-purpose sponsors averaged $43 per home compared to $33 for single-purpose sponsors.

Sponsor size and type are inextricably interwoven in the real world. Not only are the single-purpose sponsors larger than multi-purpose sponsors (averaging 124 homes vs. 41 homes) and thus able to benefit from economies of scale, but they also tend to provide fewer services and monitor their homes less frequently than multi-purpose sponsors. These differences are clearly visible in the amount of staff time devoted to various administrative tasks (Figure 4.3). The major differences occur in two functions:

- food program planning and management; and
- recordkeeping, budgeting and reimbursement procedures.

Multi-purpose sponsors devoted about twice as much staff time per home to the planning and management function as did single-purpose sponsors (1.5 vs. 0.8 person-hours per month). Since the monitoring of homes is the major task in the planning and management function,[32] a large part of

---

[32]The planning and management function includes the following tasks: (a) preparation of the application and management plan; (b) monitoring, supervision and coordination of staff; and (c) general policy making. The major task in terms of staff time is most likely the monitoring of homes.

Figure 4.2

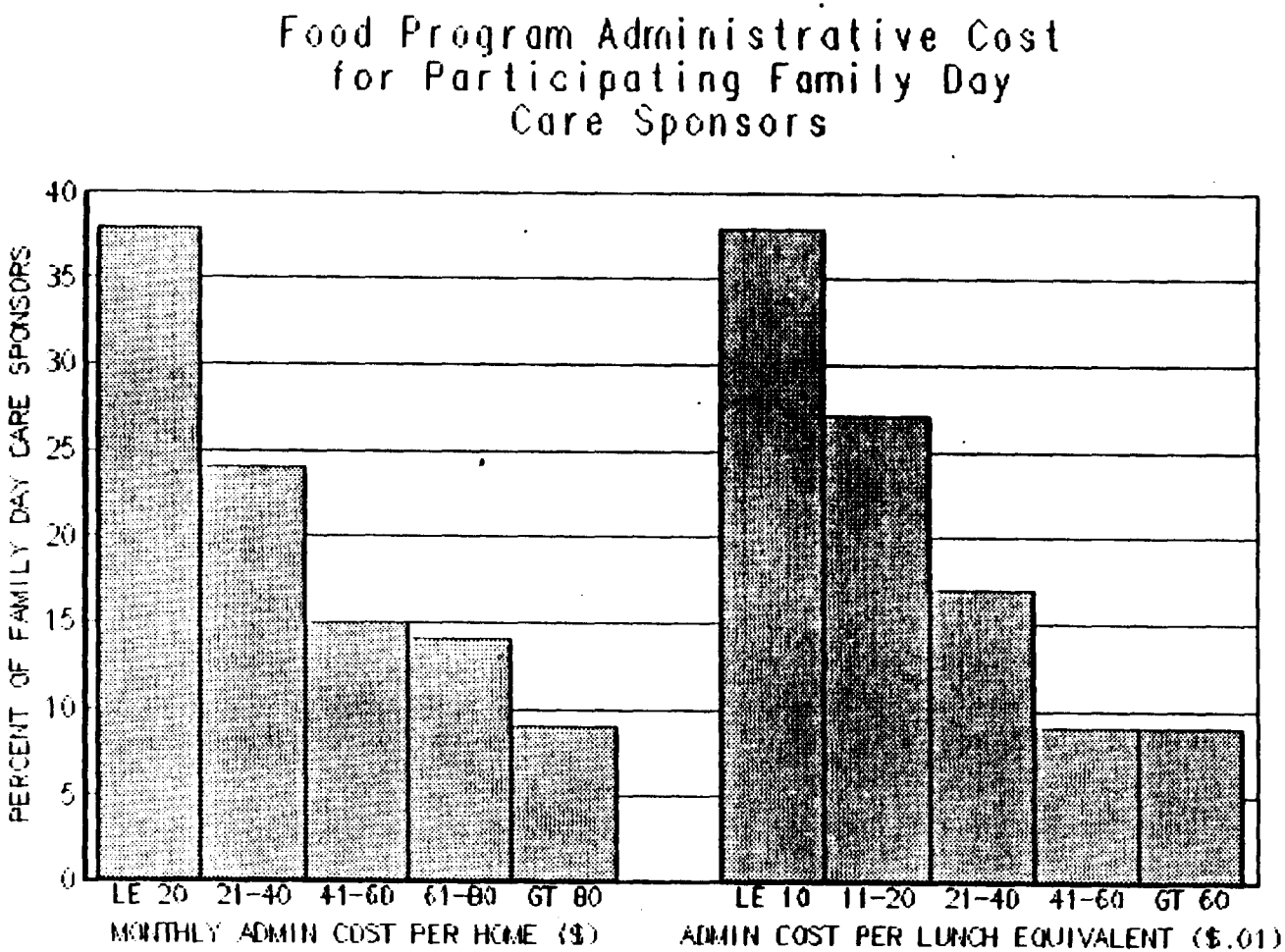

Food Program Administrative Cost
for Participating Family Day
Care Sponsors
PERCENT OF FAMILY DAY CARE SPONSORS
40
35
30
25
20
15
10
5
0
LE 20
21-40
41-60
61-80
GT 80
MONTHLY ADMIN COST PER HOME ($)
LE 10
11-20
21-40
41-60
GT 60
ADMIN COST PER LUNCH EQUIVALENT ($.01)

Table of Contents

Figure 4.3A

Level of Effort Devoted to Food Program Administration per Home by Participating Family Day Care Sponsors: Distribution by Number of Homes Sponsored

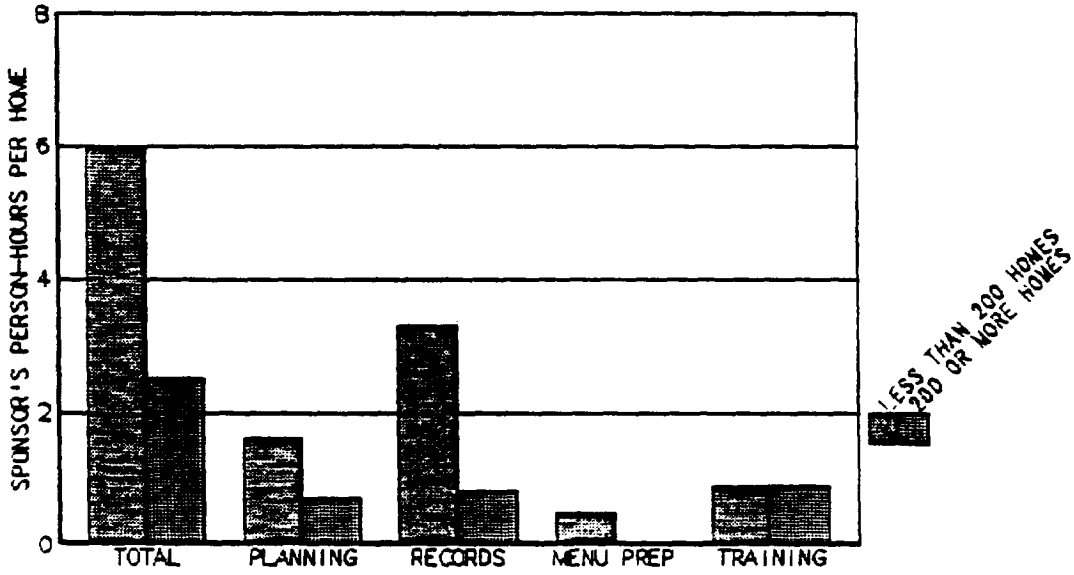
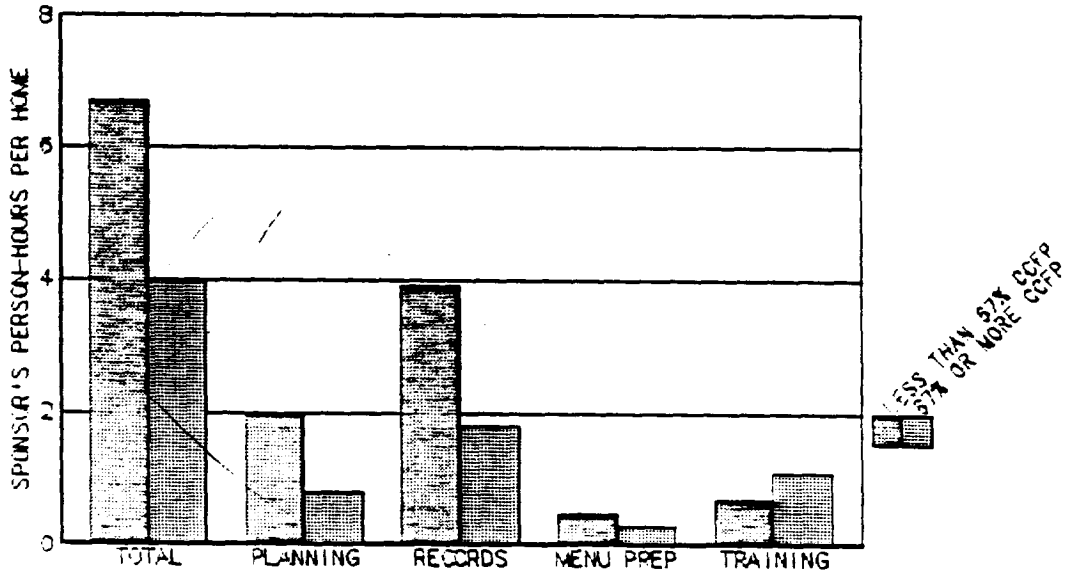


Figure 4.3B

Level of Effort Devoted to Food Program Administration per Home by Participating Family Day Care Sponsors: Distribution by Percent of Income from CCFP



this difference no doubt reflects the very large difference in the frequency of monitoring visits (Table 4.4). On average, multi-purpose sponsors visited their homes more

Table 4.4

DIFFERENCES IN THE SCOPE OF MONITORING ACTIVITIES BETWEEN SINGLE- AND MULTI-PURPOSE SPONSORS

	Sponsor Type	
	Multi-Purpose	Single-Purpose
Person-Hours per Month per FDCH for Planning and Management	1.5	0.8
Annual No. of Monitoring Visits Per FDCH	14.5	4.2
Person-Hours per Monitoring Visit[a]	2.2	3.5
Weighted Sample Size	22	17

[a]This assumes that all of the staff time devoted to planning and management is allocated to the monitoring task. While most of the staff time undoubtedly is devoted to monitoring, some time is in fact devoted to other tasks. These estimates should therefore be viewed as an approximate upper bound.

than once per month (14.5 visits annually), while single-purpose sponsors averaged about one visit every three months. Although single-purpose sponsors made fewer visits to each home, these visits lasted somewhat longer (3.5 vs. 2.2 person-hours per visit).

The recordkeeping function consists primarily of the completion of meal counts, the completion of claims for reimbursement, and the distribution of CCFP reimbursements to family day care providers. Typically, meal counts are tabulated by the sponsor from forms completed by the FDC provider each month. The data are entered on a single claim for reimbursement and submitted to the state for payment. Upon payment, the sponsor prepares and distributes checks to the individual providers. The function is clearly amenable to economies of scale; and in the case of one large sponsor much of the function was automated through the use of EDP. The economies of scale are clearly evident in the relative amounts of staff time per home devoted to these tasks by large and small sponsors. Sponsors with fewer than 200 homes employed approximately one-half of a staff person for this function, while the large sponsors with over 200 homes employed 2.5 FTE staff for these tasks.[33] Yet on a per-home basis the small sponsors devoted just over three person-hours per month to the recordkeeping tasks compared to less than one person-hour per month for the large sponsors.

