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Supplement
to

ELECTRONIC COMPUTATION OF HUMAN DIETS

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(This supplement contains the tabular material, beginning with Chapter III and continuing through the Appendices.)

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Table III-1. The Wolfe Quadratic Diet: Daily Expenditure for an Adult Male at August, 1939, Prices

Commodity	Expenditure in Cents Per Day When P Equals																				
	6.8077 or more	3.6520	.9729	.9250	.5683	.3756	.1985	.1776	.1338	.0947	.0838	.0769	.0501	.0463	.0358	.0236	.0154	.0145	.0134	.0041	.0000
Wheat Flour, Enriched	2.95	3.55	3.55	3.57	3.76	3.21	2.62	2.54	2.40	2.23	2.17	2.12	1.91	1.89	1.80	1.69	1.60	1.59	1.57	1.39	1.31
Corn Meal					.38	1.00	1.49	1.53	1.60	1.58	1.56	1.56	1.52	1.52	1.51	1.43	1.46	1.45	1.44	1.33	1.27
Evaporated Milk		.86	.86	.93	1.67	1.97	2.32	2.35	2.22	2.20	2.20	2.16	1.99	1.96	1.88	1.79	1.62	1.65	1.67	1.86	2.05
Oleomargarine										.32	.40	.47	.70	.74	.84	.94	1.00	1.00	1.01	1.02	1.00
Cheese, Cheddar									.18	.28	.30	.37	.60	.64	.74	.86	.84	.88	.93	1.31	1.50
Peanut Butter											.12	.20	.49	.53	.64	.76	.84	.84	.85	.88	.89
Lard				.03	.04	.18	.28	.29	.31	.30	.30	.30	.29	.29	.29	.29	.28	.28	.28	.26	.24
Liver, Beef	.19											.06	.32	.35	.44	.56	.67	.66	.65	.56	.97
Pork, Loin Roast																			.13	1.28	1.78
Salmon, Pink, Canned																	.50	.58	.66	1.43	1.76
Green Beans																				.21	.29
Cabbage	1.12	1.12	1.12	1.13	1.13	1.14	.85	.80	.70	.63	.62	.61	.57	.55	.49	.42	.37	.37	.37	.33	.29
Onions															.03	.07	.09	.09	.09	.12	.13
Potatoes							.66	.72	.86	.95	.98	.99	1.04	1.04	1.02	1.00	.98	.98	.97	.92	.87
Spinich	.50	.51	.51	.51	.48	.44	.41	.37	.29	.22	.20	.18	.04	.06	.10	.15	.19	.20	.20	.24	.25
Sweet Potatoes								.12	.35	.51	.55	.58	.68	.70	.76	.82	.85	.86	.86	.88	.87
Peaches, Dried																.37	.61	.64	.66	.90	.99
Prunes, Dried													.44	.51	.70	.90	1.03	1.04	1.05	1.15	1.18
Lima Beans, Dried						.55	1.06	1.14	1.38	1.66	1.72	1.71	1.64	1.63	1.59	1.53	1.48	1.47	1.45	1.33	1.32
Navy Beans, Dried	6.10	4.86	4.86	4.76	3.69	3.11	2.52	2.44	2.25	2.03	1.96	1.92	1.72	1.69	1.61	1.50	1.41	1.40	1.39	1.28	1.23
Total*	10.87	10.90	10.90	10.92	11.15	11.61	12.20	12.30	12.53	12.91	13.08	13.21	13.96	14.09	14.45	15.12	15.83	15.98	16.24	18.67	20.18

*Rounding errors may cause the total to deviate from the sum of its parts.
Source: [79].

Table III-2. Brown's British Working Class Diets - Weekly Amounts for One Person

Requirements (Model A)			
<u>Nutrient</u>	<u>Quantity</u>	<u>Nutrient</u>	<u>Quantity</u>
Calories	16,414 cal.	Vitamin A	23,826 I. U.
Total protein	502 gm.	Vitamin B ₁	10,384 µg.
Animal protein	239 gm.	Riboflavin	9,893 µg.
Fat	699 gm.	Nicotinic Acid	88 mg.
Calcium	6,209 mg.	Vitamin C	785 mg.
Iron	99 mg.	Vitamin D	845 I. U.

Diets - Weekly Amounts

<u>Food</u>	<u>Diet A</u>	<u>Diet B</u>	<u>Diet C</u>	<u>Diet D</u>	<u>Actual Diet</u>
Milk (pint)		4.01		3.92	3.57
Preserves (oz.)					5.30
Carcass ² Meat (oz.)		38.06	28.95	38.00	24.62
Other Meat (oz.)					4.34
Fish (oz.)	1.53	1.37			6.15
Potatoes (oz.)	101.96	98.86	101.96	56.89	56.89
Vegetables (oz.)				65.48	33.37
Fruit (oz.)					25.90
Bread (oz.)	159.66	92.40	76.01	54.78	54.78
Cereals (oz.)				18.66	24.10
Cheese ¹ (oz.)	32.86	1.45	15.06		2.42
Butter and Oleomargarine ¹ (oz.)	13.57	15.24	9.77	16.31	8.88
Fats ¹ (oz.)			1.74		2.97
Eggs ¹ (egg)			10.36		3.66
Sugar ¹ (oz.)			14.88	8.99	11.31
Total Cost (pence)	102.41	133.17	142.09	159.37	181.31

¹These foods were rationed in 1950.

