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ABSTRACT

To find major problems with the National School Lunch Program, a study was conducted with 1,015 students, their parents, and 16 school lunch supervisors in 18 Washington school districts. When interviewed, only 2% of the students said the lunch program did not need any changes. The needed changes most often mentioned were for "different kinds of food" and "food more like what I have at home." Parents thought the main problems were the type of food served, "not enough to eat," and food preparation. Parents complaints varied significantly among school districts and were inversely related to the districts' rate of participation in the lunch program. Supervisors had fairly accurate perceptions of foods children disliked but not of foods children liked. Most parents (75%) thought lunches were reasonably priced, but 43% thought they could send a sack lunch cheaper. About one-third of the supervisors had problems getting adequate food service help. The distribution system and type of food offered through United States Department of Agriculture commodities were problems for 75% of the supervisors. In many districts parents did not receive adequate information about eligibility for free or reduced-price lunches, and anonymity for recipients of free or reduced-price lunches was a problem. (JHZ)

Problems in the Management of the National School Lunch Program in Washington School Districts

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SUMMARY AND CONCLUSIONS

Eighteen Washington school districts were sampled to find the major problems with the NSLP (National School Lunch Program). The sample included 1,015 students, their parents, and 16 school lunch supervisors.

When interviewed, only 2% of the students said the lunch program did not need any changes. The needed changes most often mentioned were for "different kinds of food" and "food more like what I have at home." Other changes, in order of frequency of listing, were better cooked food, more food, shorter lines, different places to eat, better looking food and friendlier people.

Parents thought the main problems were the type of food served, "not enough to eat" and food preparation.

Percentages of parents with complaints about the lunch varied significantly among school districts. The higher the percent complaining among parents who paid regular prices for the lunch in a district, the lower the rate of participation in the lunch program. Complaints about food preparation and not enough to eat were also inversely related to participation.

Complaints that lunch supervisors heard from children were often problems with the menu. About half the supervisors' perceptions of childrens' problems agreed with children's statements of problems. Supervisors had fairly good perceptions of foods children disliked. They had a much less accurate idea which foods children most liked. The partial understanding could lead to preferred foods being served less often than they might be.

Supervisors' most frequent suggestions for increasing participation were to serve more foods the children like and to offer more choices. Presumably supervisors are prevented from altering menus more by cost and need to use available commodities.

Lunches were reasonably priced, 75% of the parents thought. But 43% thought they could send a sack lunch cheaper.

Most supervisors thought participation is important and that it is related to the price of the lunch. In 15 districts, the lunch cost 30¢ or 35¢, and it was 40¢ in the other district. Most supervisors thought that these prices were not so high as to encourage sack lunches.

Half the supervisors thought the lunch should be self-supporting, but two-thirds had operated at a deficit recently. They knew of no way to reduce costs more than they already had, and thought reduced financial support or a cut in donated commodities would hurt the program. Higher prices would encourage more sack lunches and raise the NSLP lunch average cost still higher, they thought.

About a third of the supervisors had problems getting adequate food service help and half would use more help if they had money for it.

The distribution system for USDA commodities or the type of food offered through USDA commodities were problems for 75% of the supervisors.

Supervisors wanted more information on the availability of commodities and advance notice on them. They also wanted more training in food preparation, in nutrition and on the use of standard recipes.

Supervisors saw little need for help on menu planning, but thought food from donated commodities was disliked by children. Even though supervisors do not perceive the need for more information or training on menu planning, they do view the type of food served to be a problem.

Thirty-five percent of the parents said their children knew which classmates got free or reduced-price lunches. Twelve percent of the children had this knowledge, usually from a source other than another child. This percentage varied from 0 to 41 among the 17 districts. About half the supervisors stated that it was hard to comply with regulations on free and reduced price lunches. Many districts should examine and change their ways of trying to keep free or reduced-price recipients anonymous.

Nearly 11% of the parents had not received information about the free or reduced price eligibility for free or reduced-price lunches. In some districts, all parents had the information, but in another district, 34% had not. In many districts, the method of sending out eligibility forms should be examined.

INTRODUCTION

During the 1970-71 school year, 259 of Washington State's school districts participated in the NSLP (National School Lunch Program). In December, 1970 an average of 297,804 lunches were served daily in the state (2). Using a cost of 69.7¢ per meal, estimated by Epps and Matsumoto (4), results in daily costs of school lunches of nearly $205,000. Based on 180 school days per year, the cost is $36,900,000. The value of food used in the state's lunch program was $12,500,000 in a year's time. (180-day school year and food cost of 23.3¢ per plate.)

Nearly all lunch programs are managed on a district wide basis. Management units vary widely, as Washington district sizes range from 30 or fewer students to over 70,000. The smallest district served an average of 21 lunches per day in December 1970 and the largest averaged 27,988 lunches. Some 28 districts served fewer than 100 meals per day and 9 districts served more than 5,000 lunches daily.

During the 1970-71 school year, about 50% of the students participated in the NSLP in districts where it was offered (2). Assuming the NSLP improves the nutritional status of children, any increase in participation should increase nutritional status and health of the nation's school children.

In each school district, many functions (such as food procurement, menu planning, food preparation, accounting, and labor supervision) must be adequately performed to have a successful program. The background of persons primarily responsible for these functions ranges from those highly trained in institutional

food management to experienced cooks. Moreover, school lunch programs must comply with state and federal regulations to be eligible for the federal subsidies in terms of cash and commodities.

Purpose

The purpose of this bulletin is to identify some of the problems of operating the school lunch program in Washington. This identification can help to organize training programs for school lunch service personnel and lead to direct changes in state and federal regulations for the lunch program. We hope solutions to the problems will increase school lunch participation.

The specific problems with which this bulletin deals are:

1. complaints and suggested changes in the lunch by children and parents
2. lunch supervisors' views of children's complaints
3. lunch supervisors' views of children's food preferences
4. parents' opinions of prices and costs of the lunch
5. supervisors' opinions of prices and costs
6. labor problems
7. problems with governmental regulations and commodities
8. problems with free and reduced price lunches
9. supervisors' views on needed training.

School lunch supervisors in 16 districts that fully participated in the NSLP were interviewed. Data were also obtained from interviews with students aged 8-12 and from interviews with students' parents in 16 fully participating districts, one partially participating district with no NSLP in the high school, and one nonparticipating district.

This bulletin is part of an overall evaluation of the school lunch and school breakfast programs in Washington. Therefore, the sample was not designed solely to study management problems. The overall objectives of the study were to:

1. determine why some schools do not participate in the school lunch program
2. determine the effects of school feeding program on the dietary profile and nutritional status of the children
3. determine food acceptance by ethnic groups and relate food acceptance to socioeconomic variables
4. relate socioeconomic and psychological variables to nutritional status and dietary profiles of children participating and not participating in the school feeding programs.
5. develop recommendations based on the results of the study to improve menu and management patterns and extend participation in school feeding programs.

The sample

To accomplish these objectives, 18 school districts were sampled. The details of the sampling plan are given in the appendix.[1]

The samples were designed to represent specific groups in Washington. Strictly speaking, the results cannot be generalized to other states of the U.S. They can suggest hypotheses to be tested in other states or, if conditions in another state are similar, they might apply to that state.

The sample of children consisted of a total of 1,015 subjects. The sample of parents was the same size, that is, the child is the unit of observation. In the case of siblings, the parent was counted more than once. The total sample of children and parents is not a representative sample of Washington. However, each of the 12 cells (table 1) was designed to be representative of that cell. To obtain a sample that would be representative of the state's population, each cell needs to be weighted by the proportion of the state's population it represents. The weights and the method by which they were obtained are given in the appendix. In much of the subsequent analysis, there was little evidence of important differences among cells. Where this was the case, the cells were simply weighted in proportion to the sample size.