It is clear from Figure 4.3 that on a per-home basis small FDC sponsors devote relatively little staff resources to either nutrition training or menu preparation. Large sponsors devote about the same level of effort per

---

[33] An average of 83 and 439 person-hours of staff time per month were devoted to the recordkeeping functions by small and large sponsors, respectively. A 40-hour week was taken as an approximation of an FTE.

home to nutrition training as small sponsors (0.9 person-hours per month), but this represents a much larger proportion of their staff resources. Because of the obvious economies of scale in menu preparation, on a per-home basis, the large sponsors devoted trivial amounts of staff time to this task.[34]

When FDC food program administrative costs per home are converted to a per-meal basis, they are in fact somewhat lower than in participating center-based programs. For FDC sponsors with fewer than 200 homes the average administrative cost per LEQ is $0.24, while that for large FDC sponsors is only $0.13 per LEQ. By contrast, administrative cost per LEQ in participating center based programs was $0.34. Figure 4.4 shows that administrative costs account for a relatively small portion of total food program costs in family day care. In fact, administrative costs did not exceed 30 percent of total food program costs in any of the participating FDC sponsors in the study sample. At most, administrative costs accounted for 22 percent of total food program costs. Providers' costs, primarily food and labor, account for the bulk of food program costs in family day care.

Providers' Costs: Food Service Delivery in FDCHs

In family day care the division of responsibilities for the food program between sponsor and provider is clearcut--the sponsor is responsible for the administration of the program and the FDC provider is responsible for actual food service delivery. Quite simply, the FDC provider purchases, prepares and serves the food served in

---

[34] Large sponsors allocated an average of 17 person-hours per month to menu preparation. This amounted to an average of two minutes per home.

Table of Contents

Figure 4.4A

Components of Food Program Costs per Lunch Equivalent for Participating Family Day Care Programs: Distribution by Number of Homes Sponsored

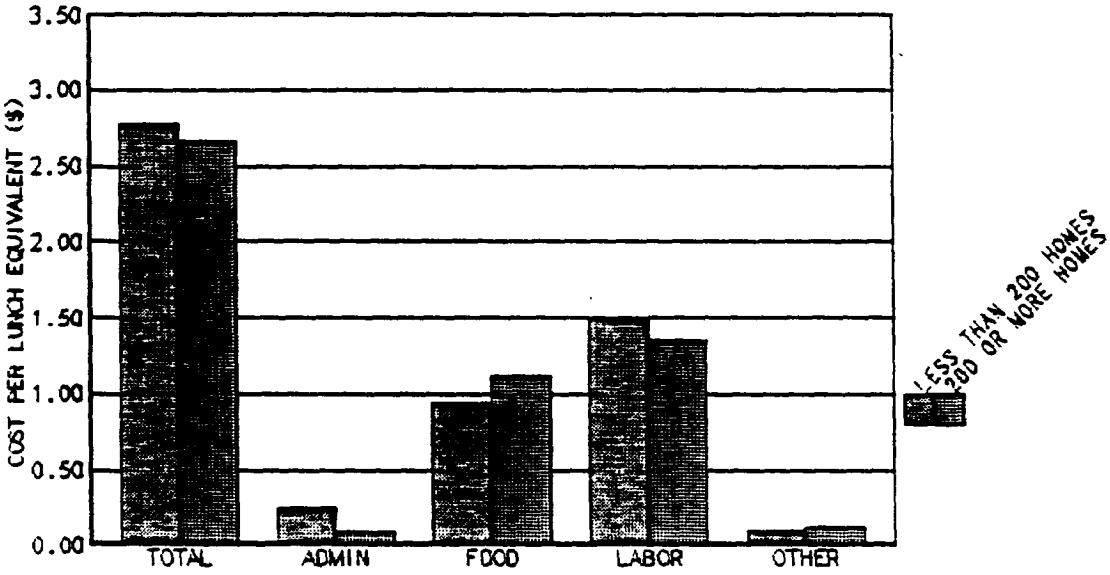
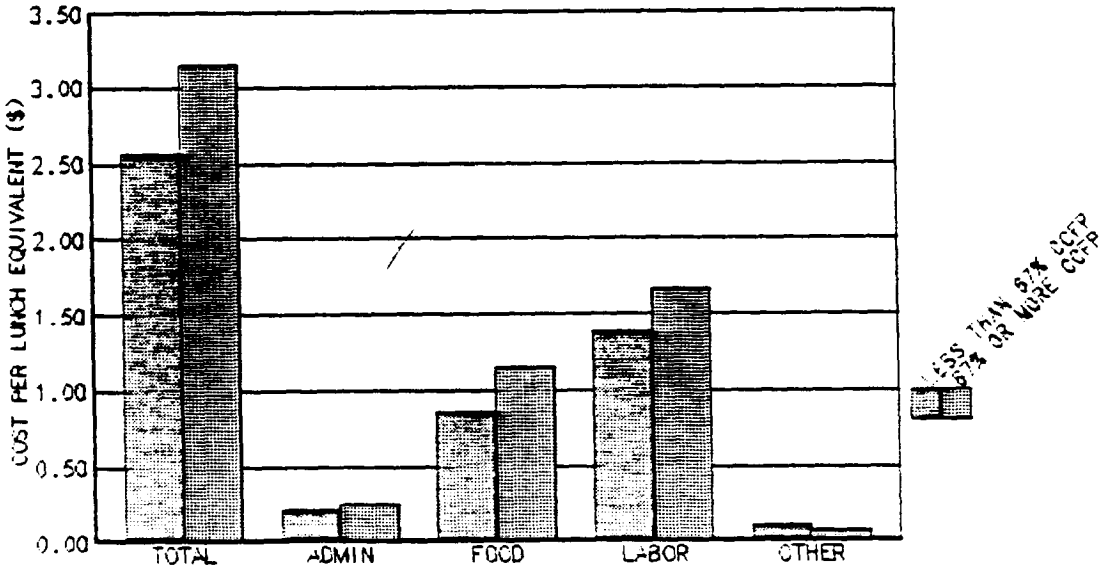


Figure 4.4B

Components of Food Program Costs per Lunch Equivalent for Participating Family Day Care Programs: Distribution by Percent of Income from CCFP



her home. Because of the small numbers of children served, the provider's labor per meal is much higher than the comparable cost in participating center-based programs ($1.48 vs. $0.82 per LEQ).

Perhaps most striking is the difference in actual food costs per meal between participating FDCHs and participating center-based programs. Food costs per LEQ in FDC were more than twice that in center-based care. Whereas participating center-based programs spent an average of $0.43 per LEQ, participating FDCHs spent an average of $0.95 per LEQ.

In establishing a separate reimbursement rate for food service costs in family day care, P.L. 95-627 stipulated that such reimbursements" be adequate to cover the cost of obtaining and preparing food and prescribed labor costs in providing meals."[35] The separate food service reimbursement rates became effective May 1, 1980.[36] Table 4.5 compares the food service reimbursement rates to food service costs.

In more than one-half of participating FDCHs food costs alone exceeded the reimbursement rates in effect in May 1980 (Figure 4.5); yet these rates were intended to cover both food and labor. When one considers total food service costs in family day care, virtually all participating FDCHs had costs which exceeded the reimbursement rates. Thus, while the reimbursement structure for family day care administrative costs appears to be in the appropriate range, the food service reimbursements are clearly inadequate to cover both food costs and providers' labor.

---

[35] Public Law 95-627, Section 2 (f)(4). November 10, 1978.

[36] Federal Register, January 22, 1980.

Table 4.5

AVERAGE FOOD SERVICE COST PER MEAL AND CCFP REIMBURSEMENT RATES FOR FDCHs

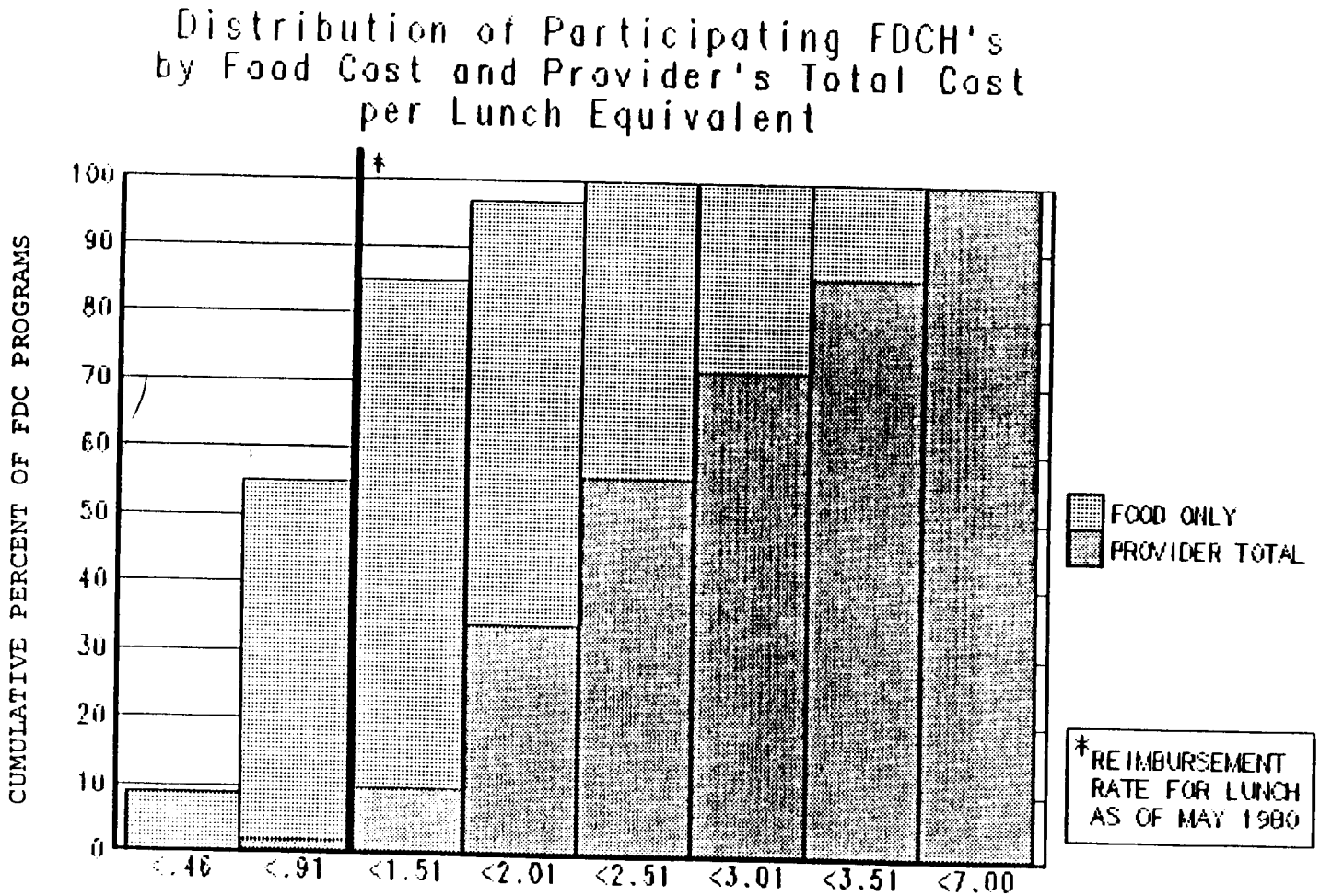
Type of Meal	Average Cost[a]: January 1980			Reimbursement Rate[b]: May 1980
	Food	Labor	Total	
Breakfast	$0.43	$0.66	$1.14	$0.46
Lunch	0.95	1.48	2.54	0.90
Snack	0.34	0.53	0.91	0.27

[a]The average costs for breakfast and snacks are based on the average cost of a lunch equivalent. The weights for breakfast and lunch are 0.45 and 0.36 respectively.

[b]P.L. 95-627 eliminated the separate income eligibility categories for family day care reimbursements.

While food costs are clear and unambiguous in family day care, labor costs are somewhat less clearly definable. Meal preparation and direct caregiving take place simultaneously and the assignment of caregivers' time to one or the other involves the application of decision rule. In the cost analyses, all time spent cooking was considered meal preparation. The estimated labor cost of $1.48 per LEQ should therefore be considered an upper bound on such costs. One might better argue that the time spent preparing meals is incidental to caregiving, and that all of the provider's time should be considered as direct care. Since the family day care provider is being paid by parents or the government for the time spent caring for children, the inclusion of meal preparation labor costs in the CCFP reimbursement would be tantamount to double counting. We therefore recommend that food service reimbursements be set on the basis of food costs alone with no allowance for the cost of food preparation.