²Carcass meat is essentially the skeletal meat from cattle, sheep and hogs.

Source: [9, pp. 48-51].

Table III-3. The Smith Midget Model Diet with Cooking Aids--For a Family of Three for Four Weeks, at May, 1955, Prices in Lansing, Michigan

Commodity		Quantity (lb. per 4- week period)	Price (\$ per lb.)	Expenditure (\$ per 4-week period)
Number	Name			
	Milk			
1120	Fresh, Homogenized, Plain	140.303	.082	11.50
	Fats			
2120	Oleomargarine	4.243	.240	1.02
	Green and Yellow Vegetables			
4470-1	Carrots, Fresh	6.062	.160	.97
	All Other Vegetables			
4841-1	Potatoes, Fresh	83.295	.060	5.00
	Pork			
5346	Picnic Ham, Cured Butts	11.059	.341	3.77
	Flour			
6692	White, Enriched	54.981	.096	5.28
	Sugar			
7100	White or Powdered	9.906	.100	.99
	Cooking Aids			
9311	Baking Powder	.624	.276	.17
9312	Baking Soda	1.414	.114	.16
9330	Extracts	.418	2.134	.89
9371*	Vinegar	.471	.141	.07
9436*	Mustard, Prepared	.168	.235	.04
Total Expenditure in 4-Week Period (\$)				29.86

*This commodity required to be present in predetermined amount.

Table III-4. Smith Models: Complementarity Restrictions¹

Restraint Number	Description of Complementarity	Restriction	Amount (b.)	Range of Values of Letters Used as Subscripts
14	Butter and Oleomargarine for Bread and Rolls ²	$-(x_{2110} + x_{2120}) + .1344 (\Sigma x_j)$	= 0	(j = 6101, ..., 6260)
15	Salad Oils and Dressings ² for Green Leafy Vegetables ²	$-(x_{2210} + x_{2220} + x_{2221} + x_{2230} + x_{2231}) + .1359 (\Sigma x_j)$	= 0	(j runs over all fresh green leafy vegetables except fresh sauerkraut)
16	Cooking Fats and Oils ³ for Flour ⁴	$-(\Sigma x_k) + .2347 (\Sigma x_j)$	= 0	(k = 2110, ..., 2210) (j = 6690, ..., 6694)
17	White or Powdered Sugar for Cake and White Flours	$-x_{7100} + 1.0466 (x_{6690} + x_{6692} + x_{6693})$	= 0	
18	Baking Chocolate for Cake and White Flours	$-x_{9321} + .01580 (x_{6690} + x_{6692} + x_{6693})$	= 0	
19	Yeast for Bread Flours ⁵	$-x_{9372} + .001719 (x_{6691} + x_{6692} + x_{6693})$	= 0	
20	Meat Sauces ⁶ for Meats ²	$-x_{9340} + .001102 (\Sigma x_j)$	= 0	(j = 5110, ..., 5598)
21	Baking Powder for Flour ⁴	$-x_{9311} + .01135 (\Sigma x_j)$	= 0	(j = 6690, ..., 6694)
22	Baking Soda for Flour ⁴	$-x_{9312} + .02572 (\Sigma x_j)$	= 0	(j = 6690, ..., 6694)
23	Flavoring Extracts for Cake and White Flours	$-x_{9330} + .007609 (x_{6690} + x_{6692} + x_{6693})$	= 0	

¹The subscripts are the commodity numbers. These equations apply to both large and small models. In the small model those commodities not included in the small model commodity list simply disappear from the restraint equations.

²The actual consumption ratio, which determines the quantitative level of the restraint, was computed by including the consumption of all items in this group, not just the items included in the commodity list.

³Butter and oleomargarine are included in this restraint, for they can be used as cooking fats. However, that is not their primary function, so the consumption of these two items was not included when computing the observed consumption ratio. The consumption of "other fats" was included, although it is not on the commodity list.

⁴The consumption of rye, buckwheat, barley, and soy flours, corn meal, and all wheat flours except 100 per cent whole wheat was used in computing the actual consumption ratio.

⁵Graham, white (but not cake) flour, 100 per cent whole wheat, rye, barley, and soy flours.

⁶The category of meat sauces includes A-1 sauce, Worcestershire sauce, and others of this type. It does not include catsup, the tomato sauces, chili sauce, relishes, horseradish, soy sauce or applesauce.