Table 1. Number of subjects by category

Group	Below poverty nonparticipants	Below poverty participants	Above poverty nonparticipants	Above poverty participants	Total
Chicano	11	130	19	90	250
Black	3	82	52	126	263
Anglo	48	108	214	132	502
Total	62	320	285	348	1,015

RESULTS

Complaints and suggested changes in the lunch

Complaints about the school lunch were obtained from three sources—the students, the parents and the lunch supervisors.

Students

The students were asked if they thought anything could be done to improve the hot lunch program. If the student answered "yes," he or she was given 10 cards with suggested changes and asked to select the three most desired changes. The 10 changes and the percentages desiring each change, by ethnic group, are given in table 2.

[1] A copy of the appendix can be obtained from the department of agricultural economics, Washington State University, Pullman 99163

Students were not reluctant; 98% of them suggested changes. Only 2% were satisfied with the lunch program just as it is.

The two changes in the school lunch most often suggested were "different kinds of food" and "food more like what I have at home." There was uniform agreement on this among the three ethnic groups and among children from households with different income levels (table 2). The third most often suggested change for Chicanos and Anglos was "more special meals." This was less important to Black students ($P = .01$). Thus, students expressed a desire for greater day to day variety in menus but including food more familiar to them. Evidently, improved menu planning would be the primary factor in increasing student satisfaction with the lunch. Improved menu planning could increase lunch participation.

The fourth most frequent desired change was "bigger choice of food." No significant differences were found among ethnic groups. Because some students may have a high preference for a given food that others dislike, a choice would increase satisfaction with the total menu.

"Better cooked food" and "more food" were changes desired by nearly 30% of the students.

Shorter lines and different places to eat were changes desired by about 25% of the students. Among Anglos and Chicanos, higher percentages of the above-poverty participants than less affluent children wanted shorter lines (table 3).

"Better looking food" and "friendlier people" were desired by the fewest students. These are not important concerns of most students.

A significantly larger percent of below poverty non-participating Blacks wanted friendlier people in the lunch room. This may reflect a more impersonal urban environment from which most of the Black sample was drawn. The urban area lunch-rooms may have a less friendly atmosphere than the nonurban ones and thus be seen as problems.

When the responses from students are grouped by school district, five categories show significant differences among districts (table 4)

1. different kinds of food
2. more special meals
3. bigger choice of food
4. more food
5. shorter lines.

Only in the case of "shorter lines" could any characteristics of the school districts be identified that would explain the different response rates. Districts in which a *small* percentage of students suggested shorter lines tend to be those serving lunch in the classrooms. However, a higher percentage of these students want a different place to eat. Table 5 has these comparisons.

In order to identify districts with similar patterns of suggested changes, a correlation matrix was constructed. On the basis of this matrix, four groups of districts were defined (table 6). Three participating districts (8, 16 and 17) and the nonparticipating district (13) were omitted because they did not correlate highly with other districts.

Group 1 included two districts (table 6), in which shorter lines and more food were the changes mentioned most often. In group 2's five districts, a very high percentage of students wanted menus that included foods they like better than those now served, with larger variety in menus.

Group 3 had four districts whose primary concerns were "different kinds of food," "food more like that at home," and "better cooking." One district in group 3 had lunches prepared in a central kitchen, frozen, and reheated in the individual school at lunch time.

The fourth group included three districts in which "food more like at home," "bigger choice of food" and "different kinds of food" were the maojr suggestions for

Table 2. Students' suggested changes in the school lunch by ethnic group

Item	Chicano[a]	Black[a]	Anglo[a]	All[b] ethnic groups
Different kinds of food instead of the same thing all the time	53.3	45.1	45.0	45.2
Food that's more like what I have at home	40.5	45.3	39.8	40.0
More special and "fun" type meals	34.8	24.6	38.2	37.7
A bigger choice of food	30.2	36.4	33.3	33.3
Better cooked food	26.2	33.6	28.9	29.0
More food	26.2	29.6	28.8	28.8
A different place to eat	30.4	30.3	25.8	25.9
Shorter lines	19.3	16.5	24.8	24.5
Better looking food	14.6	20.6	18.3	18.3
Friendlier people working in the hot lunch program	13.3	15.6	12.9	13.0

[a]These are weighted percentages of the individual cells. (Weights are given in appendix A). The weights are such that these percentages represent Washington's 8-12 year old school population for each ethnic group.

[b]These are weighted percentages representing Washington's school popuiation. Weights given to each ethnic group were .021, .024 and .951 for Chicanos, Blacks, and Anglos respectively.

change. Students in this group did not appear to have a strong single complaint about the lunch.

The district groupings were an attempt to group districts into types and relate the types to other characteristics. If this were possible, districts not participating in this study could identify the group they belonged to and find likely weaknesses in their own school lunch program. However, the districts within the four groupings are heterogeneous in many other ways. Therefore, districts not in the study cannot identify, without some research on their own part, which group they belong to. The four groupings did show that groups of districts are similar in the remedies needed to increase student satisfaction with the school lunch.

Problems identified by parents

In contrast to 98% of the children wanting changes, only 34% of their parents had complaints. When complaints were made, the responses were recorded without the forced choices made by students.

The three most common complaints by parents in

Table 3. Suggested changes in the school lunch by poverty level, lunch participation and ethnic group

Item	Chicano		Blacks			Anglos			
	Below Pov. Part.	Above Pov. Part.	Below Pov. Part.	Above Pov. Non-part.	Above Pov. Part.	Below Pov. Non-part.	Below Pov. Part.	Above Pov. Non-part.	Above Pov. Part.
	Percent								
Different kinds of food	54.8	49.4	47.1	30.2	49.2	47.9	43.3	46.9	43.8
Food more like at home	41.1	37.1	48.2	52.8	42.1	35.4	36.8	45.0	35.9
More special meals[a]	35.5	33.7	17.6	35.8	26.2	14.6	36.8	35.4	41.4
Bigger choice of food	31.5	25.8	36.5	34.0	37.3	33.3	30.2	32.1	35.2
Better cooked food[b]	24.2	32.6	30.6	37.7	34.9	47.9	23.6	34.4	25.0
More food	28.2	19.1	25.9	32.1	31.7	18.8	31.1	27.8	28.9
Different place to eat	31.5	24.7	38.5	30.2	26.2	22.9	34.0	20.0	28.9
Shorter lines[c]	16.1	31.5	17.6	13.2	14.3	25.0	23.6	22.5	27.3
Better looking food	13.7	15.7	12.9	20.8	27.0	29.2	16.0	18.2	18.8
Friendlier people[d]	12.1	18.0	22.4	13.2	9.5	20.8	6.6	19.1	8.6
Number of Observations	124	89	85	53	126	48	106	209	128

[a]Below poverty nonparticipating Anglos are significantly lower than other Anglos @ .05 level. Blacks are significantly higher than the other ethnic groups @ .01 level

[b]Below poverty nonparticipating Anglos are significantly higher @ the .01 level

[c]Above poverty participating Chicanos are significantly higher than other Chicanos @ .01 level. Anglos are significantly higher than the other ethnic groups @ the .02 level

[d]Below poverty participating Blacks are significantly higher than above poverty Blacks @ .05 level. Below poverty nonparticipating Anglos are significantly higher than other Anglos @ .01 level

Table 4. Suggested changes in the school lunch by district.