Figure 4.5


Distribution of Participating FDCH's
by Food Cost and Provider's Total Cost
per Lunch Equivalent
CUMULATIVE PERCENT OF FDC PROGRAMS
100
90
80
70
60
50
40
30
20
10
0
<.46
<.91
<1.51
<2.01
<2.51
<3.01
<3.51
<7.00
*
FOOD ONLY
PROVIDER TOTAL
*REIMBURSEMENT RATE FOR LUNCH AS OF MAY 1980

4.3 Wave II Cost Estimates

The above analyses were based on Wave I cost data and reflect sponsors' administrative practices prior to the implementation of regulatory changes stemming from the 1978 Amendments, which were intended to improve program administration. The key changes affected the frequency of monitoring visits and training sessions, and the timeliness of payments to family day care homes. Sponsors were required to:

- monitor each FDCH at least four times per year;
- provide at least one training session each year; and
- pass through food service reimbursements to FDCHs within 15 working days of receipt of these funds from the state.

From an administrative cost perspective, the most important change relates to the frequency of monitoring visits. Virtually all sponsors reported that they were providing at least one training session per year and meeting the timeliness provisions prior to the implementation of the new regulations.

Monitoring Visits

Prior to the implementation of the new regulations in 1980, there was no specific number of visits to be conducted each year. Umbrella sponsors determined for themselves the approach that would be used to ensure that FDCHs under their aegis were in compliance with the program's requirements. This, coupled with the fact that the allocation of reimbursement

monies between the sponsor and FDCHs was determined by the sponsor,[37] resulted in considerable variation across sponsors in the frequency and content of monitoring visits. Sponsors tended to fall into one of two groups: (a) those that devoted considerable time and expense to the monitoring function, often combining monitoring visits with training and technical assistance; and (b) those that devoted relatively few resources to on-site visits, concentrating instead on in-office record reviews and visiting only when deemed necessary. Across all sponsors, the mean number of visits was 12 per year (Table 4.6). Two-thirds of the sponsors visited homes at least four times per year prior to the requirement that they do so. On average, this group of sponsors visited homes about once every three weeks (18.6 times per year). The one-third of sponsors that were visiting fewer than four times per year averaged about one visit every four months (2.7 visits per year).

As one would expect, after the implementation of the new monitoring requirement, both groups converged towards four visits per year. The sponsors that were previously making at least four visits per year dropped from an average of 18.6 visits to an average of 8.5 visits, and those previously visiting fewer than four times yearly increased from an average of 2.7 visits to an average of 4.2 visits. Across all sponsors, two-thirds reported that they were now conducting the required four visits per year. Only 10 percent of sponsors now report conducting fewer than four visits per year.

---

[37] Prior to the separation of administrative cost reimbursements there were no uniform guidelines as to the amount of the reimbursement that sponsors were permitted to retain to cover administrative costs.

Table 4.6

CHANGE IN ADMINISTRATIVE PRACTICES OF FDCH UMBRELLA SPONSORS
BY EXTENT OF MONITORING DONE PRIOR TO THE CHANGE IN REGULATIONS

Administrative Practice	Umbrella Sponsors With Less Than 4 Visits Prior to Change (n = 29)		Significance Level	Umbrella Sponsors With More Than 4 Visits Prior to Change (n = 27)		Significance Level	All Umbrella Sponsors (n = 49)		Significance Level
	Wave I	Wave II		Wave I	Wave II		Wave I	Wave II	
Number of Monitoring Visits Per Year	2.7	4.2	p <.001	18.6	8.5	p <.001	11.7	6.6	p <.01
Number of Items Reviewed	11.6	10.5	p <.10	11.3	11.6	ns	11.4	11.1	ns
Number of Items For Which Training is Provided	3.1	3.1	ns	3.4	3.0	ns	3.3	3.0	ns

In terms of the content of monitoring visits, there has been little change overall. Most programs (more than 75%) continue to monitor menus, meal preparation (including cleanliness and the kitchen facility), meal service (including the appeal of meals to children and mealtime interaction about food), nutritional content of meals, and the provider's nutrition knowledge. Reviewed less often are nutrition education offered to children or parents by the day care provider, food purchasing and storage, and the provider's financial management. Overall, there has been no change in the number of items reviewed during a monitoring visit, although there is some indication that sponsors have made a trade-off between frequency of visits and completeness of the review. Focusing only on sponsors currently making fewer visits than they did a year ago, we find that they have added a net of one item to their monitoring agenda (not shown in Table 4.6), while programs holding to the same schedule or visiting more often have dropped an item ($p < .10$). Although a variation of one item is not a great change, it does indicate that altering the scheduled frequency of visits has resulted in a change in the content of the visits as well.

Change in the Level of Effort Per Home

Administration of the CCFP is a labor-intensive activity. For this reason, the cost of program administration is largely determined by two factors: (a) the level of effort devoted to administration; and (b) the wage rates paid to staff. The effects of the regulatory changes are reflected in changes in the level of effort. Wage rates, however, tend to increase with time quite independent of changes in program regulations. For this reason our analyses focused on the level of effort devoted to program administration.

The effect of changes in monitoring activities is confounded with the effect of changes in sponsor size. As a sponsor increases in size, the total level of effort devoted to food program administration would be expected to increase. However, increases in size enable a sponsor to take advantage of economies of scale in the recordkeeping function. Thus, other things being equal, the level of effort per home would be expected to decrease as the number of homes sponsored increases. Similarly, one would expect the level of effort per home to increase as the number of homes sponsored decreases.

Although there was a tremendous increase in the number of FDCHs participating in the CCFP under the aegis of existing sponsors between Wave I and II, many sponsors experienced a decrease in the number of homes sponsored.[38] In the study sample 19 (out of 49) sponsors reported a decrease in the number of homes sponsored.[39] The effects of changes in size and changes in the frequency of monitoring visits on the level of effort per home devoted to CCFP administration are illustrated in Table 4.7.

---

[38] Nationally the number of participating homes nearly doubled between December 1980 and December 1981 (increasing from 70,000 to 130,000), while at the same time the number of sponsors remained constant at 430. This growth was largely attributable to two provisions of P.L. 95-627: (a) the elimination of the income eligibility categories for family day care; and (b) the separation of administrative cost reimbursements from food service reimbursements. See, Glantz, F., Participation in the Child Care Food Program (Abt Associates, 1982).

[39] Some sponsors reported that the increase in the number of sponsors serving a given area has resulted in homes changing sponsors in order to get a "better" deal from new sponsor seeking to expand. In some cases this "raiding" has resulted in a significant increase in the administrative burden of existing sponsors as they attempt to keep homes under their aegis. Certainly from FNS' perspective such raiding and the associated administrative costs are entirely nonproductive.

Table 4.7

CHANGE IN THE LEVEL OF EFFORT DEVOTED TO FOOD PROGRAM ADMINISTRATION BY THE CHANGE IN FREQUENCY OF MONITORING VISITS AND CHANGE IN SPONSOR SIZE

Change in the Number of Homes Sponsored	Average Change in Monthly Person-Hours Per Home for CCFP Administration			
	Change in Frequency of Monitoring Visits			
	Increase	Decrease	No Change	All Sponsors
Increase	-0.81 (n=10)	-0.09 (n=7)	-1.41 (n=5)	-0.54 (n=22)
Decrease	0.89 (n=5)	3.48 (n=11)	1.11 (n=3)	2.42 (n=19)
No Change	(n=0)	(n=0)	0.00 (n=1)	0.00 (n=1)
All Sponsors	0.24 (n=15)	2.21 (n=17)	-0.41 (n=9)	0.92 (n=42)

On average, sponsors that increased the frequency of monitoring visits experienced a slight increase in the level of effort per home (0.24 person-hours per month). Sponsors that increased the frequency of visits and experienced a decrease in the number of homes sponsored had a much larger increase in the level of effort per home (0.89 person-hours per month). For this group of sponsors the effects of economies of scale and an increase in monitoring activity both act to increase the level of effort per home. However, for sponsors that increased their monitoring activity and increased in size, the effects of economies of scale act to decrease the level of effort per home while the increase in the frequency of monitoring visits acts to increase the level of effort per home. On balance, for this group of sponsors, the effects of economies of scale outweigh the effect of increased monitoring, and the group experienced a decrease in the level of effort devoted to program administration (-0.81 person-hours per month). Similarly, the average decrease of 2.21 person-hours per month among sponsors that decreased their monitoring activities reflects the increase in the level of effort for the 11 sponsors in this group that experienced a decrease in the number of homes sponsored. Across all sponsors, the monthly level of effort increased by an average of nearly one hour per home. This figure must be viewed in the context of changes in both sponsor size and monitoring activities.

5.0 SUMMARY AND CONCLUSIONS

This report has examined food program costs in participating and nonparticipating day care centers and in participating family day care homes.[40] The analyses indicate quite clearly that these costs are significantly higher in participating day care centers than in nonparticipating centers. These findings should, however, be viewed in the context of the results of the meal quality analyses, which indicate that participating centers (and homes) are providing meals of significantly higher quality than those provided in nonparticipating centers.[41]

Because of the inherent differences between centers and homes, their costs are not comparable. Summary findings of the cost analyses for centers and homes are discussed separately below.

5.1 Center-Based Day Care

The monthly food program costs for participating centers are more than twice those of nonparticipating centers. While part of this is attributable to the different pattern of meals served,[42] on a per-meal basis food program costs in participating centers are 61 percent greater than those of nonparticipating centers. Specifically:

---

[40] This study was unable to identify a sample of eligible nonparticipating family day care homes. Virtually all eligible potential sponsors of homes that had a true sponsoring relationship with FDCHs were found to be participating in the CCFP.

[41] See Fox, M. & Glantz, F., An Examination of Meal Quality in Day Care Centers and Family Day Care Homes (Abt Associates, 1982).

[42] Participating centers tend to serve breakfast and a morning snack in addition to lunch and an afternoon snack, whereas nonparticipating centers tend to serve only a morning snack in addition to lunch and an afternoon snack.

- administrative costs are two to three times greater among participating centers; and

- food service operating costs are 50 to 100 percent greater among participating centers.

Administrative Costs

The difference in food program administrative costs between participants and nonparticipants can be explained largely in terms of the specific administrative requirements of the CCFP. Program requirements stress administrative accountability. Participants are required to maintain records concerning costs, meals served, income eligibility, reimbursement claims, training sessions conducted, and other relevant documentation. In addition, participants are required to provide staff training, and sponsors must review the operations of their centers at least three times each year. Resources devoted to tasks associated with these requirements account for more than two-thirds of the total resources allocated to food program administration among participating center-based programs. In view of this finding, it must be concluded that administrative costs in participating programs are not strictly comparable to those of nonparticipating programs.

Administrative costs do not appear to be unreasonably high. On average, food program administrative costs constitute only 17 percent of total food program costs among participating programs, and in only 8 percent of participating programs does administration account for more than 30 percent of total costs. It should be noted that while there is a substantial amount of diversity in the division of responsibility for food program administration between sponsor and provider, it is the center rather than the sponsor that incurs most of the cost. Even among programs

where the sponsors are most active (i.e., are high-functional sponsors), the center incurs nearly two-thirds of the cost of food program administration.

The regulatory changes that resulted from the 1978 Amendments did not alter program requirements for participating day care centers. Analysis of administrative costs before and after the implementation of regulatory changes indicates that, after adjusting for price differences, there are no significant differences in food program administrative costs in participating centers.

Food Service Delivery Costs

Food service delivery costs account for the bulk of total food program costs, representing an average of 83 percent of the total for participating center-based programs. Expenditures for food account for about one-half of the total cost of food service delivery; labor is the other major component.

The magnitude of the difference in food costs between participants and nonparticipants is relatively small ($0.13 per LEQ) compared to the difference in food service labor costs ($0.33 per LEQ). In addition, there are no significant differences in food costs between urban and rural programs, nor is there any evidence of economies of scale in the cost of food. There are, however, significant economics of scale in food service labor costs, which are attributable to spreading the relatively fixed cost of meal preparation over increasing numbers of meals.