Table III-5. Smith Models: Commodities Required in Predetermined Amounts

<u>Restraint Number</u>	<u>Commodity</u>	<u>Restriction</u>		<u>Amount in Lb. (b.)</u>
	Beverages			
24	Coffee, Regular	x_{8420}	=	2.592
	Cooking Aids			
25	Salt	x_{9350}	=	.684
26	Spices	x_{9360}	=	.0295
27	Pepper	x_{9361}	=	.0195
28	Vinegar	x_{9371}	=	.471
29	Mustard, Prepared	x_{9436}	=	.168

Table III-6. Small Model: Maximum Consumption Limits

<u>Restraint Number</u>	<u>Commodity or Group</u>	<u>Restriction</u>		<u>Amount in Lb. (b.)</u>
	Cheese			
30	Natural American	x_{1610}	M	1.962
31	Cottage	x_{1820}	M	4.154
	Fats			
32	Oleomargarine	x_{2120}	M	6.538
	Green Leafy Vegetables			
33	Cabbage, Fresh	x_{4120-1}	M	5.009*
	All Other Vegetables			
34	Potatoes, Fresh	x_{4841-1}	M	49.087*
	Beef			
35	Ground Beef or Hamburger	x_{5130}	M	9.692
	Pork			
36	Sausage	$x_{5380} + x_{5381}$	M	1.962*
	Other Meat and Meat Mixtures			
37	Wieners and Frankfurters, etc.	x_{5510}	M	2.769
	Bread			
38	Enriched White	x_{6101}	M	17.154
39	Spaghetti and Macaroni	$\sum x_j$	M	2.527*

(j = 6711, 6714, 6715, 6716, 6722, 6723, 6724, 6725, 6726, 6731)

*2.5 times the mean consumption per consuming family.

Table III-7. Small Model Solution for a Family of Three for Four Weeks at May, 1955, Prices in Lansing, Michigan

Commodity		Quantity	Price	Expenditure
Number	Name	(lb. per 4-week period)	(\$ per lb.)	(\$ per 4-week period)
	Milk			
1120	Fresh, Homogenized, Plain	128.707	.082	10.55
	Fats			
2120	Oleomargarine	5.799	.240	1.39
	Citrus			
3240-1	Oranges, Fresh	14.243	.108	1.54
	Green and Yellow Vegetables			
4470-1	Carrots, Fresh	3.754	.160	.60
	All Other Vegetables			
4841-1	Potatoes, Fresh	49.087	.060	2.95
	Pork			
5346	Picnic Ham, Cured Butts	2.354	.341	.80
	Eggs			
5700-2	Extra Large	9.469	.294	2.78
	Cereal			
6001	Wheaties	17.649	.319	5.63
	Flour			
6692	White, Enriched	24.710	.096	2.37
	Sugar			
7100	White or Powdered	25.861	.100	2.59
	Beverages			
8420*	Coffee, Regular	2.592	.901	2.34
	Cooking Aids			
9311	Baking Powder	.280	.276	.08
9312	Baking Soda	.636	.114	.07
9321	Chocolate, Baking	.390	.851	.33
9330	Extracts	.188	2.134	.40
	Meat Sauces			
9340		.003	.644	.00
9350*	Salt	.684	.069	.05
9360*	Spices	.0295	1.841	.05
9361*	Pepper	.0195	1.697	.03
	Vinegar			
9371*		.471	.141	.07
9372	Yeast	.042	1.226	.05
9436*	Mustard, Prepared	.168	.235	.04
Total Expenditure in 4-Week Period (\$)				34.71

*This commodity required to be present in predetermined amount.

Table III-8. Large Model: Maximum Consumption Limits

Restraint Number	Commodity or Group	Restriction	Amount in Lb. (b)
	Cheese		
30	Natural American	x_{1610}	1.962
	Green and Yellow Vegetables		
31	Peas, Dried	x_{4530-4}	.308
	Fats		
32	Oleomargarine	x_{2120}	6.538
	Green Leafy Vegetables		
33	Cabbage, Fresh	x_{4120-1}	5.009*
	All Other Vegetables		
34	Potatoes, Fresh	x_{4841-1}	49.087*
	Cereals		
35	Ready to Serve	$\sum x_j$ (j = 6001, 6002, ..., 6010, 6012, 6013, 6015, 6017, 6018, 6019, 6020, 6023, 6024, 6025, 6030, 6031, 6042, 6043)	4.731*
	Mixes		
36	Roll, Biscuit or Muffin	$x_{6631} + x_{6632} + x_{6651} + x_{6654}$	1.159*
37	Pancake or Waffle	$x_{6671} + x_{6672} + x_{6673}$.962
	Bread		
38	White, Enriched	x_{6101}	17.154
39	Spaghetti and Macaroni	$\sum x_j$ (j = 6711, 6714, 6715, 6716, 6722, 6723, 6724, 6725, 6726, 6731)	2.527*
	Milk		
40	Powdered Skim	x_{1310}	1.296
	Fats		
41	Lard	x_{2130}	1.385
	Citrus		
42	Grapefruit Juice, Single Strength, Canned	x_{3219-3}	2.428
43	Bread Flours and Corn Meal	$x_{6691} + x_{6692} + x_{6693} + x_{6694}$	9.342*
44	Corn Starch	x_{6695}	.308
	Green Leafy Vegetables		
45	Sauerkraut, Canned	x_{4121-3}	1.169
	All Other Vegetables		
46	Beans, Navy, White, Dried	x_{4701-4}	1.308
47	Beans, Kidney, Dried	x_{4703-4}	.538
	Rice		
48	Bag or Sack, Plain	x_{6931}	.462
	All Other Vegetables		
49	Tomato Juice, Canned	x_{4873-3}	3.335
	Beef		
50	Beef and Baby Beef Liver	x_{5141}	.799
51	Hominy	x_{6958}	.558
	Sugar		
52	White or Powdered	x_{7100}	14.462
	Pork		
53	Liver	x_{5351}	.692
	Sugar		
54	Brown	x_{7120}	1.769
	Cereals		
55	Cooked	$\sum x_j$ (j = 6011, 6014, 6016, 6022, 6028, 6029)	2.433*
	Bread		
56	Whole or Cracked Wheat Flour	x_{6104}	7.308
57	Graham	x_{6691}	1.923