District no.	Different kinds of food	Food more like at home	More special meals	Bigger choice of food	Better cooked food	More food	Different place to eat	Shorter lines	Better looking food	Friendlier people	No. observations	District size
1	33.3	29.2	29.2	20.8	12.5	45.8	25.0	50.0	12.5	16.7	24	>20,000
2	30.0	30.0	10.0	35.0	20.0	45.0	15.0	40.0	20.0	10.0	20	< 3,500
3	72.5	37.5	37.5	15.4	27.5	17.5	22.5	35.0	2.5	15.0	40	< 3,500
4	51.5	36.4	48.5	21.2	21.2	33.3	30.3*	27.3*	18.2	9.1	33	3,500-20,000
5	47.9	33.3	39.6	31.3	18.8	35.4	35.4*	6.3**	18.8	12.5	48	< 3,500
6	50.8	45.8	22.0	47.5	25.4	30.5	32.2	13.6	25.4	6.8	59	< 3,500
7	62.2	35.1	37.8	32.4	29.7	21.6	35.1	27.0	13.5	5.4	37	3,500-20,000
8	44.4	44.4	37.0	27.3	29.6	37.0	14.8	33.3	29.6	7.4	27	< 3,500
9	43.6	40.9	34.5	31.8	37.3	33.6	36.4*	5.5*	22.7	13.6	110	3,500-20,000
10	35.5	48.4	24.7	43.0	26.9	28.0	34.4*	33.3**	17.2	8.6	93	>20,000
11	40.0	52.5	42.5	30.0	32.5	32.5	35.0*	2.5*	20.0	5.0	40	3,500-20,000
12	42.9	45.2	28.0	36.3	36.3	31.0	29.8	16.1	19.6	12.5	168	>20,000
13	50.7	37.1	27.9	30.0	44.3	20.0	17.1	15.7	25.7	30.0	140	3,500-20,000
14	33.3	44.4	27.8	44.4	22.2	30.6	27.8*	25.0*	22.2	8.3	36	>20,000
15	73.7	28.9	50.0	42.1	15.8	2.6	23.7	36.8	10.5	15.8	38	< 3,500
16	45.2	51.6	29.0	25.8	32.3	16.1	41.9*	29.0*	3.2	16.1	31	< 3,500
17	33.3	61.9	42.9	14.3	33.3	38.1	4.8	23.8	14.3	23.8	21	< 3,500
18	41.7	36.1	30.6	30.6	27.8	11.1	27.8	38.9	16.7	13.9	36	3,500-20,000
Significance level[a]	.01	N.S.	.05	.05	N.S.	.01	N.S.	.01	N.S.	N.S.		

[a]Tests made without the nonparticipating district—Number 13

*Students fed in classrooms.

**Students fed in classrooms in 1 of 3 schools sampled.

order of most to least frequent were the type of food served, not enough to eat, and food preparation (table 8). The type of food served was also the major change suggested by students. However, students placed food preparation and bigger choice of food ahead of more food.

The differences between student changes and parents' complaints could come from several sources. First, 66% of all parents made no complaints, whereas only 2% of the children had none. Second, parents' perceptions of the school lunch may have differed from those of their children. Third, the parent's question was open-ended, while the child's question was a forced choice.

Parents of the above-poverty participants expressed more problems with the lunch program than did parents of below-poverty participants or the above-poverty nonparticipants (table 9). However, the evidence was not strong, as the difference between the above and below poverty level participants was significant at the .05 level only for Anglos.

Black and Chicano parents were more critical of the type of food served than were Anglos (table 8). ($P = .01$) This ethnic difference did not show up in the responses from children (table 3).

When parents' responses were grouped on the basis of school districts, significant differences ($P = .01$) among districts were found for all 3 types of complaints. The percentage of parents expressing some type of problem with the school lunch ranged among districts from 12% to 64% (table 10). Complaints about the type of food served varied from 0 to 37%; about not

Table 5. Effect of eating place on two suggested changes by students

Place where noon meal is served	Suggested change: Shorter lines	Suggested change: Different place to eat
Lunchroom	25.7%	26.4%
Classroom	12.4%	34.9%
Significance Level	.01	.02

Table 6. District groupings with respect to suggested changes in the lunch program

Group	District[a]	Group characteristics
1	1, 2	High percentage of shorter lines High percentage of more to eat
2	3,4,7,15,18	Very high percentage of different kinds of food High percentage of special meals Low percentage of more to eat
3	5,9,11,12	High percentage of different kinds of food High percentage of food more like home High percentage of better cooked food
4	6,10,14	High percentage of food more like at home High percentage of bigger choice of food High percentage of different kinds of food

[a]District numbers corresp d to those in table 4

Table 7. Suggested changes in the school lunch program by district groupings and percentage of students suggesting the changes

Group	Different kinds of food	Foods more like at home	More special meals	Bigger choice of food	Better cooked food	More food	Different place to eat	Shorter lines	Better looking food	Friendlier people
1	31.8	29.6	20.5	27.3	15.9	45.5	20.5	45.5	15.9	13.6
2	60.9	34.8	40.8	28 3	24.5	16.8	27.7	33.2	12.0	12.0
3	43.4	43.2	33.1	33.6	33.9	32.5	33.1	10.1	20.5	12.0
4	39.9	46.8	24.5	44.7	25.5	29.3	32.4	25.5	20.7	08.0
Sig. level	.01	.05	.01	NS	.02	.01	NS	.01	NS	NS

enough food varied from 0 to 23%; about food preparation from 0 to 16%.

The complaints about the lunch program were related to district size. Districts having between 3,500 and 20,000 students had fewer problems than those with less than 3,500 or more than 20,000 students (table 11). Complaints about type of food and enough to eat were significantly related to district size at the .01 and .05 levels respectively. The medium sized districts had fewer complaints. Differences among districts in food preparation were not statistically significant.

Table 8. Parents' complaints about the school lunch, by ethnic group

Problem	Chicano[a]	Black[a]	Anglo[a]	All[b] ethnic groups
	-----	%	-----	
No problems	63.3	66.7	66.3	66.3
Type of food	19.0	18.3	10.1	10.5
Enough to eat	9.2	7.4	8.2	8.2
Food preparation	5.6	6.1	5.6	5.6

[a]These are weighted percentages of the individual cells (weights are given in appendix A). The weights are such that these percentages represent Washington State's 8-12 year old school population parents for each ethnic group

[b]These are weighted percentages representing Washington's 8-12 year old population parents. Weights are given each ethnic group were .021, .024 and .951 for Chicanos, Blacks, and Anglos respectively

Children's suggestions generally failed to show this relationship with district size, except for wanting food more like that at home. It is possible that the children in the medium sized districts were more satisfied with the lunch. Since children had to select among 10 alternatives and since only 2% of the children were satisfied with the lunch, the childrens' interviews did not show absolute levels of satisfaction or dissatisfaction. If parental complaints are a valid measure of school lunch problems, the programs in different size districts need to be contrasted to identify and demonstrate the strengths that seem to be most dominant in the medium sized districts.

Complaints and lunch participation rate

If student suggestions and parental problems measure dissatisfaction with the lunch program, a smaller percentage of children should be participating in the lunch program in districts with many complaints. Participation rates were obtained from administrators in the grade schools surveyed.