The relatively fixed cost of meal preparation (i.e., the cost of a full-time cook) accounts for the significant increase in food service labor costs among

participating centers between Waves I and II. As a result of the significant decrease in the number of meals served,[43] the cost of the cook's time was being spread over fewer meals in Wave II, thus increasing the labor cost per LEQ.

5.2 Family Day Care

Family day care is very different from center-based care. Because small numbers of children are cared for in the provider's home rather than large numbers of children being cared for in an institutional setting, the food program costs in family day care are not comparable to those of center-based care. In addition, the administrative structure of the food program in participating family day care programs is quite different from that in center-based programs. Unlike center-based programs, where the center and sponsor share the responsibilities for food program administration, in family day care programs the sponsor assumes all administrative responsibility for the CCFP for homes under its umbrella. The current regulations operationally distinguish--and establish separate ceilings for--food program administrative costs and food service delivery costs.

Administrative Costs

The cost of administering the CCFP for family day care homes is very dependent on the size and type of sponsor involved. Most sponsors are relatively small; 75 percent of all sponsors have 50 or fewer homes. These sponsors, however, account for less than 20 percent of participating FDCHs. The few large sponsors that have more than 200 homes (6 percent of all sponsors) account for more

---

[43] As indicated above, there was no consistent pattern to the reasons for the centers that experienced a decrease in the number of meals served. See footnote 23, p. 54.

than half of all participating FDCHs. These large sponsors are able to benefit from economies of scale--especially in recordkeeping.

Many sponsors focus primarily on the CCFP, and may be viewed as single-purpose sponsors. While these sponsors were not necessarily created for the sole purpose of sponsoring homes for the CCFP, they devote nearly all of their resources to administering the CCFP, and in turn receive nearly all (90 percent) of their income from CCFP administrative reimbursements. In contrast to single-purpose sponsors, multi-purpose sponsors tend to be traditional family day care systems or social service agencies for which the CCFP is but one of many activities. The multi-purpose sponsors on average receive only 25 percent of their income from CCFP reimbursements.

The single-purpose sponsors tend to provide fewer services, offer less training, and monitor their homes less frequently than the multi-purpose sponsors. Although the single-purpose sponsors are less actively involved in the operation of their homes, it appears that their activities are directed towards compliance with the CCFP requirements. This point is clearly illustrated by the frequency of visits made to homes for food service reasons. The single-purpose sponsors visit their homes an average of four times per year, and are thus in compliance with the CCFP requirements. In contrast, multi-purpose sponsors visit their homes an average of 15 times per year. These sponsors tend to build CCFP home visits into an existing home visit support system for providers.

The effect of sponsor type, however, is intertwined with that of sponsor size. The single-purpose sponsors are considerably larger (averaging 124 homes) than the multi-purpose sponsors (averaging 41 homes). The cost constraints

of this study limited the family day care sample size to 53 sponsors. The relatively small sample size precluded the estimation of the independent effects of sponsor type on administrative costs. Nevertheless, examination of the level of effort devoted to the various administrative tasks indicates that sponsor size is the more critical factor. Large sponsors' (i.e., those with 200 or more homes) administrative costs were less than one-half those of small sponsors ($18 vs. $39 per home per month).

Food Service Delivery Costs

Food service delivery costs in family day care homes are markedly higher than in participating day care centers ($2.54 vs. $1.57 per LEQ). This is the result of two factors:

- Family day care providers purchase food for children in their care in local markets in small quantities rather than in large quantities from institutional suppliers, as day care centers do.

- Family day care providers prepare meals for small numbers of children, and as a consequence the labor cost per meal is substantially higher than in day care centers.

While food costs are clear and unambiguous in family day care, labor costs are less clearly definable. Meal preparation and direct caregiving take place simultaneously and the assignment of caregivers' time to one or the other involves the application of a decision rule. In the cost analyses, all time spent cooking was considered meal preparation. The estimated labor cost of $1.48 per LEQ should therefore be considered an upper bound on such costs. If, on the other hand, one argues that the time spent preparing meals is incidental to caregiving, and that all of the provider's

also the provider's labor costs for preparing meals. Virtually all participating FDCHs had costs which exceeded the reimbursement rates, and in nearly one-half of participating homes the cost of food alone exceeded the reimbursement rates.

Although the intent of P.L. 95-627 was to make the food service reimbursements sufficient to cover the cost of both food and labor, subsequent legislation (P.L. 97-35) directed the Secretary to reduce these rates by 10 percent while retaining the intent to cover both food and prescribed labor costs. The results of the family day care cost analyses indicate that both objectives cannot be met simultaneously. The reduced reimbursement rates will in fact widen the gap between CCFP reimbursements and the family day care providers' costs.

Table of Contents

APPENDIX A: DESCRIPTION OF SURVEY PLAN: THE UNIVERSE OF RESPONDENTS AND SAMPLING PROCEDURES

This appendix describes the essential sampling characteristics of the evaluation design for the entire study, both Wave I and Wave II; the two waves are interrelated. The plans presented here are based upon the Child Care Food Program (CCFP) Evaluation Design submitted August 16, 1979 and the Wave II Design, submitted September 5, 1980.

A.1 Wave I Respondents and Sampling Procedures

Telephone Survey

The first phase of the Evaluation of the Child Care Food Program included a national telephone survey of sample respondents from three distinct levels of the CCFP organization--FNS regions, sponsors, and providers. At the regional level the survey incorporated a complete census of all seven FNS Regional Directors. At the sponsor level the Child Care Food Program operates through three kinds of sponsoring agencies--independent child care center (ICCC), sponsored child care centers (SCCC) and family day care home (FDCH) systems. Independent child care centers are self-sponsored; that is, the sponsor is also the provider. Sponsored child care centers are the administering agencies for two or more child care centers (providers) which either choose not to be, or cannot be, self-sponsored. On average there are 3.4 providers for each such sponsor. The last group of sponsors are umbrella sponsors for family day care homes.

Because separate generalizations were to be drawn for CCCs and FDCHs, child care center sponsors and family day care home sponsors were sampled independently.

Table of Contents

Center Sponsors

CCC sponsors were sampled by means of a two-stage random sample. First, the 53 states were stratified into two groups, "large" and "small", where state size was determined by the number of participating CCC sponsors in the state. The 20 states in the "large" stratum accounted for approximately 70 percent of all participating CCC sponsors. From these 20 states, a probability sample of nine states was drawn for the evaluation. These states were selected in proportion to the number of participating CCC sponsors in each state.

$$\text{Probability of selecting any given large state} = \frac{\text{\# participating CCC sponsors in state}}{\text{Total \# participating CCC sponsors in all 20 large states}}$$

Subsequently, from each large state chosen, 23 CCC sponsors were randomly sampled from the CCC participant list. This produced a sample of 207 (9 states x 23 sponsors/state) CCC sponsors.

In like fashion, nine states were sampled from the "small" state stratum. For the small states the probability of selection was again proportional to the number of participating CCC sponsors in each state.

$$\text{Probability of selecting any given small state} = \frac{\text{\# participating CCC sponsors in state}}{\text{Total \# participating CCC sponsors in all 33 small states}}$$

Table of Contents

From each small state so chosen, 9 CCC sponsors[45] were randomly sampled. This produced a sample of 81 (9 x 9) CCC sponsors for the small states. Figure A.1 summarizes the selection of CCC sponsors.

Figure A.1

COMPOSITION OF THE WAVE I TELEPHONE SURVEY
CHILD CARE CENTER (CCC) SPONSOR SAMPLE

53 States

Stage 1:	9 Large States	9 Small States
Stage 2:	207 CCC Sponsors (23/State)	81 CCC Sponsors (10/State)

Total Sample: 288 CCC Sponsors

The states that were selected based on the sampling design were:

Nine (9) Large States	Nine (9) Small States
New York	Arkansas
Virginia	Louisiana
Alabama	Oklahoma
Florida	Iowa
North Carolina	North Dakota
Ohio	Nevada
Wisconsin	Maryland
Texas	Mississippi
California	South Carolina

The third stage of the center selection process required selecting providers (i.e. day care centers) for each of the CCC sponsors selected in Stage 2. The distribution of independent child care centers (ICCC) and sponsored child

[45] Some small states have only nine sponsors. In this case, all were sampled. Most states, however, have a greater participant pool.

care centers (SCCC) participating in the CCFP was: 193 ICCC and 95 SCCC.

Each ICCC sponsors corresponds to only one center. In Stage 3 this one center was selected for a total of 193 ICCC centers. Most SCCC sponsors had at least two centers, and two centers were sampled from each such sponsor; from sponsors with a single center, that center was selected. A total of 154 SCCCs were selected. Thus 347 day care centers were included in the National Telephone Survey.

Family Day Care Sponsors

As indicated above, FDCH umbrella sponsors are distributed independently from CCC sponsors, and consequently a separate state sample was drawn for FDCHs. The sample design for FDCH sponsors was a two-stage random sample just as it was for center sponsors. The first stage called for the stratification of the 53 states into a large/medium/small trichotomy. State size was determined both by the number of participating FDCH sponsors per state and the number of FDCHs per state.

The number of FDCHs per sponsor is extremely variable from state to state; five states had 24 percent of the entire FDCH sample but only 3 percent of the FDCH sponsors. Because of this lack of correlation between the number of sponsors and homes, three state were required to construct a sampling stratification which was efficient both for sponsors and homes. In order to maximize the representativeness of the selected sample for both homes and sponsors simultaneously, all sponsors were selected from the large stratum. From the remaining two strata, a proportional sample of sponsors were selected.

Table of Contents

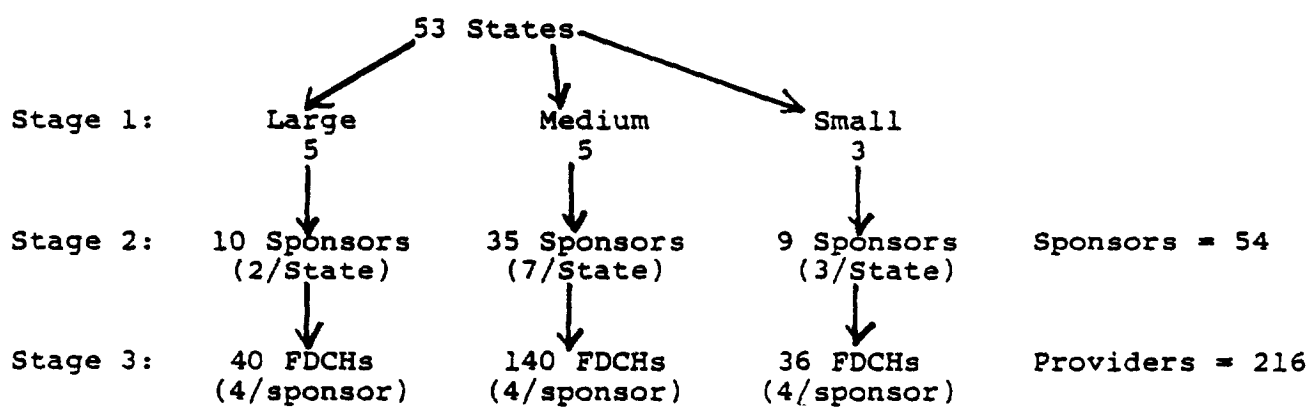
The states that were selected based on the sampling design are:

Large	Medium	Small
Michigan	New York	Illinois
New Mexico	Pennsylvania	Ohio
Colorado	Indiana	Kansas
Maryland	Minnesota	
Rhode Island	Oregon	

Figure A.2 gives the composition of the Wave I Telephone Survey for the Family Day Care Home sponsor and provider samples.

Figure A.2

COMPOSITION OF THE WAVE I TELEPHONE SURVEY
FAMILY DAY CARE HOME (FDCH) SPONSOR SAMPLE



The In-Depth Study

The Wave I In-Depth Study, like the Telephone Survey, included sample respondents from all four administrative levels of the CCFP--regions, states, sponsors and providers. The units sampled are a subset of the units sampled for the Telephone Survey, creating a

completely integrated data base. In this manner, the In-Depth Study served as a validation study for the Telephone Survey.

