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Commodity Support Generated By School Feeding Programs

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During the Great Depression, the coexistence of hungry children and food surpluses generated public support of school-sponsored lunches, which became an official program in the late 1930's. By 1941, about 5 million children participated regularly. Following World War II, public support and program growth continued, and in FY 1980, about 27 million children participated daily.

Over the years, the focus gradually shifted more toward providing nutritious lunches for low-income school children, although market support for food surpluses remained an important feature. However, a 1977 report by the General Accounting Office (GAO) once again focused sharply on the market support objective, asking how the production of commodities used in the school lunch program would be affected if the program did not exist.

Responding to this GAO report, the U.S. Senate passed Resolution 90. Section 8 of the Resolution directed the Secretary of Agriculture to determine the contributions to the agriculture economy by school feeding operations, commodity by commodity and region by region. To provide a basis for the Department's initial response to Section 8 of the Resolution, researchers from USDA's Economic Research Service (ERS) estimated the support provided by public and private school feeding operations for each commodity in school year 1977/78. For most commodities studied, the report found that the school feeding programs resulted in increased net sales.

This market support was computed by comparing the amounts of each commodity prepared for school feedings with estimated amounts of what would be used if the children brought their meals, ate at home, or ate in commercial refreshment places. Positive support represents the additional commodity amounts that were received by schools from purchases and donations, which would not have been removed from the market if there were no school feeding operations. Negative support represents the amount of a food or commodity in addition to the 1977/78 quantity removed by schools, which would have been removed if there had been no such operations. The amount of positive or negative support that each

Table 1—Net Support For Specified Products

Product	Purchases and donations	Net support by context		
		I	II	III
		1,000 pounds		
Milk/cheese group				
Fluid milk	2,947,009 ¹	1,614,502	1,968,516	2,348,171
Ice cream, ice milk, sherbet	225,272 ¹	133,284	157,723	183,932
Cheese ³	860,533 ¹	-1,135,643	-713,311	-266,808
Fats/sweets group				
Fruit combined dishes (Includes fruit desserts)	106,315	85,364	90,930	96,899
Table spreads and shortening	125,477	2	2	2
Cooking/salad oil	10,198	2	2	2
Mayonnaise	8,795	4	4	4
Mayonnaise contained in products		246	564	905
Salad dressing	17,442	4	4	4
Salad dressing contained in products		-35	85	214
Sugar (white granulated)	68,535	-53,524	-12,965	30,471
Sugar (brown & powered)	26,477	4	4	4
Jams, jellies, preserves	8,207	-74,287	-52,370	-28,886
Bread/cereal group				
Wheat flour	228,262 ¹	2	2	2
Wheat breads/stuffing	161,060	-232,851	-128,199	-15,967
Rice ³	22,621 ¹	12,112	14,904	17,898
Snacks	13,442	-97,843	-68,277	-36,570

commodity receives depends on how the menu offerings of the schools compare with what children brought in bag lunches or ate at their homes or in refreshment places.

ERS researchers used data from two previously conducted surveys for this analysis. Time and budget constraints did not permit conducting a special survey designed specifically to respond to Senate Resolution 90. *Food Service in the Nation's Schools* provided national estimates of the poundages of foods and commodities that schools either purchased or received as donations (not final consumption). *The 1977/78 Nationwide Food Consumption Survey* (NFCS) provided individual records of foods received by school-age respondents. These data sources, though not designed to

answer questions like those posed by Senate Resolution 90 should provide reasonable estimates of commodity support generated by the school lunch program. How these data sources were used to determine commodity support, computational problems, and procedures are explained in a forthcoming ERS report.

Whenever possible, support was reported in farm-equivalent weights. Farm-equivalent weight is the weight of the item as sold at the farm. For example, pork is reported as the liveweight of hogs, and applesauce as harvested apples. When recipes were available, prepared foods were broken down into their ingredients and converted back to farm-level commodities. For some foods, such as oleomargarine and soft drinks, this disaggregation was not possible.