First, these rates were adjusted to exclude all recipients of free and reduced price lunches. Rates were then adjusted for price differences according to the demand curve estimated by West and Hoppe (3). That is, all rates were adjusted to represent those associated with a 35¢ lunch. For districts with 30¢ lunches, the participation rate was reduced by 6%. For districts with 40¢ lunches it was raised by 6%. Three groups of districts were then formed: those with participation rates 60% or more, those with participation rates of 40-60% and those with participation rates of less than 40%.

As parent complaints increased, participation rates decreased ($P = .01$). See table 12. The relationship of participation rate to particular problems with the lunch was not as straightforward. As the proportion

Table 9. Parents' complaints about the school lunch, by poverty level, lunch participation and ethnic group

	Chicanos		Black			Anglos		
	Below pov. part.	Above pov. part.	Below pov. part.	Above pov. nonpart.	Above pov. part.	Below pov. part.	Above pov. (weighted)	Above pov. part.
	-----	-----	-----	percent	-----	-----	-----	-----
No problems[a]	65.0	59.0	68.3	69.2	62.9	73.1	70.6	60.3
Type of food[b]	17.1	24.1	18.3	9.6	21.0	4.6	8.6	13.0
Enough to eat	11.4	3.6	8.5	3.8	8.1	9.3	3.7	12.2
Food preparation	5.7	4.8	6.1	5.8	6.5	7.4	5.5	5.3
Number of observations	123	83	82	52	124	108	109	131

[a]Difference among Anglos is significant @ .05 level

[b]Difference among three ethnic groups is significant @ .01 level

of parents expressing problems with type of food and not enough to eat increased, participation rates decreased ($P = .05$). However, the relationship between participation rate and type of food was significant at only the .075 level.

Since few students offered no suggestions, we could not specify a relationship between no complaints and participation. The type of suggestion by students was related to participation. As participation rates decreased, the proportion of students suggesting a wider choice of food and better cooked food increased ($P = .02$); see table 12. Also, the higher the participation, the higher the percentage of students suggesting shorter lines. This may have been a residual suggestion. That is, perhaps if students were fairly well satisfied with other aspects of the lunch program, but were forced to select three changes, shorter lines were selected.

Table 10. Parent complaints about the school lunch by district

District no.	No. of observations	No problems	Type of food	Enough to eat	Food preparation	District size
1	34	73.5	0.0	9.1	3.0	20,000
2	26	53.8	15.3	23.1	11.5	3,500
3	38	73.7	13.2	5.3	2.6	3,500
4	31	77.4	6.5	3.2	16.2	3,500-20,000
5	47	61.7	14.9	14.9	4.2	3,500
6	59	69.5	15.3	8.5	5.1	3,500
7	30	76.7	6.7	3.3	0.0	3,500-20,000
8	28	67.9	7.1	0.0	10.7	3,500
9	112	67.9	9.8	7.2	4.5	3,500-20,000
10	90	75.6	13.3	3.3	4.4	20,000
11	40	87.5	7.5	2.5	0.0	3,500-20,000
12	158	53.8	22.1	12.6	6.2	20,000
14	37	73.0	10.8	8.1	8.1	20,000
15	36	36.1	30.6	19.5	13.9	3,500
16	30	46.7	36.6	0.0	10.0	3,500
17	22	36.4	31.8	4.5	4.5	3,500
18	37	75.7	18.9	2.7	8.1	3,500-20,000
Sig. level		.01	.01	.01	.01	

Table 11. Parental problems with the school lunch by size of district

District size	No problems	Type of food	Enough to eat	Food preparation
	Percentage			
Under 3,500	58.0	19.6	9.8	7.3
3,500-20,000	74.4	10.0	4.8	5.2
Over 20,000	64.5	16.0	10.0	5.7
Significance level	.01	.01	.05	NS

A regression analysis of the relationship between district participation rate and student and parent complaints showed that a 10% decrease in student suggestions for a bigger choice of food results in a 7.6% increase in participation.[2] A 10% decrease in student suggestions for better cooked food leads to a 5.8% increase in participation. A 10% decrease in parental complaints increases participation 3.8%.

Districts with a 10,000 or more student enrollment had a participation rate 15% lower than those districts with fewer students. The dependent variable, participation rate, was adjusted for lunch price. This rate was the district rate used by West and Hoppe and not the school rate used in the above analysis.

These results show that parent and selected student complaints about the lunch explain a significant portion of the variation in district lunch participation. Actually the 3 complaint variables and district size explained about 70% of the variation in the adjusted participation rate. If parents and students are accurately expressing their problems with the lunch, districts could increase participation by offering a wider choice of foods and better prepared meals. If this could be done without increasing the price of the lunch, participation would increase.

The result is not as clear if improvements in preparation or choice add to the cost of the lunch. If these improvements add 5¢ to the price of the lunch, one would expect a 6% decrease in participation resulting from the price increase. It is possible that the improvements would more than compensate for this decline and the actual participation would increase.

For example, if the improvements decreased the percentage of students wanting a bigger choice of food by 9% or more, the improvements would more than compensate for the increased price, and participation would increase. If the improvements had little effect on complaints, participation would decline with price increases.

For policy purposes, the missing link is the relationship between actual food preparation and choice of food and parent and student complaints. With the above framework, lunch supervisors have to guess the effect changes in the lunch would have on complaints. The results do show that increased participation through increased quality of the lunch may be possible, even if the price is raised. Further study of these relationships should help increase lunch participation and parent and child satisfaction with the lunch.

[2] The regression equation was:

$PR = 114.3 - .762\ BC - .578\ CF - .381\ PC - 1.46\ DS \quad R^2 = .78$
$(10.3)\ (-4.11)\ (-2.06)\ (-3.06)\ (-5.55)$

Where PR = participation rate adjusted for lunch price
BC = bigger choice of food (students)
CF = better cooked food (students)
PC = parental complaints
DS = district size

t values are given in parentheses.

Lunch supervisors' views of children's complaints

School lunch supervisors in the 16 fully participating districts were asked what types of complaints they heard made by students. Fourteen supervisors responded to the question. One stated there were no consistent complaints. Most of the complaints reaching supervisors centered on types of food; 2 of the 14 supervisors mentioned length of lunch lines. Specific complaints included:

1. dislike of vegetables
2. desire for more protein food, less vegetables
3. desire for more salads
4. desire for more kid type food
5. desire for more familiar food

Table 12. Student suggestions and parent problems by district lunch participation rate

Item	Participation rate[b] High	Med	Low	Sig. level[a]
Student suggestions				
Different kinds	50.0	44.3	42.9	NS
More like at home	39.5	43.4	45.2	NS
More special meals	35.9	31.2	28.0	NS
Bigger choice	27.0	37.9	36.3	.02
Better cooked	26.2	24.5	36.3	.02
More food	25.4	28.7	31.0	NS
Different place to eat	32.0	26.9	29.8	NS
Shorter lines	24.6	28.4	16.1	.01
Better looking food	12.9	19.6	19.6	NS
Friendlier people	11.7	10.1	12.5	NS
No. observations	256	327	168	
Parent problems				
No problems	71.1	65.0	53.8	.01
Type of food	13.7	15.5	22.1	NS[c]
Enough to eat	5.9	7.9	12.6	.05
Food preparation	3.9	8.2	6.2	NS
No. observations	256	329	158	

[a] NS means not significant at .05 level

[b] High rate is 60% or more, medium 40-60%, low is less than 40%

[c] Significant at the .075 level

6. desire for greater variety in the menus
7. desire for familiar looking food
8. complaint that choices are gone too quickly
9. complaints based on personal food preferences
10. desire for more food
11. desire for better size portions more, some less.