A census was taken of all seven FNS regions. The state sample for the In-Depth Study consists of those states from which sponsors were sampled in the National Telephone Survey. This results in a state sample size of 28. That is, 18 states were sampled for the center sample and 13 states for the FDCH sample; three states were selected in both samples.

In keeping with the design of the National Telephone Survey, FDCH sponsors and CCC sponsors for the In-Depth Study were sampled independently. From each of the nine large states, 8 sponsors were randomly selected from among the 23 CCC sponsors included in the National Telephone Survey. This provided a sample of 72 (9 sites x 8 sponsors) participating CCC sponsors. From each of the nine small states, three CCC sponsors were randomly sampled from among the nine sponsors previously selected. This resulted in 27 (9 x 3) CCC sponsors sampled from small states. In all, 99 participating child care center sponsors were sampled. This resulted in a sample of 72 ICCCs and 27 SCCCs.

All of the FDCH umbrella sponsors sampled for the National Telephone Survey were included in the In-Depth Study. The provider sample for the In-Depth Study was drawn at the rate of one provider per sponsor (irrespective of sponsor type) except for the 10 FDCH sponsors sampled in the large stratum. In this one case, because of the large number of providers per sponsor, two providers were sampled for each sponsor.

A. 2 Wave II Sample

The Wave II design also called for both a telephone survey and on-site interviews. The potential participants were nested within the Wave I sample.

Telephone Survey

The objective of the telephone survey was to collect program description data on a large number of programs to determine if programs that participated in the CCFP under the old regulations had changed their behavior since the implementation of the new regulations.

Wave I provided the baseline data for measuring changes in participant programs' behavior. The principal technique to be used in this investigation was a simple t-Test (two-sided) for the difference between two means. Each of the key variables identified in the Wave I analysis would be subject to such a test at a .01 level of confidence. Using a .01 level of confidence for univariate t-Tests would permit joint hypothesis testing for ten variables at a .10 level of confidence.

The power to detect significant differences depends upon the size of the difference we wished to be able to detect (effect size), the level of confidence chosen, and the number of programs sampled.

While the acceptable statistical power adopted is arbitrary, .80 represented a reasonably conservative power to detect a difference of .50 between the two means. We therefore proposed to use a sample of 90 Wave I center-based programs for the telephone survey. Based on Wave I data, we expected this to include 66 sponsors and 24 independent

centers. For FDC sponsors, we proposed to include all 53[46] Wave I sponsors in the telephone survey.

On-Site Interviews

While a telephone survey can efficiently be used to obtain information on administrative practices and procedures, our experience with cost data collection indicated that such data can only be validly obtained in a face-to-face interview situation. Therefore, for the collection of cost data, we conducted face-to-face interviews.

In Wave I, models were developed and estimated which can be used to estimate the effects of variation, or changes, in administrative tasks or other program characteristics on administrative and food service costs. The general form of the model is:

$$C_1 = b_0 + b_1X_{1i} + b_2X_{2i} \quad . \; . \; . + b_mX_{mi}$$

where C_i = cost of program i

$X_{1i} \; . \; . \; . \; X_{mi}$ = set of explanatory variables for program i, including such factors as the frequency of monitoring and training visits, and the number of sites administered by program i.

Wave I data were used to estimate the coefficients of the model (i.e., the values for b_0, b_i, ... b_m).

---

[46] Wave I sampling plan called for 54 sponsors but one state did not have the requisite number so the final sample was 53 FDCH sponsors.

The estimated model could then be used to predict the cost of program i by setting the values of the explanatory variables at the levels that obtain for program i (i.e., X_{1i}, X_{2i}, . . . , X_{mi}). The program's predicted cost, C_i, can then be compared with the program's actual cost, C_i. To determine the predictive accuracy of the model after the implementation of the new regulations, it was necessary to compare predicted to actual costs for a sample of programs operating under the new regulations. Using Wave II values for the exploratory variables we obtain predicted values for the program's costs:

$$C_{2i} = b_o^2 + b_1 X_{1j}^{\ 2} + b_2 X_{2i}^{\ 2} + b_m x_{mi}$$

where X_{1i}^2 . . $X_{mi}^{\ 2}$ = Wave II values for the explanatory variables for program i (e.g., the number of monitoring visits done by program i under the new regulations.)

C_{2i} = predicted cost of program i in Wave II.

If the model predicted well, then the Wave II residuals (C_{2i} - C_{2i}) would be distributed around 0 (zero), with half of the programs having actual costs in excess of predicted costs. Because of sampling error, the proportions of Wave II programs with residuals greater than 0 would differ from the expected .50. By performing a t-test for the equality of two proportions, we could determine if the model was underpredicting costs under the new regulations.

The sample size needed to conduct these tests is dependent on the desired power to detect significant changes

and the size of the effects one wishes to detect. Table A.1 presents the sample sizes required to detect differences in the proportions of .20 and .25.

Table A.1

SAMPLE SIZES FOR T-TEST OF THE EQUALITY OF TWO PROPORTIONS (P = .50), GIVEN POWER AND EFFECT SIZES[a]

Power	Effect Size	
	.20 s.d.	25 s.d.
.60	23	16
.70	30	18
.80	37	23

[a] Table entries are sample sizes required in each group to detect a given effect size with a given power. Tests are directional at the .05 level.

On-site interviews of 40 programs yielded an adequate number of cases to confirm the reimbursement model and to identify where potential adjustments needed to be made. Five of the large states and five of the small states were randomly selected, and 40 programs randomly selected from the Wave I sample of center-based programs in the on-site survey.

Table A.2 presents a summary of the sample for Wave II. Figures A.3 and A.4 show the composition of all FDCH and CCC sponsor samples.

Table of Contents

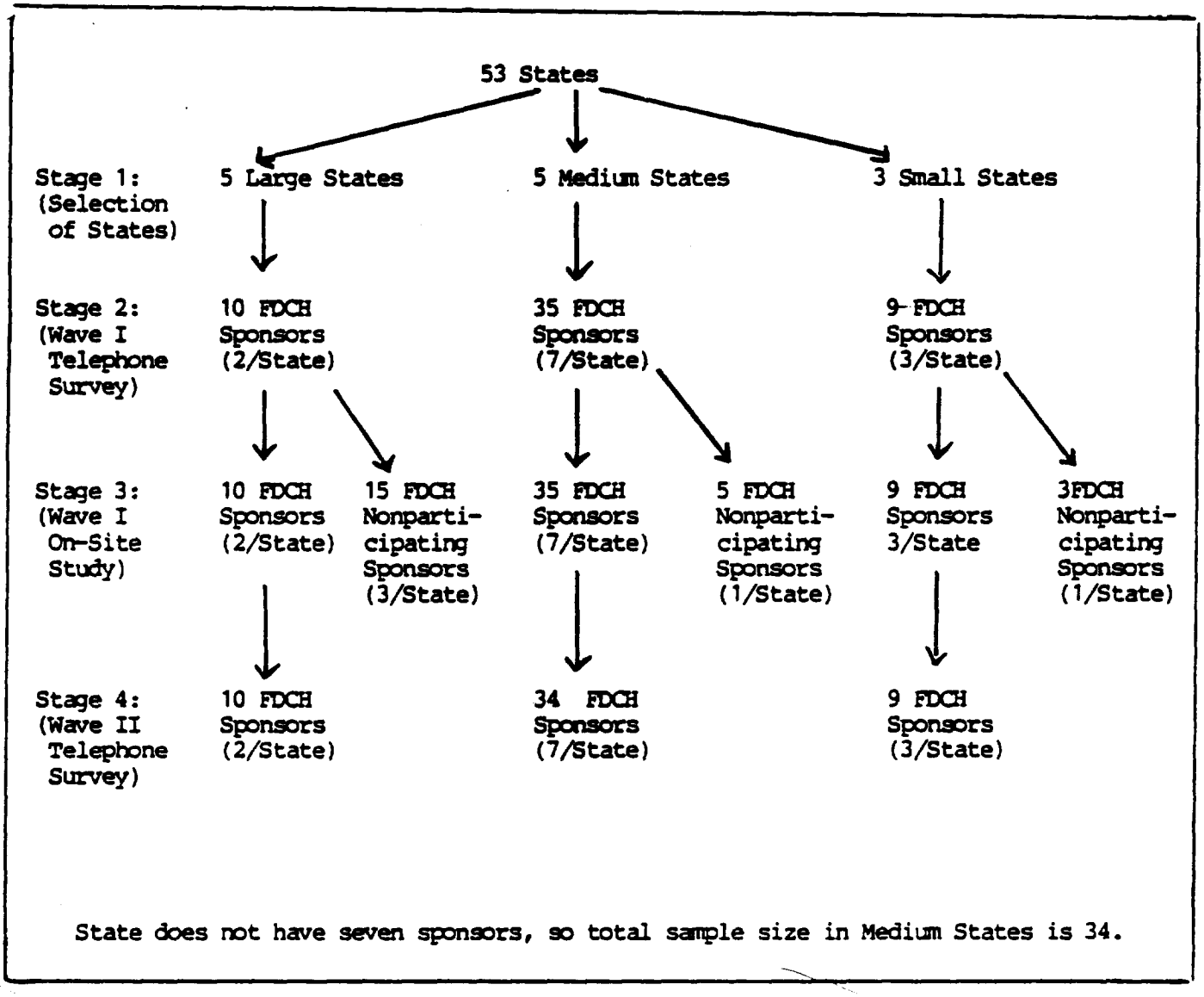
Table A.2

WAVE II SAMPLE SIZES

	Telephone Survey	On-Site Survey
FAMILY DAY CARE SPONSORS	53	--
CENTER-BASED PROGRAMS		
Sponsors	(est) 66	29
Sponsored Centers	(est) 66	29
Independent Centers	(est) 24	11
Total Sponsors	119	29
Total Centers	90	40