*2.5 times the mean consumption per consuming family.

Table III-9. Large Model: Minimum Conventional Requirements

Restraint Number	Commodity or Group ¹	Restriction	Amount in Lb. (b _i)
58	Milk Fresh	$\sum x_j$ (j = 1110, ..., 1140)	75,828
59	Cheese American	$x_{1610} + x_{1620}$	1,244
60	Fats Butter and Oleomargarine	$x_{2110} + x_{2120}$	4,379
61	Cooking Fats and Oils	$\sum x_j$ (j = 2130, ..., 2210)	1,712
62	Soups	$\sum x_j$ (j = 4130-5, 4420-5, 4530-5, 4701-5, 4780-5, 4811-5, 4846-5, 4871-5, 4901-5, 4991-5, 4992-5, 5580, 5693)	2,739
63	Beef Steaks and Roasts	$\sum x_j$ (j = 5160, ..., 5173)	6,534
64	Pork Ham	$\sum x_j$ (j = 5340, ..., 5346)	3,012
65	Sausage	$x_{5380} + x_{5381}$.685
66	Chicken Broilers or Fryers ²	$x_{5611-31} + x_{5611-32}$	2,012
67	Eggs	$x_{5700-2} + x_{5700-3} + x_{5700-4} + x_{5700-5}$	8,179
68	Fish and Sea Food	$\sum x_j$ (j runs over all numbers on the commodity list from 5811-03 through 5894)	1,999
69	Cereals Ready to Serve	$\sum x_j$ (j = 6001, 6002, ..., 6010, 6012, 6013, 6015, 6017, 6018, 6019, 6020, 6023, 6024, 6025, 6030, 6031, 6042, 6043)	1,787
70	Cake	$\sum x_j$ (j = 6301, ..., 6378)	.733
71	Spaghetti or Macaroni	$\sum x_j$ (j = 6711, ..., 6731)	.888
72	Nuts and Nut Products	$\sum x_j$ (j = 7511, ..., 7573)	1,201
73	Ice Cream Pre-Packaged	x_{1520}	3,903
74	Cheese Cottage Cheese	x_{1820}	2,003
75	Oils Salad Dressing	x_{2221}	.773
76	Citrus Oranges, Fresh	x_{3240-1}	5,808
77	Other Fruits Apples, Fresh	x_{3310-1}	6,956
78	Bananas, Fresh	x_{3340-1}	4,255

	Green Leafy Vegetables			
79	Cabbage, Fresh	x4120-1	IV	1.770
80	Celery, Fresh	x4130-1	IV	1.055
81	Lettuce, Head, Fresh	x4210-1	IV	1.746
	Green and Yellow Vegetables			
82	Carrots, Fresh	x4470-1	IV	1.192
	All Other Vegetables			
83	Onions, Mature, Dried	x4811-4	IV	5.955
84	Potatoes, Fresh	x4841-1	IV	18.544
85	Tomatoes, Fresh	x4871-1	IV	5.430
	Beef			
86	Ground Beef, Hamburger	x5130	IV	4.666
	Pork			
87	Bacon	x5311	IV	1.757
88	Chops	x5330	IV	1.196
	Other Meat and Meat Mixtures			
89	Wieners, Frankfurters, etc.	x5510	IV	1.273
90	Bologna, Salami, etc.	x5511	IV	1.021
	Bread			
91	White, Enriched	x6101	IV	8.972
	Crackers			
92	Soda, Others Similar	x6280	IV	.810
	Cookies			
93	Plain or Sugared	x6410	IV	.722
	Flour			
94	White, Enriched	x6692	IV	3.304
	Sugar			
95	White or Powdered	x7100	IV	7.278
96	Brown	x7120	IV	.714
	Candy and Sweets			
97	Other Candy and Sweets	x7360	IV	.687
	Prepared Dessert Mixes			
98	Gelatin, Flavored (Jello, Royal, etc.)	x7415	IV	.302

¹For the purpose of computing the total consumption of groups of items, all items in the group were included, not just those included in the commodity list. However, baby food was excluded from the Fish and Sea Food category.