In a general way, the 14 supervisors' opinions about children's complaints agreed with those voiced by children. Both sources agreed that the most frequently voiced problem was with the menu.

A district by district comparison between the most frequent changes suggested by students and the student complaints heard by the lunch supervisors was made.

In 6 of the 16 districts, there was no agreement between the two sources of complaints (table 13). In 7 of the 16 districts, the two sources were in partial agreement. By partial agreement we mean that if the supervisor stated something about individual preferences and if one of the children's most frequent suggestions was for different kinds of food, the two were considered to be in partial agreement. This suggests that about half of the lunch supervisors have some idea of the weaknesses in their lunch programs as viewed by students, but that better communication between students and lunch supervisors is needed in many districts if student ideas are to influence the lunch program.

The lunch supervisors were also asked about types of complaints heard from parents. Of 16 supervisors, 15 responded; 10 said they got few or no complaints. The lack of complaints by parents to lunch supervisors was in general agreement with the findings in the survey of parents (66% percent expressed no problems with the school lunch). The complaints listed by the other five supervisors were:

1. type of menu
2. menu variety
3. not enough to eat
4. cost of the lunch
5. getting children on free and reduced price lunches
6. preferential treatment for children getting free lunches
7. waiting too long in line.

Lunch supervisors' views of children's food preferences

Lunch supervisors in the 16 participating districts were asked which foods served to the children were most liked and least liked. In districts with Black or Mexican-American children, their views about food preferences of children of the differing ethnic groups were also obtained.

In a home interview, children were asked to rank 58 foods according to preference. This interview consisted of three different parts: a preference rating for milk products, a preference rating for fruits and vegetables and a preference rating for other foods commonly served in the school lunch. The student was given 17 cards for the milk products rating, 20 for the other foods rating, and 21 for the fruit and vegetable rating. The cards contained a picture and a label of each food. The student divided the cards into 5 groups corresponding to the best to least liked food. Individual food items were then given numbers ranging from 1 to 5 according to preference. Preference means were determined for each food for each ethnic group within every district. Means for each district were then compared with the foods that each district supervisor listed as most preferred and as least preferred.

The lunch supervisors' opinions about which foods children disliked were fairly accurate. Only four foods listed by the supervisors as low preference were ranked by children above the over-all mean for at least one ethnic group. These exceptions were raw carrots, by Anglo children; chocolate pudding, by Black children; and tomatoes and whole milk, by Mexican-American children.

Supervisors had less accurate opinions about foods children liked best. If the data truly represent reality, supervisors may serve too many less preferred foods. For example, meat, potatoes and gravy was listed as a favorite by five supervisors. However, children in all five districts, and of all three ethnic groups, said this was actually a low preference food for them. Apparently it is a food they are willing to eat, but do not enjoy.

Puddings, other than chocolate pudding, are in a similar category. Several supervisors listed rice, coconut and custard pudding as favorites of the children. Children in these districts (Anglo and Mexican-American) rate all of these as low preference foods. Of all puddings included in the food preferences, only chocolate pudding was ranked as a favorite by children in all three ethnic groups. In contrast, only one lunch supervisor said that chocolate pudding was a favorite of the children in the district.

Other foods that supervisors said were high preference foods but were not supported by children's preferences included cheese foods, tacos and spinach for Anglo children; and tossed salad and green beans for Black children.

A number of foods that most groups of children ranked as high preference were also rated high by the supervisors. These included hamburgers, pizza, hot dogs, sweet rolls, and fried chicken. No supervisor listed any fresh fruit as a favorite of the children. The children gave high preferences to a number of fruits, such as oranges, apples, watermelon, bananas and strawberries. However, the preferences for fruits were high only relative to vegetables. It was not determined if they were high relative to other foods.

A more accurate perception of children's likes could improve menu planning.

Table 13. Comparison of student's suggested change with student complaints felt by lunch supervisors

District no.	Most frequent suggestions from survey of students	Student complaints felt by lunch supervisors
1	Shorter lines (50.0%) More food (45.8%)	No response
2	More food (45.0%) Shorter lines (40.0%)	No consistent complaints
3	Different kinds of food (72.5%)	Some would complain no matter what is served. Too much of the same food is their biggest problem.
4	Different kinds of food (51.5%) More special meals (48.5%)	Only complaints about food; they don't like many vegetables.
5	Different kinds of food (47.9%) More special meals (39.6%)	They usually center around personal preferences.
6	Different kinds of food (50.8%) Bigger choice of food (47.5%)	They don't like things to be changed. They want it to look the same. Looks make a lot of difference.
7	Different kinds of food (62.2%) More special meals (37.8%)	Very few complaints from students. Complaints based on individual preferences.
8	Different kinds of food (44.4%) Food more like at home (44.4%)	Not enough seconds.
10	Food more like at home (48.4%) Bigger choice of food (43.0%)	Some would like larger portions of protein-rich items and less vegetables.
11	Food more like at home (52.5%) More special meals (42.5%)	No response.
12	Food more like at home (45.2%) Different kinds of food (42.9%)	Portions served-some like small servings, some like large. Don't like to stand in line. They would like more meat or main dish. They would like to have skim milk as well as whole.
14	Food more like at home (44.4%) Bigger choice of food (44.4%)	Sometimes complain they run out of dishes too soon. They are not fond of some dishes. They prefer more salad items.
15	Different kinds of food (73.7%) Food more like at home (50.0%)	Poor to good food. Not enough seconds.
16	Food more like at home (51.6%) Different kinds of food (45.2%)	Not enough "kid" type food, many dishes do not appeal to many students.
17	Food more like at home (61.9%) More special meals (42.9%)	I don't like that--I've never tried it so I don't like it.
18	Different kinds of food (41.7%) Shorter lines (38.9%)	Takes too much time to stand in line.

Lunch supervisors' suggestions for increasing participation

Ways of increasing participation of students paying the full price and of students receiving free or reduced price lunches would be expected to differ. Therefore, supervisors were asked for suggestions for each group.

Generally, lunch supervisors' opinions for increasing participation of paying students coincides with the changes most frequently suggested by students. Twelve supervisors offered some suggestions for increasing participation of those students paying the full price for their lunch. Five suggested serving more of the types of food that children like. Three said to offer more choices, two suggested serving more food, and two suggested lowering prices. Other suggestions were:

1. more flexibility in menu planning; i.e., to have nutrition standard instead of Type A requirements
2. student participation in menu planning
3. more cheerful, less hurried lunchroom atmosphere
4. more nutrition education showing the value of school lunch and reasons, other than personal choice, for not serving certain foods.

When asked for ways of increasing participation of students on free or reduced price lunches 9 out of 16 supervisors had no suggestions and one did not answer. Many said most, if not all, eligible children in the district were already participating in the lunch program. Of those offering suggestions, three mentioned free or very low priced lunches for all children. One mentioned assurance of anonymity of students. Type of food served, closed campuses, and more active encouragement of participation by the principal were also mentioned.

School lunch prices

Parents' opinions

School lunch programs continually face the problem of keeping prices low enough to encourage lunch participation while serving a palatable, nutritious meal good enough to encourage participation and to enhance the nutritional well-being of students.

Lunch prices in the sample varied between 30¢ and 40¢ and the mean for the sample was about 35¢. Seventy percent of the parents thought school lunches were reasonably priced. The 35¢ price was close to the mean for all districts in the state (3).

The higher the price, the fewer the parents who thought the lunch was reasonably priced ($P = .01$). See table 14. Differences in lunch prices were significant for the Black and for the Anglo samples at the .01 level. However, the differences among the three price levels were not significant among Chicanos.