Figure A.3

COMPOSITION OF THE FDCH SPONSOR SAMPLE

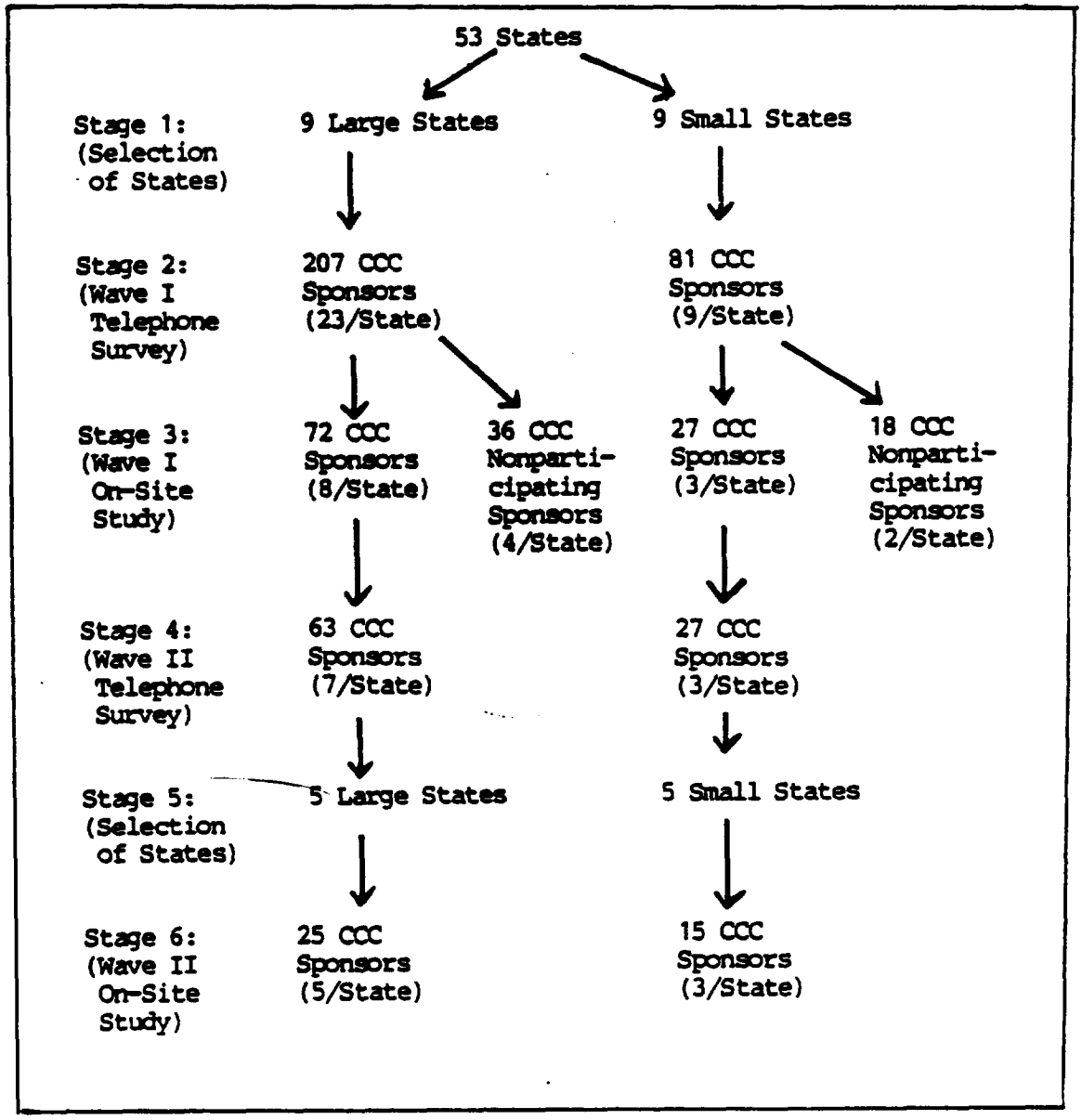


State does not have seven sponsors, so total sample size in Medium States is 34.

Table of Contents

Figure A.4

COMPOSITION OF THE CCC SPONSOR SAMPLE



APPENDIX B: FAMILY DAY CARE ADMINISTRATIVE COST REIMBURSEMENT RATE SIMULATIONS

The Omnibus Reconciliation Act of 1981 (P.L. 97-35), enacted August 13, 1981, directed the Secretary to reduce the reimbursement rates for family day care homes participating in the CCFP. Specifically:

> The reimbursement factor [for the cost of obtaining and preparing food and prescribed labor costs involved in providing meals] in effect as of the date of enactment . . . shall be reduced by 10 percent. The reimbursement factor . . . shall be adjusted on July 1 of each year to reflect changes in the Consumer Price Index for food away from home for the most recent 12-month period for which such data are available.[47]

> The maximum allowable levels for administrative expense payments [to sponsors of family day care homes], as in effect as of the date of enactment . . . , shall be adjusted by the Secretary so as to achieve a 10 percent reduction in the total amount of reimbursement provided to institutions for such administrative expenses. In making the reduction required by the preceding sentence, the Secretary shall increase the economy of scale factors used to distinguish institutions that sponsor a greater number of family or group day care homes from those that sponsor a lesser number of such homes.[48]

Following the enactment of P.L. 97-35, the Food and Nutrition Service of the Department of Agriculture requested the assistance of Abt Associates to estimate the impact of alternative rate structures on umbrella sponsors. It was FNS's intention to find that rate structure which could succeed in achieving a 10 percent reduction in reimbursements while continuing to satisfy all other legislative requirements.

---

[47] P.L. 97-35, Sec. 810 (d)(17)(f)(3)(A), August 13, 1981.
[48] P.L. 97-35, Sec. 810 (d)(17)(f)(3)(B), August 13, 1981.

To this end between August 20, 1981 and December 2, 1981 Abt Associates under FNS's directions simulated the impact of 69 alternative rate structures.

The administrative cost reimbursement rate structure consists of two components: (1) the sponsors' size class groupings or stratification (e.g., the current rate structure stratifies sponsors into three size groups--1-25, 26-75, and over 75 homes); and (2) the reimbursement ceiling for each stratum (e.g., the current ceilings are $53 per home for the first 25 homes, $41 for the next 50 homes, and $35 for each additional home). The simulations involved variations in both the sponsors' size-class groupings and in the reimbursement ceiling for each stratum. In addition to the current stratification, a total of six alternative stratifications were examined at the request of FNS. Table B.1 presents the stratifications and the number of alternative reimbursement rate ceilings examined for each stratification.

For each alternative rate structure two estimates were produced.

- Estimated annual reimbursement is the estimated annual outlay for administrative cost reimbursements assuming that sponsors do not substantially change the magnitude of their claims.

- Maximum annual reimbursement is the maximum possible outlay, given the current number of participating homes and sponsors and the size distribution of sponsors. This estimate is unaffected by sponsor claims and represents the maximum outlay should each sponsor's claim increase to the appropriate ceiling.

To arrive at these estimates, the sponsors in our sample were divided into 11 categories by sponsor size. Table B.2 shows the number of sponsors in the U.S. and the number of sponsors in our sample for each category of sponsor size. It also shows the total number of homes sponsored by the organizations in each size category. For

Table of Contents

Table B.1

NUMBER OF ALTERNATIVE REIMBURSEMENT RATE STRUCTURES EXAMINED

Stratification Alternative	Number of Homes Sponsored (Size Classes)	No. of Alt. Rate Structures Simulated[a]	Table Reference
Current	1-25; 26-75; over 75	4	B.3
I	1-50; 51-200; over 200	4	B.4
II	1-10; 11-20; 21-50; 51-200; over 200	5	B.5-B.6
III	1-10; 11-20; 21-50; 51-200; 201-1000; over 1000	2	B.7
IV	1-25; 26-75; 76-250; over 250	1	B.8
V	1-25; 26-75; 76-250; 251-1000; over 1000	1	B.9
VI	1-50; 51-200; 201-1000; over 1000	52	B.10-B.23

[a]These alternatives are referenced in the accompanying tables to correspond with alternative stratifications. The alternative rate structures for the current stratification are labeled C.1-C.4. Similarly the alternative rate structures for the alternative stratifications are labeled I.1-I.4,---VI.1-VI.52.

Table of Contents

Table B.2

NATIONAL CENSUS AND WAVE II SAMPLE
DISTRIBUTIONS OF FDCH SPONSORS
BY NUMBER OF HOMES SPONSORED[a]

NUMBER OF HOMES	NO. SPONSORS IN NATION	TOTAL NO. OF HOMES	NO. SPONSORS IN SAMPLE
1-10	171	864	5
11-20	127	1,943	10
21-30	90	2,296	5
31-40	72	2,476	3
41-50	32	1,406	3
51-75	54	3,367	2
76-100	23	2,001	2
101-125	26	2,905	2
125-200	27	4,343	5
201-1000	32	12,776	5
>1000	6	13,511	3
TOTAL	660	47,888	45

[a]Sponsor-level data for Maine in the national census have been estimated, but the total numbers of sponsors and homes at the state level match those reported in the PRS for March 1981. Data as of Jan. - June, 1981, depending on the state.

each category, the average claim for administrative costs on a per-home basis for November 1980 was computed and adjusted by an inflation factor of 1.0523 to estimate claims for July 1981.[49] These averages were then applied to a national census we obtained for all 660 CCFP umbrella sponsors in the U.S. For each category it was assumed that sponsors in the census claim per-home administrative costs approximately equal to the average claim of the corresponding sample sponsors. The total claim for each sponsor was then estimated by multiplying the estimated claim per home by the actual number of homes sponsored by that organization, as reported in the census.

Tables B.3-B.23 present the results of the simulation analyses. "Current" rate ceilings for the alternative stratification schemes in these tables are approximate weighted averages of the existing ceilings, the weights being the total number of sponsors in the alternative sponsor size categories. Reimbursements under each size category in Tables B.3-B.23 are given in thousands of dollars, while the total reimbursements are given in millions of dollars.

---

[49] This represents eight months of the annual rate of 1.0784 specified by FNS.

Table B.3

REIMBURSEMENT UNDER CURRENT STRATIFICATION

	SPONSOR SIZE				95% Confidence Interval
	1-25	26-75	Over 75	TOTAL	
NUMBER OF SPONSORS	346	200	114	660	
NUMBER OF HOMES SPONSORED	3,928	8,424	35,536	47,888	
CURRENT REIMBURSEMENT CEILINGS	$53/hm	$41/hm	$35/hm		
Estimated annual reimbursement	$1,492	$3,076	$14,170	$18.74 M	(13.12-21.57M)
Maximum annual reimbursement	2,498	4,865	15,951	23.31 M	
REIMBURSEMENT ALTERNATIVE C.1	$53/hm	$41/hm	$24.5/hm		
Estimated annual reimbursement	1,492	3,076	12,268	16.84 M	(13.12-18.62M)
Maximum annual reimbursement	2,498	4,865	12,551	19.91 M	
REIMBURSEMENT ALTERNATIVE C.2	$40/hm	$39/hm	$26.5/hm		
Estimated annual reimbursement	1,449	2,971	12,460	16.88 M	(13.04-18.17M)
Maximum annual reimbursement	1,885	4,002	12,617	18.51 M	
REIMBURSEMENT ALTERNATIVE C.3	$38/hm	$33/hm	$29/hm		
Estimated annual reimbursement	1,428	2,793	12,636	16.86 M	(12.84-18.17M)
Maximum annual reimbursement	1,791	3,636	12,948	18.37 M	
REIMBURSEMENT ALTERNATIVE C.4	$53/hm	$41/hm	$25/hm		
Estimated annual reimbursement	1,492	3,076	12,424	16.99 M	(13.12-18.78M)
Maximum annual reimbursement	2,498	4,865	12,713	20.01 M	

Table B.4

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE I

	SPONSOR SIZE				95% Confidence Interval
	1-50	51-200	Over 200	TOTAL	
NUMBER OF SPONSORS	492	130	38	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	26,287	47,888	
CURRENT REIMBURSEMENT CEILINGS*	$49/hm	$37/hm	$35/hm		
Estimated annual reimbursement	$2,871	$ 5,746	$10,240	$18.86 M	(13.12-21.72M)
Maximum annual reimbursement	5,283	6,538	11,497	23.32 M	
REIMBURSEMENT ALTERNATIVE I.1	$49/hm	$37/hm	$20.5/hm		
Estimated annual reimbursement	2,871	5,746	8,245	16.86 M	(13.00-18.93M)
Maximum annual reimbursement	5,283	6,538	8,245	20.07 M	
REIMBURSEMENT ALTERNATIVE I.2	$39/hm	$37/hm	$23/hm		
Estimated annual reimbursement	2,818	5,453	8,578	16.85 N	(13.12-18.25M)
Maximum annual reimbursement	4,205	5,758	8,578	18.54 N	
REIMBURSEMENT ALTERNATIVE I.3	$37/hm	$33/hm	$25.5/hm		
Estimated annual reimbursement	2,797	5,205	8,819	16.82 M	(12.96-17.93M)
Maximum annual reimbursement	3,989	5,308	8,819	18.12 M	
REIMBURSEMENT ALTERNATIVE I.4	$55/hm	$40/hm	$30/hm		
Estimated annual reimbursement	2,871	5,861	10,114	18.85 M	(13.12-21.81M)
Maximum annual reimbursement	5,930	7,226	10,717	23.87 M	

*"Current" rate ceilings are weighted averages of existing ceilings as applied to the alternative stratification categories.