²Many purchases of chicken are not identified as broilers, roasters, stewing chickens, etc., so I increased the consumption figure for the Broilers or Fryers group by half of the "Unclassified" purchases.

Table III-10. Large Model Solution for a Family of Three for Four Weeks at May, 1955, Prices in Lansing, Michigan

Commodity		Quantity	Price	Expenditure
Number	Name	(lb. per 4-week period)	(\$ per lb.)	(\$ per 4-week period)
Milk				
1120	Fresh, Homogenized, Plain	75.828	.082	6.22
1310	Powdered Skim	.451	.412	.19
Ice Cream				
1520	Pre-Packaged	3.903**	.267	1.04
Cheese				
1620	Processed American (Velveeta, etc.)	1.244	.518	.64
1820	Cottage Cheese	2.003**	.279	.56
Fats				
2120	Oleomargarine	4.379	.240	1.05
2130	Lard	1.385	.188	.26
2131	Swiftning	4.408	.256	1.13
Oils				
2221	Salad Dressing	.773**	.284	.22
Citrus				
3240-1	Oranges, Fresh	5.808**	.108	.63
3245-3	Orangeade and Orange Base, Canned	11.584	.104	1.20
Other Fruits				
3310-1	Apples, Fresh	6.956**	.132	.92
3340-1	Bananas, Fresh	4.255**	.162	.69
Green Leafy Vegetables				
4120-1	Cabbage, Fresh	1.770**	.102	.18
4130-1	Celery, Fresh	1.055**	.229	.24
4210-1	Lettuce, Head, Fresh	1.746**	.269	.47
Green and Yellow Vegetables				
4470-1	Carrots, Fresh	1.192**	.160	.19
All Other Vegetables				
4701-4	Beans, Navy, White, Dried	1.308	.169	.22
4701-5	Beans, Navy, White, Soup	2.739	.194	.53
4811-4	Onions, Mature, Dried	5.955**	.102	.61
4841-1	Potatoes, Fresh	18.544**	.060	1.11
4871-1	Tomatoes, Fresh	5.430	.347	1.88
Beef				
5130	Ground Beef, Hamburger	4.666**	.420	1.96
5141	Beef and Baby Beef Liver	.472	.345	.16
5164	Chuck Roast (Pot Roast)	6.534	.481	3.14
Pork				
5311	Bacon	1.757**	.518	.91
5330	Chops	1.196**	.729	.87
5346	Picnic Ham, Cured Butts	3.012	.341	1.03
5381	Sausage, Bulk	.685	.434	.30
Other Meat and Meat Mixtures				
5510	Wieners, Frankfurters, etc.	1.273**	.530	.67
5511	Bologna, Salami, etc.	1.021**	.547	.56
Poultry				
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh	2.012	.516	1.04
Eggs				
5700-2	Extra Large	8.179	.294	2.40
Fish and Sea Food				
5893	Sardines in Sauce, Canned	1.999	.340	.68
Cereal				
6011	Cream of Wheat	2.433	.199	.48
6017	All Bran, 40% Bran, Krumbles	1.186	.289	.34
6030	Wheat Germ Flakes	.601	.395	.24
Bread				
6101	White, Enriched	8.972**	.184	1.65
Crackers				
6280	Soda, Others Similar	.810**	.283	.23
Cake				
6351	Loaf, No Frosting	.733	.377	.28
Cookies				
6410	Plain or Sugared	.722**	.439	.32

	Mixes			
6632	Hot Roll or Biscuit Mix, Biscuit	1.159	.179	.21
6671	Pancake or Waffle Mix, Buckwheat	.962	.158	.15
	Flour			
6692	White, Enriched	3.304**	.096	.32
6694	Corn Meal	6.038	.099	.60
	Spaghetti and Macaroni			
6724	Can, Cheese	.429	.186	.08
6731	Bag or Sack, Plain	.459	.205	.09
6958	Hominy	.558	.102	.06
	Sugar			
7100	White or Powdered	14.462	.100	1.45
7120	Brown	.714**	.138	.10
	Candy and Sweets			
7360	Other Candy and Sweets	.687**	.450	.31
	Prepared Dessert Mixes			
7415	Gelatin, Flavored (Jello, Royal, etc.)	.302**	.414	.13
	Nuts and Nut Products			
7511	Coconuts in Shell	1.201	.338	.41
	Beverages			
8420	Coffee, Regular	2.592*	.901	2.34
	Cooking Aids			
9311	Baking Powder	.069	.276	.02
9312	Baking Soda	.155	.114	.02
9340	Meat Sauces	.012	.644	.01
9350	Salt	.684*	.069	.05
	Spices			
9360	Spices	.0295*	1.841	.05
9361	Pepper	.0195*	1.697	.03
9371	Vinegar	.471*	.141	.07
9436	Mustard, Prepared	.168*	.235	.04

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Total Expenditure in 4-Week Period (\$)

43.96^a

*This quantity specifically required in the model.