Table 1—Net Support For Specified Products continued

Product	Purchases and donations	Net support by context		
		I	II	III
		1,000 pounds		
Meat/poultry/fish and beans group				
Beef prepared dishes	173,530	114,344	130,069	146,932
Ground beef	730,068 ¹	342,241	445,277	555,776
Pork	164,860 ¹	-102,025	-32,297	42,482
Chicken (broilers)	188,655 ¹	106,257	128,148	151,625
Turkey	113,889 ¹	24,049	47,917	73,514
Fish/seafoods	198,597 ¹	-136,699	-47,620	47,912
Eggs ³	42,961 ¹	-43,176	-30,769	-17,741
Vegetables/fruit group				
Green peas	60,823 ¹	55,333 ¹	56,792 ¹	58,356 ¹
Apples (fresh)	181,274 ¹	-93,699	-20,646	57,699
Peaches	116,880 ¹	96,893	102,203	107,898
Potatoes (white)	483,487 ¹	130,880	224,559	325,023
Tomatoes (fresh)	278,472 ¹	-70,547	22,179	121,621
Cabbage	82,456 ¹	71,578	74,468	77,568
Green beans	103,593 ¹	95,386	97,566	99,905
Sweet corn	267,542 ¹	239,636	247,050	255,001
Prepared combined foods				
Vegetable combinations	26,104	13,853	17,108	20,599
Pizza	45,289	35,435	38,045	40,861

¹These items are reported in farm-equivalent weights. All other are product weights.

²Where product was used only as an ingredient, no net support is reported.

³Where product was either directly consumed or used as an ingredient, the net support reported is only for the portion directly consumed. The residual is reported in the commodity table as part of the farm commodity from which it was derived.

⁴Respondent intake records were not sufficient to allocate.

Three Measures

Support was estimated for three contexts that differed in the number of persons assumed to eat a lunch if there were no school feeding operations. In all contexts, persons who received *reduced-price school lunches* were treated as continuing to receive a lunch if there were no school feeding operations. In reality, some would eat less, and others would have no lunch at all. This assumption in part was offset by the treatment of those who receive a free lunch, who were considered to have no lunch after the school operations ceased. In reality, some of them also would have eaten something, and a few would have eaten regularly.

Under Context I, all persons—in school or out—who, in 1977/78, regularly ate lunch

were assumed to continue to eat lunch if there were no school feeding operations. Context II made allowance for the school-age respondents who did not eat any lunch during 1977/78. Context III expanded the number of noneaters to include all persons who had received free lunches in the school-sponsored operations, 38.8 percent of the total lunches served in 1977/78. Reality would most likely be somewhere between Context II and III. If a single estimate is selected, Context III appears to be most relevant and will be the focus of our presentation.

Product and Commodity Support

Table 1 presents net support for specified products that are either ready to eat or are ingredients in foods prepared by the schools.

For example, fluid milk is ready to drink, while bulk flour is a component of numerous bakery products.

Table 2, where possible, includes U.S. domestic farm products converted to farm-equivalent weights. The commodity table includes not only poundages of the items presented in the product tables, but, in addition, the poundages disaggregated from prepared-combined foods. Hence, to determine the commodity poundage of apples, the poundage of fresh apples in the product table are combined with the poundage of apples used in cobblers, pies, applesauce, and other dishes.

Product Support

Thirty-two of the 161 products reported in the ERS report are presented here. These were selected as being representative of their product category and of interest from both market and nutritional viewpoints.

Milk/Cheese Group

Schools received about 2.9 billion pounds of farm-equivalent fluid milk, primarily for dispensing as drinks. Of the NFCS respondents who received nonschool prepared foods, 40.6 percent reported receiving milk, compared with 89.9 percent for their school lunch counterparts. Thus, Context III support was a robust 2.3 billion pounds. In contrast, the corresponding ratios for cheese, which is a common ingredient in sandwiches, cheeseburgers, and other foods frequently eaten away from school, were 11.4 and 3.3 percent, and this resulted in negative support of -266.8 million pounds. Positive support for ice cream, ice milk, and sherberts was 183.9 million pounds.

Fats/Sweets Group

Almost all support cited for cobblers, pies and fruit floats was for fruit products. Positive support for fruit combined dishes, including pies and cobblers amounted to 96.9 million pounds. Of course, each component, such as apples or peaches, is included in the commodity table's total.

The 125.5 million pounds of table spreads and shortening received by schools includes both butter and margarine. We could not estimate net support for butter and margarine,

because the NFCS respondents did not distinguish between them. For similar reasons, we could not determine net support for salad dressing and mayonnaise used as spreads. However, net support for salad dressing and mayonnaise from foods containing either or both was 214,000 and 905,000 pounds, respectively.

Bread/Cereals Group

Bulk flour, of course, was not cited by NFCS respondents as a food that they received. Here the school's purchase of 228.3 million pounds is reported as such. As described above, it was allocated among several bakery products when computing the net support for wheat found in table 2. Wheat breads, including stuffings and

snacks, had negative support, -16 million and -36.6 million pounds, respectively. Snacks included pretzels, corn chips, cheese curls, and popcorn. The negative support for breads and snacks is consistent with the frequencies with which such products are available in refreshment places and brown bags. Both provide more frequent access to sandwiches and snack items than do school menus.