Table B.5

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE II

	SPONSOR SIZE						95% Confidence Interval
	1-10	11-20	21-50	51-200	Over 200	TOTAL	
NUMBER OF SPONSORS	171	127	194	130	38	660	
NUMBER OF HOMES SPONSORED	864	1,943	6,178	12,616	26,287	47,888	
CURRENT REIMBURSEMENT CEILINGS*	$55/hm	$50/hm	$43/hm	$37/hm	$35/hm		
Estimated annual reimbursement	$ 458	$ 544	$1,860	$5,712	$10,197	$18.78 M	(13.12-21.60M)
Maximum annual reimbursement	570	1,242	3,630	6,366	11,446	23.25 M	
REIMBURSEMENT ALTERNATIVE II.1	$55/hm	$50/hm	$43/hm	$37/hm	$22.5/hm		
Estimated annual reimbursement	458	554	1,860	5,634	8,370	16.88 M	(13.12-18.68M)
Maximum annual reimbursement	570	1,242	3,630	6,072	8,370	19.88 M	
REIMBURSEMENT ALTERNATIVE II.2	$40/hm	$38/hm	$37/hm	$34/hm	$24.5/hm		
Estimated annual reimbursement	415	554	1,860	5,312	8,681	16.82 M	(13.02-18.02M)
Maximum annual reimbursement	415	916	2,836	5,444	8,681	18.29 M	
REIMBURSEMENT ALTERNATIVE II.3	$42/hm	$38/hm	$35/hm	$33/hm	$25.5/hm		
Estimated annual reimbursement	435	554	1,860	5,205	8,819	16.87 M	(12.96-18.04M)
Maximum annual reimbursement	435	947	2,828	5,308	8,819	18.34 M	

*"Current" rate ceilings are weighted averages of the existing ceilings, as applied to the alternative stratification categories.

Table of Contents

Table B.6

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE II

	SPONSOR SIZE						95% Confidence Interval
	1-10	11-20	21-50	51-200	Over 200	TOTAL	
NUMBER OF SPONSORS	171	127	194	130	38	660	
NUMBER OF HOMES SPONSORED	864	1,943	6,178	12,616	26,287	47,888	
REIMBURSEMENT ALTERNATIVE II.4	$53/hm	$50/hm	$43/hm	$37/hm	$22/hm		
Estimated annual reimbursement	$ 458	$ 554	$1,860	$5,705	$ 8,522	$17.10 M	(13.12-19.08M)
Maximum annual reimbursement	550	1,212	3,584	6,335	8,522	20.20 M	
REIMBURSEMENT ALTERNATIVE II.5	$40/hm	$38/hm	$37/hm	$34/hm	$24/hm		
Estimated annual reimbursement	415	554	1,860	5,312	8,569	16.71 M	(13.02-17.09M)
Maximum annual reimbursement	415	916	2,836	5,444	8,569	18.18 M	

Table B.7

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE III

	SPONSOR SIZE							95% Confidence Interval
	1-10	11-20	21-50	51-200	201-1000	Over 1000	TOTAL	
NUMBER OF SPONSORS	171	127	194	130	32	6	660	
NUMBER OF HOMES SPONSORED	864	1,943	6,178	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE III.1	$53/hm	$50/hm	$43/hm	$37/hm	$22/hm	$15/hm		
Estimated annual reimbursement	458	554	1,860	5,705	4,705	$3,186	16.47M	(12.58-18.45M)
Maximum annual reimbursement	550	1,212	3,584	6,335	4,705	3,186	19.57M	
REIMBURSEMENT ALTERNATIVE III.2	$40/hm	$38/hm	$37/hm	$34/hm	$24/hm	$15/hm		
Estimated annual reimbursement	415	554	1,860	5,312	4,520	3,238	15.90M	(12.51-17.09M)
Maximum annual reimbursement	415	916	2,836	5,444	4,520	3,238	17.37M	

Table B.8

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE IV

	SPONSOR SIZE					95% Confidence Level
	1-25	26-75	76-250	Over 250	TOTAL	
NUMBER OF SPONSORS	346	200	85	29	660	
NUMBER OF HOMES SPONSORED	3,928	8,424	11,218	24,318	47,888	
REIMBURSEMENT ALTERNATIVE IV.1	$50/hm	$35/hm	$20/hm	$10/hm		
Estimated annual reimbursement	$1,492	$3,036	$4,073	$4,310	$12.91 M	(10.55-14.38M)
Maximum annual reimbursement	2,357	4,438	4,222	4,310	15.33 M	

Table B.9

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE V

	SPONSOR SIZE						
	1-25	26-75	76-250	251-1000	Over 1000	TOTAL	
NUMBER OF SPONSORS	346	200	85	23	6	660	
NUMBER OF HOMES SPONSORED	3,928	8,424	11,218	10,807	13,511	47,888	
REIMBURSEMENT ALTERNATIVE V.1	$48/hm	$35/hm	$25/hm	$20/hm	$10/hm		
Estimated annual reimbursement	$1,492	$3,004	$4,310	$3,235	$2,509	$14.55 M	(11.81-15.99M)
Maximum annual reimbursement	2,263	4,318	4,462	3,235	2,509	16.79 M	

Table B.10

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					95% Confidence Interval
	1-50	51-200	201-1000	Over 1000	TOTAL	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
NUMBER OF SPONSORS	492	130	32	6	660	
REIMBURSEMENT ALTERNATIVE VI.1	$36/hm	$20/hm	$15/hm	$10/hm		
Estimated annual reimbursement	$2,787	$4,276	$2,991	$2,111	12.16M	(10.27-13.12M)
Maximum annual reimbursement	3,882	4,276	2,991	2,111	13.26M	
REIMBURSEMENT ALTERNATIVE VI.2	$30/hm	$27/hm	$23/hm	$20/hm		
Estimated annual reimbursement	2,525	4,322	3,891	3,527	14.26M	(12.26-14.97M)
Maximum annual reimbursement	3,236	4,322	3,891	3,527	14.97M	
REIMBURSEMENT ALTERNATIVE VI.3	$35/hm	$25/hm	$21/hm	$14/hm		
Estimated annual reimbursement	2,756	4,562	3,719	2,867	13.90M	(11.78-14.84M)
Maximum annual reimbursement	3,774	4,565	3,719	2,867	14.92M	

These numbers were called in to Terry Batt 9/15/81.

Table B.11

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI WITH MINIMUM NUMBER OF HOMES SPONSORED = 51[a]

	SPONSOR SIZE					
	1-50	51-200	201-1000	Over 1000	TOTAL	95% Confidence Interval
NUMBER OF HOMES SPONSORED	0	37,708	12,776	13,511	63,995	
NUMBER OF SPONSORS	0	622	32	6	660	
REIMBURSEMENT ALTERNATIVE VI.4	$36/hm	$20/hm	$15/hm	$10/hm		
Estimated annual reimbursement	0	$15,021	$2,991	$2,111	20.12M	(19.51-20.12M)
Maximum annual reimbursement	0	15,021	2,991	2,111	20.12M	
REIMBURSEMENT ALTERNATIVE VI.5	$30/hm	$27/hm	$23/hm	$20/hm		
Estimated annual reimbursement	0	13,337	3,891	3,527	20.76M	(19.77-20.76M)
Maximum annual reimbursement	0	13,337	3,891	3,527	20.76M	
REIMBURSEMENT ALTERNATIVE VI.6	$35/hm	$25/hm	$21/hm	$14/hm		
Estimated annual reimbursement	0	15,042	3,719	2,867	21.63M	(20.75-21.63M)
Maximum annual reimbursement	0	15,044	3,719	2,867	21.63M	

These numbers were called in to Terry Batt 9/17/81.

[a]I.e., the number of homes is set equal to 51 for all sponsors with fewer than 51 homes currently. Average claim per home for sponsors in our sample with 51-75 homes is $41.9988/month (adjusted to January 1981). Contrasts with $32/month for sponsors with 41-50 homes and $31/month for sponsors with 76-100 homes.

Table B.12

REIMBURSEMENT UNDER STRATIFICATION
ALTERNATIVE VI

	SPONSOR SIZE					
	1-50	51-200	201-1000	Over 1000	TOTAL	95% Confidence Interval
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.7	$35/hm	$31/hm	$27/hm	$23/hm		
Estimated annual reimbursement	$2,756	$4,950	$4,523	$4,089	16.32M	(12.81-17.31M)
Maximum annual reimbursement	3,774	5,005	4,523	4,089	17.39M	
REIMBURSEMENT ALTERNATIVE VI.8	$35/hm	$30/hm	$27/hm	$24/hm		
Estimated annual reimbursement	2,756	4,887	4,466	4,168	16.28M	(12.78-17.26M)
Maximum annual reimbursement	3,774	4,932	4,466	4,168	17.34M	
REIMBURSEMENT ALTERNATIVE VI.9	$35/hm	$31/hm	$28/hm	$22/hm		
Estimated annual reimbursement	2,756	4,950	4,600	4,054	16.36M	(12.81-17.35M)
Maximum annual reimbursement	3,774	5,005	4,600	4,057	17.44M	
REIMBURSEMENT ALTERNATIVE VI.10	$35/hm	$31/hm	$27/hm	$22/hm		
Estimated annual reimbursement	2,756	4,950	4,523	3,999	16.23M	(12.81-17.22M)
Maximum annual reimbursement	3,774	5,005	4,523	3,999	17.30M	

These numbers called into Terry Batt 9/17/81.

Table B.13

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI
MINIMUM # HOMES = 51

	SPONSOR SIZE					95% Confidence Interval
	1-50	51-200	201-1000	Over 1000	TOTAL	
NUMBER OF SPONSORS	0	622	32	6	660	
NUMBER OF HOMES SPONSORED	0	37,708	12,776	13,511	63,995	
REIMBURSEMENT ALTERNATIVE VI.11	$35/hm	$31/hm	$27/hm	$23/hm		
Estimated annual reimbursement	0	$15.465	$4,523	$4,089	24.08M	(21.81-24.13M)
Maximum annual reimbursement	0	15,520	4,523	4,089	24.13M	
REIMBURSEMENT ALTERNATIVE VI.12	$35/hm	$30/hm	$27/hm	$24/hm		
Estimated annual reimbursement	0	15,396	4,466	4,168	24.03M	(21.78-24.08M)
Maximum annual reimbursement	0	15,441	4,466	4,168	24.08M	
REIMBURSEMENT ALTERNATIVE VI.13	$35/hm	$31/hm	$28/hm	$22/hm		
Estimated annual reimbursement	0	15,465	4,600	4,054	24.12M	(21.81-24.18M)
Maximum annual reimbursement	0	15,520	4,600	4,057	24.18M	
REIMBURSEMENT ALTERNATIVE VI.14	$35/hm	$31/hm	$27/hm	$22/hm		
Estimated annual reimbursement	0	15,465	4,523	3,999	23.99M	(21.81-24.04M)
Maximum annual reimbursement	0	15,520	4,523	3,999	24.04M	

These numbers called into Terry Batt 9/17/81.

Table B.14

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					95% Confidence Interval
	1-50	51-200	201-1000	Over 1000	TOTAL	
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.15	$36/hm	$27/hm	$25/hm	$22/hm		
Estimated annual reimbursement	$2,787	$4,762	$4,159	$3,844	15.55M	(12.75-16.54M)
Maximum annual reimbursement	3,881	4,790	4,159	3,844	16.67M	
REIMBURSEMENT ALTERNATIVE VI.16	$34/hm	$26/hm	$25/hm	$25/hm		
Estimated annual reimbursement	2,718	4,559	4,063	4,096	15.44M	(12.62-16.35M)
Maximum annual reimbursement	3,666	4,560	4,063	4,096	16.39M	
REIMBURSEMENT ALTERNATIVE VI.17	$37/hm	$28/hm	$24/hm	$21/hm		
Estimated annual reimbursement	2,797	4,889	4,159	3,711	15.56M	(12.77-16.61M)
Maximum annual reimbursement	3,989	4,941	4,159	3,711	16.80M	

These numbers called into Ted 10/14/81.