**This is the minimum quantity of this item permitted by the model.

^aDiffers from the sum of the parts because of rounding.

Table IV-1. Nutritional Elements Provided by Each Food: Midget Model

Number	Commodity		Quantity (lb. per 4- week period)	Nutrients Provided*				
	Name	Calories		Protein (gm.)	Fat (gm.)	Carbohydrates (gm.)	Calcium (gm.)	
1120	Milk	Fresh, Homogenized, Plain	139.116	42,986.8	2,211.9	2,462.4	3,088.4	74,566.2
2120	Fats	Oleomargarine	4.373	14,295.1	11.8	1,607.9	7.9	397.9
4470-1	Green and Yellow Vegetables	Carrots, Fresh	6.035	863.0	24.7	6.6	192.5	808.7
4841-1	All Other Vegetables	Potatoes, Fresh	83.415	26,526.0	634.0	33.4	6,072.6	3,503.4
5346	Pork	Picnic Ham, Cured Butts	10.473	13,521.2	577.1	1,246.3		345.6
6692	Flour	White, Enriched	65.906	109,007.8	3,143.7	296.6	22,770.4	4,811.1
		Total**		207,199.9	6,603.2	5,653.2	32,131.8	84,432.9
		Requirement**		207,200.0	5,460.0	5,653.2	20,720.0	81,200.0
		Excess Provided**			1,143.2		11,411.8	3,233.0

*If there is no entry the commodity does not provide appreciable quantities of the nutrient; if the entry is ".0," the quantity of the nutrient provided is greater than zero but less than .05.

**Any discrepancies among the final digits are caused by rounding error.

Table IV-2. Percentage of Each Nutrient Requirement and of Total Expenditure that is Provided by Each Food: Midget Model

Number	Commodity		Percentage of Total Expenditure	Percentage of Nutrient Requirement*				
	Name	Calories		Protein	Fat	Carbohydrates	Calcium	
1120	Milk	Fresh, Homogenized, Plain	40.3	20.8	40.5	43.6	14.9	91.9
2120	Fats	Oleomargarine	3.7	6.9	.2	28.5	.1	.5
4470-1	Green and Yellow Vegetables	Carrots, Fresh	3.4	.4	.4	.1	.9	1.0
4841-1	All Other Vegetables	Potatoes, Fresh	17.7	12.8	11.6	.6	29.3	4.3
5346	Pork	Picnic Ham, Cured Butts	12.6	6.5	10.6	22.0		.4
6692	Flour	White, Enriched	22.3	52.6	57.6	5.2	109.9	5.9
		Total	100.0	100.0	120.9	100.0	155.1	104.0
		Excess Provided			20.9		55.1	4.0

*The percentages are rounded so that they total exactly 100.0. If there is no entry the commodity does not provide appreciable quantities of the nutrient; if the entry is ".0," the quantity of the nutrient provided is greater than zero but less than .05.

Table IV-1. Nutritional Elements Provided by Each Food: Midget Model (cont.)

Commodity Number	Nutrients Provided* (cont.)						
	Phosphorus (mg.)	Iron (mg.)	Vitamin A (I. U.)	Thiamin (mg.)	Riboflavin (mg.)	Niacin (mg.)	Ascorbic Acid (mg.)
1120	58,706.9	41.7	100,163.5	22.3	108.5	69.6	834.7
2120	319.2		65,594.0				
4470-1	766.5	16.9	248,403.5	1.1	1.1	12.7	126.7
4841-1	17,767.4	225.2	5,839.1	33.4	12.5	367.0	5,338.6
5346	6,231.7	85.9		36.4	7.1	156.0	
6692	26,032.7	856.8		13.2	7.9	1,054.5	
	109,824.4	1,226.5	420,000.1	106.4	137.1	1,659.8	6,300.0
	103,600.0	1,092.0	420,000.0	106.4	137.2	1,064.0	6,300.0
	6,224.4	134.5				595.8	

Table IV-2. Percentage of Each Nutrient Requirement and of Total Expenditure that is Provided by Each Food: Midget Model (cont.)