There were also significant differences among the three ethnic groups with respect to the percentage who thought lunches were reasonably priced. Smaller proportions of Blacks and Chicanos than Anglos thought lunches were reasonably priced. Reasons for the ethnic differences in attitude toward lunch prices were not obvious.

Parental opinions of whether the lunch was reasonably priced did not differ significantly between lunch participants and nonparticipants. Factors other than cost entered the decisions about participating in the school lunch. A parent who thinks a sack lunch

Table 14. Percentage of parents thinking lunches are reasonably priced

	Lunch price				
Group	30-32 cents	35-37 cents	40 cents	40 cents (hypothetical[d])	All prices
Chicano[a]	63.8	75.2	41.4		68.5
Black[a]	85.4	55.6	39.7		61.5
Anglo[a]	89.5	85.4	33.5	88.9	76.5[c]
All ethnic groups[b]	38.8	84.4	33.9	88.9	75.9

[a]Weighted according to the percent of Washington's population in each cell.

[b]Weighted according to the percent of Washington's population in each group.

[c]Does not include hypothetical price.

[d]This comes from the nonparticipating where the respondents were asked "Do you think a 40 cent lunch would be reasonably priced or too expensive?"

can be sent for less may still have the child participate in the school lunch for other reasons, such as getting a better lunch, convenience for the parent, or preference of the child.

Forty-three percent of the parents thought they could send a sack lunch for less than the cost of the school lunch (table 15). It would be expected that the proportion who thought they could send a sack lunch for less would vary by lunch price. To keep the analysis simple, it was restricted to the above poverty sample.

The lunch participants showed an inconsistent pattern of lunch price opinions (table 16). Contrary to expectations, the proportion who thought they could send sack lunches for less was lower in districts with 35-37¢ lunches than in districts with 30-32¢ lunches. As expected, the proportion who thought they could send a sack lunch for less was substantially higher in districts with the 40¢ price.

The nonparticipants show a more consistent relationship between lunch prices and the percentage who thought they could send a sack lunch for less. For

Table 15. Percentage of parents who think they can send a sack lunch for less money than the NSLP price

Ethnic group	Below poverty level		Above poverty level		Total[b] (weighted)
	nonparticipant	participant	nonparticipant	participant	
	Percent				
Chicano	*	26.9	*	30.8	27.5
Black	*	20.5	51.5	42.9	34.6
Anglo	41.0	26.9	62.3	31.1	43.9
All ethnic groups (weighted)	41.0	26.3	62.3	31.4	43.3

*Too few observations to provide a reliable estimate

[a]Weighted according to the percentage of each ethnic group in each cell found in Washington's school population

[b]Weighted according to the percentage of Washington's school population in each cell

Table 16. Percentage of parents who think they can send a sack lunch for less money than the NSLP—by price, ethnic group, and participation (Includes only the above-poverty sample.)

	Price of Lunch				
	30-32 cents	35-37 cents	40 cents	40 cents hypothetical	All prices[a]
	Percent				
Chicano					
participants	66.7	15.6	8.3		30.2
Black					
participants	42.4	37.9	68.2		44.0
nonparticipants	21.4	65.2	57.1		50.7
Anglo					
participants	31.7	24.3	70.6		33.7
nonparticipants	53.3	64.6	86.2	57.0	67.3
Total					
participants	32.3	23.4	69.9		33.3
nonparticipants	52.9	64.5	85.8	57.0	67.0

[a]Weighted according to the proportion of all three ethnic groups in each price category

Anglos, as the lunch price increased, so did the percentage who thought they could send a sack lunch for less (P = .03). For Blacks, an exception occurred between the 35-37¢ and the 40¢ lunch. This was small and nonsignificant. For all nonparticipants, a price increase of 10¢ resulted in a 33% increase in the number of parents who thought they could send a sack for less. Using only the two extreme prices (30¢ and 40¢) nearly the same percentage (37%) was obtained with the participants. That is, in districts charging a 40¢ price, about 35% more parents thought they could send a sack lunch for less than in districts charging a 30¢ price.

Chicano participants showed a contradictory pattern with respect to the percentage who could send a sack lunch for less at various prices. The highest percentage was at the lowest price. This inconsistency could have been due to a number of factors. First, Chicano respondents may have misunderstood the question, since they generally had little formal education and since many were interviewed in Spanish through an interpreter.

Second, whether the mother worked could influence the value placed on the sack lunch. At the 30-32¢ school lunch price, 26% of the Chicano household had a second wage earner. In districts with the 35-37¢ and the 40¢ lunch prices, 41% and 70% respectively of the Chicano households had second major income earners.

Third, the quality of the lunch may affect the response. Parents may be comparing the sack with a school lunch of comparable quality in terms of what the child actually eats. Thus, the higher the quality of the school lunch, the higher the cost of the sack lunch.

A fourth factor may be the type of management practiced by the parent. The parent with traditional management would be more likely to say she could make a lunch cheaper than it could be bought since she would be more likely to consider this to be her duty.

A significantly larger proportion of Anglo lunch nonparticipants than participants thought they could send a sack lunch for less money (P = .01). See table 16. For Blacks the same test showed no significant difference at the .05 level. Thus, among Anglos, a distinguishing characteristic between parents of lunch participants and nonparticipants was their opinions on how expensive it was to send a sack lunch. This may explain why some children do not participate in the NSLP.

Significant differences in the proportion who thought they could send a sack lunch for less also existed among the ethnic groups. However, these differences appeared inconsistent and did not demonstrate a clear pattern. Comparing participants at all prices, Chicanos had the lowest percentage who thought they could send a sack lunch for less. However, at the 30-32¢ lunch price, Chicanos had the highest percentage.

The percentage of parents who thought they could send a sack lunch for less than a hypothetical 40¢ price was significantly lower in the nonparticipating district than the percentage in the participating district charging a 40¢ price. This, coupled with the significantly larger proportion who thought lunches were reasonably priced in the nonparticipating district, suggests that parents' attitudes are much more positive towards lunch prices in nonparticipating districts.

Supervisors' views of prices and costs

This section includes an analysis of six questions asked the school lunch supervisors regarding prices and costs of the lunch. All supervisors thought it was very important to keep lunch prices low. Most expressed the opinion that prices were related to participation and that a high lunch participation was important. Examples of typical responses were "very important, so that we may reach more children." "Lunch prices should be kept as low as possible while we work for the universal lunch program." "Extremely important, participation drops off sharply when prices are raised." "They have been raised only once here in 28 years." "It is important to keep prices low so more children will participate." "As soon as prices rise, more children bring unbalanced meals to school."

Of the 16 supervisors, 11 thought the price of the lunch did not encourage students to bring sack lunches. Two others believed it would in very few cases. The remaining three thought price prohibited some children from participating, particularly those from large families.

The lunch prices charged in 15 of the 16 districts were either 30¢ or 35¢ at the time of the interview. The one district that charged 40¢ believed price did discourage participation in very few cases.

A current issue in the pricing of the school lunch was whether the lunch program should be self-supporting. Ten of the sixteen supervisors believed the lunch program should be self-supporting. The other six thought that child feeding and nutrition were as important as the educational goals financed by district tax funds. One of the more lucid comments supporting this view was, "The lunch program should feed school children a nutritious noon lunch. It should also educate them in food-related health. These goals, *not* self-support, should be the primary aim."