Table B.15

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					95% Confidence Interval
	1-50	51-200	201-1000	Over 1000	TOTAL	
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.18	$38/hm	$28/hm	$27/hm	$24/hm		
Estimated annual reimbursement	$2,808	$4,953	$4,408	$4,158	16.33M	(12.87-17.44M)
Maximum annual reimbursement	4,097	5,019	4,408	4,158	17.68M	
REIMBURSEMENT ALTERNATIVE VI.19	$40/hm	$29/hm	$27/hm	$24/hm		
Estimated annual reimbursement	2,828	5,145	4,504	4,176	16.65M	(12.97-17.89M)
Maximum annual reimbursement	4,313	5,248	4,504	4,176	18.24M	
REIMBURSEMENT ALTERNATIVE VI.20	$40/hm	$31/hm	$25/hm	$22/hm		
Estimated annual reimbursement	2,828	5,271	4,466	3,902	16.47M	(13.02-17.73M)
Maximum annual reimbursement	4,313	5,395	4,466	3,902	18.08M	
REIMBURSEMENT ALTERNATIVE VI.21	$45/hm	$34/hm	$27/hm	$24/hm		
Estimated annual reimbursement	2,871	5,621	4,888	4,233	17.61M	(13.12-19.28M)
Maximum annual reimbursement	4,852	6,005	4,888	4,248	19.99M	

"Total" figures called in to Chuck Heise and Ted on 12/1/81 and copies mailed on 12/2/81.

Table B.16

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					95% Confidence Interval
	1-50	51-200	201-1000	Over 1000	TOTAL	
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.22	$43/hm	$30/hm	$24/hm	$22/hm		
Estimated annual reimbursement	$2,859	$5,398	$4,390	$3,844	16.49M	(13.06-17.91M)
Maximum annual reimbursement	4,636	5,556	4,390	3,844	18.43M	
REIMBURSEMENT ALTERNATIVE VI.23	$43/hm	$30/hm	$27/hm	$24/hm		
Estimated annual reimbursement	2,859	5,398	4,619	4,197	17.07M	(13.06-18.49M)
Maximum annual reimbursement	4,636	5,556	4,619	4,197	19.01M	
REIMBURSEMENT ALTERNATIVE VI.24	$43/hm	$25/hm	$24/hm	$22/hm		
Estimated annual reimbursement	2,859	5,084	4,102	3,790	15.84M	(12.96-17.20M)
Maximum annual reimbursement	4,636	5,189	4,102	3,790	17.72M	
REIMBURSEMENT ALTERNATIVE VI.25	$43/hm	$30/hm	$25/hm	$22/hm		
Estimated annual reimbursement	2,859	5,398	4,466	3,902	16.63M	(13.06-18.04M)
Maximum annual reimbursement	4,636	5,556	4,466	3,902	18.56M	

Table B.17

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					95% Confidence Interval
	1-50	51-200	201-1000	Over 1000	TOTAL	
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.26	$43/hm	$30/hm	$24/hm	$21/hm		
Estimated annual reimbursement	$2,859	$5,398	$4,390	$3,754	16.40M	(13.04-17.82M)
Maximum annual reimbursement	4,636	5,556	4,390	3,754	18.34M	
REIMBURSEMENT ALTERNATIVE VI.27	$43/hm	$30/hm	$25/hm	$19/hm		
Estimated annual reimbursement	2,859	5,398	4,466	3,631	16.36M	(12.92-17.78M)
Maximum annual reimbursement	4,636	5,556	4,466	3,631	18.29M	
REIMBURSEMENT ALTERNATIVE VI.28	$43/hm	$25/hm	$24/hm	$18/hm		
Estimated annual reimbursement	2,859	5,084	4,102	3,430	15.47M	(12.66-16.84M)
Maximum annual reimbursement	4,636	5,189	4,102	3,430	17.36M	

12/1/81
(4)

Table B.18

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					
	1-50	51-200	201-1000	Over 1000	TOTAL	95% Confidence Interval
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.29	$41/hm	$28/hm	$22/hm	$21/hm		
Estimated annual reimbursement	$2,839	$5,146	$4,083	$3,610	15.68M	(12.87-16.97M)
Maximum annual reimbursement	4,420	5,253	4,083	3,610	17.37M	
REIMBURSEMENT ALTERNATIVE VI.30	$41/hm	$28/hm	$25/hm	$22/hm		
Estimated annual reimbursement	2,839	5,146	4,313	3,873	16.17M	(12.98-17.46M)
Maximum annual reimbursement	4,420	5,253	4,313	3,873	17.86M	
REIMBURSEMENT ALTERNATIVE VI.31	$41/hm	$27/hm	$22/hm	$21/hm		
Estimated annual reimbursement	2,839	5,083	4,026	3,599	15.55M	(12.84-16.82M)
Maximum annual reimbursement	4,420	5,180	4,026	3,599	17.23M	
REIMBURSEMENT ALTERNATIVE VI.32	$41/hm	$28/hm	$24/hm	$21/hm		
Estimated annual reimbursement	2,839	5,146	4,236	3,725	15.95M	(12.94-17.23M)
Maximum annual reimbursement	4,420	5,253	4,236	3,725	17.64M	

12/1/81
(5)

Table B.19

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					95%
	1-50	51-200	201-1000	Over 1000	TOTAL	Confidence Interval
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.33	$41/hm	$28/hm	$22/hm	$20/hm		
Estimated annual reimbursement	$2,839	$5,146	$4,083	$3,520	15.59M	(12.79-16.88M)
Maximum annual reimbursement	4,420	5,253	4,083	3,520	17.28M	
REIMBURSEMENT ALTERNATIVE VI.34	$41/hm	$28/hm	$24/hm	$18/hm		
Estimated annual reimbursement	2,839	5,146	4,236	3,455	15.68M	(12.69-16.96M)
Maximum annual reimbursement	4,420	5,253	4,236	3,455	17.36M	
REIMBURSEMENT ALTERNATIVE VI.35	$41/hm	$27/hm	$22/hm	$17/hm		
Estimated annual reimbursement	2,839	5,083	4,026	3,239	15.19M	(12.49-16.46M)
Maximum annual reimbursement	4,420	5,180	4,026	3,239	16.86M	
REIMBURSEMENT ALTERNATIVE VI.36	$39/hm	$28/hm	$27/hm	$27/hm		
Estimated annual reimbursement	2,818	5,018	4,427	4,432	16.69M	(12.91-17.87M)
Maximum annual reimbursement	4,205	5,097	4,427	4,432	18.16M	
REIMBURSEMENT ALTERNATIVE VI.37	$37/hm	$28/hm	$25/hm	$22/hm		
Estimated annual reimbursement	2,797	4,889	4,236	3,859	15.78M	(12.82-16.84M)
Maximum annual reimbursement	3,989	4,941	4,236	3,859	17.02M	

12/2/81
(1)

Table B.20

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					
	1-50	51-200	201-1000	Over 1000	TOTAL	95% Confidence Interval
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.38	$42/hm	$31/hm	$27/hm	$24/hm		
Estimated annual reimbursement	$2,849	$5,398	$4,658	$4,204	17.11M	(13.06-18.49M)
Maximum annual reimbursement	4,528	5,551	4,658	4,204	18.94M	
REIMBURSEMENT ALTERNATIVE VI.39	$42/hm	$31/hm	$ /hm	$ /hm		
Estimated annual reimbursement	2,849	5,398	4,428	3,761	16.44M	(13.04-17.82M)
Maximum annual reimbursement	4,528	5,551	4,428	3.761	18.27M	
REIMBURSEMENT ALTERNATIVE VI.40	$38/hm	$28/hm	$27/hm	$27/hm		
Estimated annual reimbursement	2,808	4,953	4,408	4,428	16.60M	(12.87-17.71M)
Maximum annual reimbursement	4,097	5,019	4,408	4,428	17.95M	
REIMBURSEMENT ALTERNATIVE VI.41	$42/hm	$29/hm	$24/hm	$21/hm		
Estimated annual reimbursement	2,849	5,273	4,313	3,740	16.17M	(12.99-17.53M)
Maximum annual reimbursement	4,528	5,404	4,313	3,740	17.99M	

"Total" figures called in to Chuck Heise and Ted on 12/2/81 and copies mailed on 12/2/81.

12/2/81
(2)

Table B.21

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					
	1-50	51-200	201-1000	Over 1000	TOTAL	95% Confidence Interval
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.42	$40/hm	$29/hm	$24/hm	$21/hm		
Estimated annual reimbursement	$2,828	$5,145	$4,275	$3,732	15.98M	(12.94-17.22M)
Maximum annual reimbursement	4,313	5,248	4,275	3,732	17.57M	
REIMBURSEMENT ALTERNATIVE VI.43	$41/hm	$30/hm	$24/hm	$21/hm		
Estimated annual reimbursement	2,839	5,272	4,351	3,747	16.21M	(13.00-17.52M)
Maximum annual reimbursement	4,421	5,400	4,351	3,747	17.92M	

12/2/81
(3)

Table B.22

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					
	1-50	51-200	201-1000	Over 1000	TOTAL	95% Confidence Interval
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.44	$42/hm	$32/hm	$25/hm	$21/hm		
Estimated annual reimbursement	$2,849	$5,450	$4,562	$3,830	16.69M	(13.08-18.09M)
Maximum annual reimbursement	4,528	5,625	4,562	3,830	18.54M	
REIMBURSEMENT ALTERNATIVE VI.45	$42/hm	$32/hm	$25/hm	$22/hm		
Estimated annual reimbursement	2,849	5,450	4,562	3,920	16.78M	(13.08-18.18M)
Maximum annual reimbursement	4,528	5,625	4,562	3,920	18.64M	
REIMBURSEMENT ALTERNATIVE VI.46	$42/hm	$32/hm	$26/hm	$21/hm		
Estimated annual reimbursement	2,849	5,450	$4,639	3,887	16.82M	(13.08-18.23M)
Maximum annual reimbursement	4,528	5,625	4,639	3,887	18.68M	
REIMBURSEMENT ALTERNATIVE VI.47	$42/hm	$32/hm	$26/hm	$22/hm		
Estimated annual reimbursement	2,849	5,450	4,639	3,977	16.91M	(13.08-18.32M)
Maximum annual reimbursement	4,528	5,625	4,639	3,977	18.77M	

12/2/81
(4)

Table B.23

REIMBURSEMENT UNDER STRATIFICATION ALTERNATIVE VI

	SPONSOR SIZE					95% Confidence Interval
	1-50	51-200	201-1000	Over 1000	TOTAL	
NUMBER OF SPONSORS	492	130	32	6	660	
NUMBER OF HOMES SPONSORED	8,985	12,616	12,776	13,511	47,888	
REIMBURSEMENT ALTERNATIVE VI.48	$41/hm	$31/hm	$26/hm	$21/hm		
Estimated annual reimbursement	$2,839	$5,335	$4,562	$3,873	16.61M	(13.05-17.93M)
Maximum annual reimbursement	4,421	5,473	4,562	3,873	18.33M	
EIMBURSEMENT ALTERNATIVE VI.49	$41/hm	$31/hm	$26/hm	$22/hm		
Estimated annual reimbursement	2,839	5,335	4,562	3,963	16.70M	(13.05-18.02M)
Maximum annual reimbursement	4,421	5,473	4,562	3,963	18.42M	
REIMBURSEMENT ALTERNATIVE VI.50	$41/hm	$32/hm	$25/hm	$22/hm		
Estimated annual reimbursement	2,839	5,394	4,543	3,916	16.69M	(13.07-18.03M)
Maximum annual reimbursement	4,421	5,547	4,543	3,916	18.43M	
REIMBURSEMENT ALTERNATIVE VI.51	$41/hm	$32/hm	$26/hm	$21/hm		
Estimated annual reimbursement	2,839	5,394	4,620	3,884	16.74M	(13.07-18.07M)
Maximum annual reimbursement	4,421	5,547	4,620	3,884	18.47M	
REIMBURSEMENT ALTERNATIVE VI.52	$41/hm	$32/hm	$26/hm	$22/hm		
Estimated annual reimbursement	2,839	5,394	4,620	3,974	16.83M	(13.07-18.16M)
Maximum annual reimbursement	4,421	5,547	4,620	3,974	18.56M	

Table of Contents

REFERENCES

Coelen, C., Glantz, F., & Calore D. Day Care Centers in the United States: 1976-77. Cambridge: Abt Books, 1979.

Forman, C., Child Nutrition Amendments of 1978: Administration Views (Hearings before the Subcommittee on Nutrition of the Committee on Agriculture, Nutrition and Forestry, U.S. Senate, 95th Congress Second Session on the Child Nutrition Amendments of 1978). Washington, D.C.: U.S. Government Printing Office, 1978.