Commodity Number	Percentage of Nutrient Requirement* (cont.)						
	Phosphorus	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Ascorbic Acid
1120	56.7	3.8	23.9	21.0	79.1	6.5	13.3
2120	.3		15.6				
4470-1	.8	1.5	59.1	1.0	.8	1.2	2.0
4841-1	17.1	20.6	1.4	31.4	9.1	34.5	84.7
5346	6.0	7.9		34.2	5.2	14.7	
6692	25.1	78.5		12.4	5.8	99.1	
	106.0	112.3	100.0	100.0	100.0	156.0	100.0
	6.0	12.3				56.0	

Table IV-3. Nutritional Elements Provided by Each Food: Small Model

Number	Commodity		Quantity (lb. per 4- week period)	Nutrients Provided			
	Name	Calories		Protein (gm.)	Fat (gm.)	Carbohydrates (gm.)	Calcium (mg.)
1120	Milk						
	Fresh, Homogenized, Plain	.128.707	39,770.6	2,046.4	2,278.1	2,857.3	68,987.2
2120	Fats						
	Oleomargarine	5.799	18,958.2	15.7	2,132.4	10.4	527.7
3240-1	Citrus						
	Oranges, Fresh	14.243	2,093.7	41.3	10.0	521.3	1,538.2
4470-1	Green and Yellow Vegetables						
	Carrots, Fresh	3.754	536.9	15.4	4.1	119.8	503.1
4841-1	All Other Vegetables						
	Potatoes, Fresh	49.087	15,609.7	373.1	19.6	3,573.5	2,061.7
5346	Pork						
	Picnic Ham, Cured Butts	2.354	3,038.6	129.7	280.1		77.7
5700-2	Eggs						
	Extra Large	9.469	10,481.9	827.6	744.2	44.5	3,484.5
6001	Cereal						
	Wheaties	17.649	29,668.1	818.9	197.7	6,272.5	1,976.7
6692	Flour						
	White, Enriched	24.710	40,870.0	1,178.7	111.2	8,537.2	1,803.8
7100	Sugar						
	White or Powdered	25.861	45,205.5			11,681.5	
8420	Beverages						
	Coffee, Regular	2.592					
9311	Cooking Aids						
	Baking Powder	.280					
9312	Baking Soda	.636					
9321	Chocolate	.390	862.0	6.6	73.3	81.4	142.9
9330	Extracts	.188					
9340	Meat Sauces	.003	.9	.0	.0	.2	.4
9350	Salt	.684					
9360	Spices	.0295					
9361	Pepper	.0195					
9371	Vinegar	.471	26.4			10.7	15.1
9372	Yeast	.042	16.5	2.0	.1	2.5	4.8
9436	Mustard, Prepared	.168	61.0	4.6	6.1	4.6	76.3
Total*			207,200.0	5,460.0	5,856.9	33,717.4	81,200.1
Requirement*			207,200.0	5,460.0	5,653.2	20,720.0	81,200.0
Excess Provided*					203.8	12,997.5	

*Any discrepancies among final digits are caused by rounding error.

Table IV-3. Nutritional Elements Provided by Each Food: Small Model (cont.)

Commodity Number	Nutrients Provided (cont.)						
	Phosphorus (mg.)	Iron (mg.)	Vitamin A (L U.)	Thiamin (mg.)	Riboflavin (mg.)	Niacin (mg.)	Ascorbic Acid (mg.)
1120	54,314.5	38.6	92,669.3	20.6	100.4	64.4	772.2
2120	423.4		86,990.8				
3240-1	1,068.2	18.5	8,830.4	3.6	1.3	11.4	2,307.3
4470-1	476.8	10.5	154,534.1	.7	.7	7.9	78.8
4841-1	10,455.5	132.5	3,436.1	19.6	7.4	216.0	3,141.6
5346	1,400.5	19.3		8.2	1.6	35.1	
5700-2	13,568.8	174.2	73,449.3	6.2	18.7	4.7	
6001	20,914.2	367.1		42.4	11.3	423.6	
6692	9,760.4	321.2		4.9	3.0	395.4	
7100							
8420							
9311							
9312							
9321	649.7	6.4	82.0	.1	.4	1.4	
9330							
9340	.3	.0	8.0	.0	.0	.0	.0
9350							
9360							
9361							
9371	21.2	1.1					
9372	116.7	.9		.1	.4	5.4	
9436	91.6	1.5					
	113,261.8	1,091.8	420,000.0	106.4	145.2	1,165.3	6,299.9
	103,600.0	1,092.0	420,000.0	106.4	137.2	1,064.0	6,300.0
	9,661.6				7.9	101.2	

Table IV-4. Percentage of Each Nutrient Requirement and of Total Expenditure Provided by Each Food: Small Model