When asked if the program had ever operated at a year-end deficit, 10 supervisors responded that it had. 5 said that it had not since the present supervisor had been on the job and 1 supervisor did not know. Most supervisors attributed their year-end deficits to rising costs and declines in amounts of USDA-donated foods. Two mentioned mismanagement of the program.

When asked what factors were adjusted to achieve a balanced budget, two supervisors did not respond. One stated nothing could be done. Cutting down on new equipment purchases and cutting down on labor were the most often mentioned methods. Other ways mentioned were: increased baking, changed menu, certain costs covered by the district, more donated commodities used, increased lunch participation, more competitive bidding on food, and reduced food waste.

Even though there is some financial flexibility in the operation of lunch programs, 10 of the 16 supervisors contend that if they had less revenue now, it would be impossible to reduce expenses and continue the lunch program. The expenses that the other six supervisors thought could be reduced were: food costs (baking more bread or serving less food), labor costs (two districts), equipment costs (no replacements), deletion of lunch ticket system and going on a cash basis

Supervisors' views of labor problems

The purpose of this section was to find out if the 16 participating districts were having any major labor problems and if so, what they were.

Opinions of supervisors regarding the need for additional food service employees were equally divided. Eight supervisors responded yes and eight responded no. The type of additional employees needed included cashiers, secretarial help, food preparation help, and serving and clean-up help.

Eleven supervisors stated they had little or no problem in securing adequate food service personnel. The remaining five stated varied problems, and pointed to the short hours and the amount of physical exertion required. Some of the five also had problems obtaining adequate training of food service personnel.

Six supervisors said they had some type of problem with food service employees; three did not respond to the question, and seven reported no problems with employees. Problems stated by the above six were: portioning the right amount of food, not always following the menu, preplanning, training and working with untrained substitutes, employees desiring longer shifts, interpreting union contracts, and personality clashes No one problem was common to more than a single district.

Ten supervisors listed complaints made by the food service personnel. Two supervisors failed to answer, and four expressed no complaints Complaints listed were:

1. not enough time allowed for serving lunch
2. student noise
3. students not tasting a food
4. food waste among students
5. inadequate or obsolete equipment
6. keeping track of free and reduced price lunches
7. not being paid for additional time needed for clean up
8. children working in the lunch room being non-cooperative
9. not enough help or money for the tasks performed
10. drivers complaining that certain menus cause too much lifting and handling
11. keeping the daily meal count record book
12. not being able to wear colored uniforms.

The only complaint listed by more than one supervisor was keeping track of free and reduced price lunches. This was listed by two supervisors. Thus, in the opinion of the supervisors no complaints by food service personnel were widespread.

Faculty objections to lunchroom supervision duties were listed by nine supervisors. Seven supervisors had heard no faculty objections to lunchroom supervision duties In most of the nine districts where faculty objections were stated, the faculty viewed lunchroom supervision as an extra duty and not part of their regular assignment. Many of the supervisors said the faculty wanted the noon hour to themselves.

Government regulations and donated commodities

Supervisors were asked what requirements and regulations of the state and federal governments were hard to comply with. The requirements concerning free and reduced-price lunches were most often cited (7 of 14 supervisors). Four listed some type of food requirement, and three stated none of the regulations were difficult to comply with. Two supervisors did not reply.

Among the problem food requirements listed were: vitamin C requirements (2 districts), vitamin A requirements, 1/2 pint of whole milk (because of waste), balanced menus, the food group requirement (rather than a nutritional requirement), and exact amounts of protein and vegetable foods. Each of these was mentioned in only one district. The above requirements are federal requirements, except for the vitamin requirements (state requirements are more stringent than federal recommendations).

The food commodity program creates problems for most of the supervisors. Twelve supervisors listed some problem. The remaining four felt no important problems existed. The following specific problems were listed. The number of districts encountering the problems are given in parentheses.

1. Uncertainty as to amount and time of delivery (6).
2. Having food items that have a low acceptance by children (5).
3. Not enough commodities (3).
4. No commodities arriving early in the year (1).
5. Oversupplies creating storage problems (1).
6. Notification coming after delivery of commodities (1).
7. Arriving too late in the school year for use in that year (1).
8. Poor quality items (rice for example) (1).
9. Need more high protein food items (1).

Thus, the two major problems with commodities were the distribution system and the type of food items carried. Eight districts had some problem with the distribution of commodities. Five supervisors listed some problem with the quality or type of food items offered.

This distribution and notification of commodity delivery is the responsibility of the state. The type of

commodities and when the commodities are bought is the responsibility of the federal government.

From the 16 districts sampled, only 3 supervisors stated any type of problem with the State School Lunch Supervisors' Office. Problems listed by the three supervisors were delays in receiving requested information and lack of communication concerning federal regulations.

Supervisors' views on information and training needed

The supervisors were asked what information was used by lunch room personnel and where more information or training was needed.

Supervisors were asked about their use of the USDA's menu planning guide, recipe card file, and quantity buying guide. Two of the responses were so vague we could not tell if they used any of the above three sources of information. However, these two did say they used USDA publications. Among the remaining 14 supervisors, 9 stated they used the menu planning guide, 13 used the recipe card file, and 10 used the quantity buying guide. No attempt was made to find out how much these sources of information were used.

When asked what sources of information concerning federal and state food service programs and regulations would be of value, 3 supervisors responded, "all." Two stated that information on free or reduced price lunches would be of value. Four supervisors said that all information now being sent to them was of value. Other specific pieces of information thought to be valuable to the supervisors were: the USDA lunch agreement, the milk agreement, any change in federal guidelines or reimbursement, the state newsletter, district bulletins, allotment sheets, the three guides discussed in the previous section, and the monthly magazine from the American School and Food Service Association.

When asked about needed additional information, four supervisors said they needed more information on availability and advance notices on commodities. Other specific sources of information on the following were needed: methods by which government support monies are apportioned, understanding minority groups, and guidelines on the amount of money to spend and what is expected of food service personnel. Each was listed by only one supervisor. Four supervisors said no additional information was needed. Two did not answer the question. One supervisor suggested fewer changes in regulations, while another stated that information was sometimes late in arriving. One listed "any and all information about the NSLP."

Two supervisors failed to respond to the question on need for additional training for food service personnel. Two stated no additional training was needed. These were from large districts that carried on their own programs. Three listed workshops, but no specific subject matter. The remaining 13 listed the following areas in which additional training would be useful.

1. practical methods of food preparation (4 supervisors)
2. use of commodities such as split peas, lentils and bulgar (1 supervisor)
3. nutrition education (3 supervisors)
4. use of standardized recipes (3 supervisors)
5. portion control (1 supervisor)
6. USDA regulations (1 supervisor)
7. personnel and general operation of a kitchen (1 supervisor)
8. any type of institutional food service training (1 supervisor)

Two supervisors specifically voiced the need for nearby workshops. Another said area or state-wide workshops were needed.

Free and reduced-price lunches

Identification of students receiving free lunches

It is the intent of Congress to keep the identity of free and reduced price lunch recipients anonymous. School districts are, therefore, prohibited from openly identifying free and reduced price lunch recipients. According to Washington State Regulations, "School districts shall take such actions as are necessary to assure that the names of children eligible to receive free or reduced priced lunches shall not be published, posted, or announced in any manner. There shall be no overt identification of any such children by use of special tokens or tickets or by any other means. Children eligible for a free or reduced price lunch shall not be required to use a separate lunchroom, go through a separate serving line, enter the lunchroom through a separate entrance, eat lunch at a different time or eat a different lunch from the lunch sold to children paying the full price of such lunch" (1).