Rice in the product table includes rice that the schools received and served as rice. It excludes rice that was a component of a prepared-combined food, such as a casserole. The report for the commodity, of course, includes all rice. The product rice received net support of 17.9 million pounds; the commodity 18.2 million pounds.

Meat/Poultry/Fish/Beans Group

Under Context III, beef received robust support, ranging from 146.9 to 555.8 million pounds, for beef prepared dishes and ground beef. Pork support was less, 42.5 million pounds. Differences in part are associated with the frequency with which menu items were available. Refreshment places provided franks, wurst, and sausages of various kinds more frequently than did the school menus. In contrast, school menus offered turkey more frequently. The frequency of presentation in part was associated with the donation of commodities to schools by the USDA. Positive support for chickens and turkey amounted to 151.6 and 73.5 million pounds, and fish and seafoods received 47.9 million pounds positive support.

Table 2: Farm Commodity Support Provided by the Nation's School Feeding Programs, School Year 1977-78

Commodity	Net Support ¹					
	Context I		Context II		Context III	
	Positive	Negative	Positive	Negative	Positive	Negative
1,000 Pounds						
Cattle and hogs						
Cattle (including calves)	404,509		549,400		704,517	
Hogs		69,648	7,105		88,786	
Dairy and poultry products						
Chickens	115,414		139,389		165,722	
Milk	864,829		1,724,157		2,644,553	
Turkeys	24,127		48,296		74,217	
Eggs		56,445		29,537		2,907
Fruits						
Apples		92,414	17,511		61,789	
Bananas		90,411		55,254		17,548
Cantaloupe	6,456		7,622		8,872	
Cranberries	2,503		2,579		2,659	
Grapefruit		8,593		4,494		988
Grapes (including raisins)		47,009		31,858		15,609
Oranges	56,771		174,443		300,618	
Peaches	98,597		103,981		109,754	
Pears	27,346		27,386		31,709	
Pineapple	21,418		24,607		27,921	
Plums (including prunes)		255	1,786		3,975	
Strawberries	2,911		3,367		3,856	
Watermelons	1,482		2,245		3,063	

Table 2: Farm Commodity Support Provided by the Nation's School Feeding Programs, School Year 1977-78 continued

Commodity	Net Support ¹					
	Context I		Context II		Context III	
	Positive	Negative	Positive	Negative	Positive	Negative
	1,000 Pounds					
Grains and oil seeds						
Barley	241		277		301	
Corn	24,770		28,265		32,011	
Oats		463		193	151	
Peanuts		193,314		127,056		55,996
Rice	12,358		15,179		18,239	
Rye		41,290		29,668		17,204
Soybean products ²	10,121		10,349		10,594	
Wheat		31,464	96,711		209,509	
Vegetables						
Beets	8,227		8,430		8,647	
Broccoli	7,938		8,305		8,699	
Cabbage	73,514		76,727		80,083	
Carrots	32,301		39,855		47,883	
Cauliflower		853		158	587	
Celery	12,307		16,396		20,156	
Corn (sweet)	239,636		247,050		255,001	
Cucumbers		8,736		2,253	4,700	
Dry edible beans all kinds	9,419		18,299		27,823	
Egg plant	27		27		27	
Green beans—snap	95,340		97,534		99,887	
Green peas	56,624		58,234		59,949	
Green sweet peppers		12,933		7,164		978
Hot peppers	1,689		1,739		1,792	
Lettuce		29,387		4,005	23,215	
Lima beans	3,225		5,518		5,850	
Mushrooms		1,524		978		393
Okra	118		184		256	
Olives		8,816		6,258		3,515
Onions		70,727		38,405		3,757
Pimiento	1,331		1,344		1,357	
Pumpkin	14,374		14,907		15,479	
Radishes	535		783		1,049	
Spinach	17,607		18,031		18,486	
Squash		8,627		5,671		2,501
Sweet potatoes	23,689		25,267		26,960	
Tomatoes	14,230		118,356		229,598	
Turnips	151		3,841		7,799	
Wax (yellow) beans	2,493		2,609		2,732	
White potatoes	130,064		224,588		325,958	

¹The term "net" implies quantities which have been removed from the market if there had been no school feeding programs in school year 1977-78. See text for a discussion of the three contexts under which data are reported. All poundages reported for the commodity in the form it customarily leaves the farm. For example, the poundages for meat are in live weight animal

equivalents, that is beef is reported in terms of cattle weight; and pork, in live hog weight, etc. ²TVP and cream substitutes contain a high proportion of soybean derivatives. In this case, the net support is the net support poundage for the products, not the farm equivalent soybean weight. These figures exclude soybean salad and cooking oil.

Where are Foods, Beverages, and Groceries Purchased?

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Vegetable/Fruit Group

Under Context III most fruits and vegetables received positive support, ranging from 27,000 to 326 million pounds. White potatoes and sweet corn particularly benefited, with support of 325 and 255 million pounds. Tomatoes were third with 121.6 million pounds. Total support for all fruits amounted to 533 million pounds, and for all vegetables to 1.3 billion pounds.

Prepared-Combined Foods

Vegetable combinations and pizza are included in table 1 as representative of two kinds of prepared-combined foods received by the schools. The former had 20.6 and the latter 40.9 million pounds of support. Such foods were disaggregated into their various ingredients to provide figures for the commodity table.

Commodity Support

Net support at farm level tells farmers how much support for their products was due to meals furnished by schools.

In terms of liveweight equivalents, farmers sold 704.5 million more pounds of cattle than they would have sold without school feeding operations. For hogs, the corresponding figure amounted to 88.8 million pounds.

Dairy/Poultry Products

Turkeys, chickens, and milk received positive support, ranging from 74.2 to 2,645 million pounds. Chickens received 165.7 million pounds. The milk figure was not much greater than the fluid-milk-product figure in table 1, because it is the algebraic sum of fluid milk plus the milk content of cheese and various prepared-combined foods. Cheese had negative support, and many dishes that included cheese were also negative, somewhat offsetting the contribution of milk used in prepared combined foods.

Fruit

Oranges, peaches, pears, and pineapples received the greatest support, amounting to 300.6, 109.8, 31.7, and 27.9 million pounds, respectively. Bananas, grapefruit, and grapes (including raisins) received negative support.

Grains/Oilseeds

The highest support under Context III for grains was received by wheat, 209.5 million pounds. Corn received support of 32 million pounds, and rice 18.2. Peanuts and rye received negative support of about -56 and -17.2 million pounds. The negative support for peanuts may be due to the higher prevalence of peanut butter sandwiches in brown bag lunches. Negative rye support probably stems from higher incidence of rye bread consumption in homes, refreshment places, and brown bag lunches.

Summary

In 1977/78, under Context III, a greater commodity tonnage was removed from the market than would have been without the school feeding operations. The food preferences of school-aged persons and the frequency with which particular products were offered affected the amount of positive or negative support that a particular commodity received. Because these data were for amounts removed from the market rather than amounts consumed, no direct nutritional conclusions may be drawn. However, the extent of the support both in terms of tonnages and numbers of fruits and vegetables suggests that school feeding provides a broader selection than otherwise would be consistently available. ■

References

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In recent years, over 270,000 retailers of all kinds—ranging from department stores to service stations—have been selling food and groceries, and over 333,000 places have been serving prepared food. But the Nation's 170,000 grocery stores and 240,000 restaurants are still the major distribution centers for the approximately 300 billion pounds of food consumed by Americans in 1980.

Although the poundage of food consumed per person has only declined slightly over the last 70 years, where food is purchased has shown some marked changes. More of the food dollar is spent eating away from home, and a larger portion of away-from-home sales are taking place in fast food places.

Within the food-at-home market, major changes have also taken place. In 1950, only \$1 out of every \$4 spent on groceries was taken by supermarkets (stores with more than 20 employees); by 1980 this had risen to \$3 out of every \$4. While the bulk of these sales are for food and beverages (excluding alcohol), supermarket retailers appear to be allocating more shelf space to nonfood groceries, such as beer and wine, health and beauty aids, tobacco products, soaps, detergents, paper-foil products, and cleaners. In addition, supermarkets also offer a wide range of "nongrocery" items from motor oils to clothing.

Food and Beverages Away from Home

Food: Eating places account for about 90 percent of meals and alcoholic drinks consumed away from home. But, the portion consumed in restaurants, lunchrooms, and cafeterias declined sharply between 1963 and 1977, while refreshment places that offer a limited menu—mainly fast food outlets—nearly tripled their portion. Roughly \$2 out of every \$3 spent on food eaten out in 1963 was spent in traditional restaurants; by 1977 traditional restaurants were getting less than half of the food-away-from-home dollar. Refreshment places accounted for less than an eighth of food-away-from-home expenditures in 1963. By 1977, \$1 out of every \$3 spent eating out went into refreshment places.

During that same period, drinking places' (establishments which serve mostly alcoholic drinks) share of food served fell from nearly 4 percent to about 1.5 percent, as the number