To determine how well school districts keep this anonymity, the respondent of the home interview was asked if children knew which classmates receive reduced-price or free lunches. If the answer was yes, the respondent was asked how they knew. Also, school lunch supervisors were asked to explain the accounting procedure used to keep track of the free and reduced-price lunches.

Thirty-five percent of the respondents to the home questionnaire said that their children knew which children received free and reduced price lunches (table 17). The 17 school districts varied from 8% to 59%.

The reasons for the children's knowing were, in order of the most to the least frequent:

1. the children told each other
2. the meal ticket
3. the way the teachers handle free lunches
4. different lines.

The first reason was outside the school districts' control while the latter three were not. Therefore, attention will be focused on the latter three.

An average of 12% of the respondents in the 17 districts said their children knew by either reason two, three or four (table 17). The district high was 41% In three districts, none of the respondents said their children knew for one of the three reasons under the control of the school district.

The percentage of children who knew which children received free and reduced price lunches varied significantly by district size. In districts with less than 10,000 students, 9% of the respondents said their children knew because of reasons 2, 3 or 4. In districts with enrollments of over 10,000, 14% said their children knew because of these reasons.

The responses of the school lunch supervisors showed little difference among districts with respect to the method used to keep track of free or reduced price lunches. For example, District Number 2 (table 17) responded, "We collect cash or cash tickets from the paying students. Students on free lunch are issued tickets at the same time as the cash ticket students in the privacy of the cafeteria office. No one knows whether they are purchasing tickets or being given free ones. The tickets have a number, which the cook records. These tickets are exactly alike, except that the tickets issued to all free and reduced price students have different coded numbers, unknown to the students."

District 17, which had no respondents indicating the children knew because of reasons two, three or four, had a similar response from supervisors. "Children come to the office for tickets. If they get free lunches, this is noted on a ledger sheet." Similarly, the response from District 11 was, "Regular tickets in a numbered series are issued. They can be identified by their numbers." Thus, the systems used by districts having a high percentage of children knowing were similar to those used by districts with a low percentage of children knowing. What accounts for the difference? One of the authors personally observed that in District 5 very few of the paying students used tickets while passing through the lunch lines; most of them paid cash. Therefore, even though the system did not intentionally identify the free lunch students, it may have been doing so unintentionally. In districts where the percentage

Table 17. Percentage of children that know who gets free and reduced priced lunches

District number[a]	% that know	% who know by either meal tickets, lines or teachers	Dominant method	District enrollment
1	58.6	41.4	Meal ticket	⟨10,000
2	38.7	19.4	Meal ticket	⟩10,000
3	42.1	19.3	Meal ticket	⟩10,000
4	55.4	18.5	Lines	⟨10,000
5	51.5	18.2	Meal ticket	⟩10,000
6	48.4	16.1	Teachers	⟩10,000
7	44.3	11.4	Meal ticket	⟩10,000
8	53.1	9.4	Meal ticket	⟨10,000
9	17.9	7.1	Meal ticket	⟨10,000
10	16.1	6.5	Meal ticket	⟨10,000
11	19.1	6.4	Meal ticket	⟨10,000
12	19.6	5.4	Teachers	⟩10,000
13	20.0	2.5	*	⟨10,000
14	35.0	2.5	*	⟨10,000
15	23.8	0.0		⟨10,000
16	21.9	0.0		⟨10,000
17	8.0	0.0		⟨10,000
Districts ⟨10,000	32.1[b]	9.2[c]		
Districts ⟩10,000	37.7[b]	13.9[c]		
All Districts	35.1	11.7		

[a]District numbers are not the same as those assigned in other tables in this bulletin. This was done to keep the districts as anonymous as possible.

[b]Difference is significant at .10 level.

[c]Difference is significant at .05 level.

*Only one complaint.

of children knowing free and reduced price lunch eaters was low, the same system might not have been identifying free and reduced price lunch eaters, because many of the paying students bought tickets.

Insufficient information was available to analyze the problem in districts where different lines or the way teachers handled the lunches was the dominant method under district control for identifying free and reduced price lunch eaters.

Receipt of free-lunch eligibility forms

Regulations governing free and reduced priced lunches state that, "A letter or notice shall be distributed, on or about the beginning of each school term, to the parents of children attending the school district. Such letter or notice shall contain information on:

1. the specific criterion used in the school district's eligibility standards
2. how a family may make application for a free or reduced price lunch for its children
3. how a family may file an appeal for an adjustment in the decision of a school district with respect to such application
4. a copy of the application for free or reduced price lunches shall accompany the notice." (1)

By weighting the sample cells, it is estimated that about 9% of the childrens' parents had not received information on free lunch eligibility (table 18).[3] It was hypothesized that the percentage of parents receiving this information was related to poverty level and lunch participation. Schools may be more likely to see that below-poverty households and households whose children participate in the lunch program received this information. The percentages shown in table 18 give some credence to the hypothesis. However, a statistical test showed none of the differences to be significant at the .05 level.

Note that 9.2% of the below poverty participants stated they did not receive the form. Nearly all of this group were receiving free or reduced price lunches. Those who said they did not receive the form for applying for free and reduced price lunches either had received the form but forgot, or learned about the free or reduced price lunches by other means such as word of mouth. This group may have applied directly to the school for the free or reduced price lunch.

The percentage of parents not receiving free lunch eligibility information varied substantially by district, from 34% to 0. (table 19). In four districts with the highest percentage, over 20% of the respondents said they had not received eligibility forms. These four districts appeared to have little in common. Two had enrollments of over 10,000 students and two had under 10,000. There was also no relationship between the percentage not receiving forms and the percentage of

[3] This percentage is in terms of children and not of parents. That is, if there were siblings in the sample, the parent response was counted twice.

Table 18. Percentage of parents not receiving forms for free lunches, by cell

Ethnic Group	Below poverty participant	Above poverty nonparticipant	Above poverty participant	All[a] groups
	Percentage			
Chicano	8.3	*	10.6	9.0
Black	7.6	21.2	14.6	12.6
Anglo	9.4	11.3	6.8	9.0
All groups[a]	9.2	11.4	7.0	9.1

*Insufficient observations. Also, there were only 26 observations for the Below poverty nonparticipant group. Of the 26, 7.7% had not received the forms for free lunches

[a]These are weighted percentages. The weights are such that these percentages represent Washington's school population for each group

Table 19. Percentage of parents not receiving forms for free lunches, by district

District	% Not receiving	District size
1	34.4%	<10,000
2	25.7%	<10,000
3	23.2%	>10,000
4	21.2%	>10,000
5	11.1%	<10,000
6	11.1%	<10,000
7	9.5%	<10,000
8	9.4%	>10,000
9	8.5%	<10,000
10	7.0%	>10,000
11	5.4%	>10,000
12	4.3%	<10,000
13	3.7%	<10,000
14	3.6%	<10,000
15	3.4%	>10,000
16	2.5%	<10,000
17	0.0%	<10,000
All districts	10.7%	

children who knew the free and reduced price lunch recipients. (The districts numbers do *not* correspond to the same districts in tables 17 and 19.)

The cause of the differences among districts was not found in the lunch supervisors' responses. Supervisors in all districts said they send home eligibility information at least once a year. There was no difference in the percentage of households not receiving eligibility information between those districts sending information out once a year and those sending it out more than once a year. One can conjecture that the district differences lie in the way the forms are sent home. This matter was not covered in this study.

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APPENDIX

The appendix describing the sample design and the school districts is available as a separate multilith. For a copy, write to the Department of Agricultural Economics. Washington State University. Pullman. WA 99163.

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