Number	Commodity Name	Percentage of Total Expenditure	Percentage of Nutrient Requirement ¹				
			Calories	Protein	Fat	Carbohydrates	Calcium
1120	Milk Fresh, Homogenized, Plain	30.4	19.2	37.5	40.3	13.8	85.0
2120	Fats Oleomargarine	4.0	9.1	.3	37.7		.7
3240-1	Citrus Oranges, Fresh	4.4	1.0	.8	.2	2.5	1.9
4470-1	Green and Yellow Vegetables Carrots, Fresh	1.7	.3	.3	.1	.6	.6
4841-1	All Other Vegetables Potatoes, Fresh	8.5	7.6	6.8	.3	17.2	2.5
5346	Pork Picnic Ham, Cured Butts	2.3	1.5	2.4	5.0		.1
5700-2	Eggs Extra Large	8.0	5.1	15.2	13.1	.2	4.3
6001	Cereal Wheaties	16.2	14.3	15.0	3.5	30.3	2.4
6692	Flour White, Enriched	6.8	19.7	21.6	2.0	41.2	2.2
7100	Sugar White or Powdered	7.5	21.8			56.4	
8420	Beverages Coffee, Regular	6.7					
9311	Cooking Aids Baking Powder	.2					
9312	Baking Soda	.2					
9321	Chocolate, Baking	1.0	.4	.1	1.3	.4	.2
9330	Extracts	1.2					
9340	Meat Sauces						
9350	Salt	.2					
9360	Spices	.2					
9361	Pepper	.1					
9371	Vinegar	.2				.1	
9372	Yeast	.1					
9436	Mustard, Prepared	.1			.1		.1
Total		100.0	100.0	100.0	103.6	162.7	100.0
Excess Provided					3.6	62.7	

¹The percentages are rounded so that they total exactly 100.0.

Table IV-4. Percentage of Each Nutrient Requirement and of Total Expenditure Provided by Each Food: Small Model (cont.)

Commodity Number	Percentage of Nutrient Requirement ¹ (cont.)						
	Phosphorus	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Ascorbic Acid
1120	52.4	3.5	22.1	19.4	73.2	6.1	12.3
2120	.4		20.7				
3240-1	1.0	1.7	2.1	3.4	.9	1.1	36.6
4470-1	.5	1.0	36.8	.7	.5	.7	1.2
4841-1	10.1	12.1	.8	18.4	5.4	20.3	49.9
5346	1.4	1.8		7.7	1.2	3.3	
5700-2	13.1	16.0	17.5	5.8	13.6	.4	
6001	20.2	33.6		39.9	8.2	39.8	
6692	9.4	29.4		4.6	2.2	37.2	
7100							
8420							
9311							
9312							
9321	.6	.6		.1	.3	.1	
9330							
9340							
9350							
9360							
9361							
9371		.1					
9372	.1	.1			.3	.5	
9436	.1	.1					
	109.3	100.0	100.0	100.0	105.8	109.5	100.0
	9.3				5.8	9.5	

Table IV-5. Nutritional Elements Provided by Each Food: Large Model

Number	Commodity		Quantity (lb. per 4- week period)	Nutrients Provided			
	Name	Calories		Protein (gm.)	Fat (gm.)	Carbohydrates (gm.)	Calcium (mg.)
	Milk						
1120	Fresh, Homogenized, Plain	75.828	23,430.9	1,205.7	1,342.2	1,683.4	40,643.8
1310	Powdered Skim	.451	741.4	72.9	2.0	106.5	2,663.4
	Ice Cream						
1520	Pre-Packaged	3.903**	2,295.0	44.5	138.9	228.7	1,366.1
	Cheese						
1620	Processed American (Velveeta, etc.)	1.244	2,087.4	131.0	168.8	11.3	3,800.4
1820	Cottage Cheese	2.003**	867.3	177.3	4.6	18.2	873.3
	Fats						
2120	Oleomargarine	4.379	14,315.0	11.8	1,610.2	7.9	398.5
2130	Lard	1.385	5,671.6		628.8		
2131	Swiftning	4.408	18,011.1		2,001.2		
	Oils						
2221	Salad Dressing	.773**	1,347.3	3.9	129.2	48.8	31.7
	Citrus						
3240-1	Oranges, Fresh	5.808**	853.8	16.8	4.1	212.6	627.3
3245-3	Orangeade and Orange Base, Canned	11.584	12,036.3	221.3	37.1	3,050.2	3,208.9
	Other Fruits						
3310-1	Apples, Fresh	6.956**	1,613.8	8.3	11.1	414.6	166.9
3340-1	Bananas, Fresh	4.255**	1,144.6	15.3	2.6	297.4	102.1
	Green Leafy Vegetables						
4120-1	Cabbage, Fresh	1.770**	141.6	8.1	1.2	31.0	269.0
4130-1	Celery, Fresh	1.055**	54.9	3.9	.6	11.1	150.9
4210-1	Lettuce, Head, Fresh	1.746**	82.1	6.6	1.0	15.9	120.5
	Green and Yellow Vegetables						
4470-1	Carrots, Fresh	1.192**	170.5	4.9	2.5	38.0	159.7
	All Other Vegetables						
4701-4	Beans, Navy, White, Dried	1.308	2,010.4	127.1	9.5	365.8	967.9
4701-5	Beans, Navy, White, Soup	2.739	1,917.3	85.7	50.9	293.3	931.3
4811-4	Onions, Mature, Dried	5.955**	1,149.3	35.7	5.4	262.0	815.8
4841-1	Potatoes, Fresh	18.544**	5,897.0	141.0	7.4	1,350.0	778.8
4871-1	Tomatoes, Fresh	5.430**	439.8	21.7	6.5	86.9	238.9

Table IV-5. Nutritional Elements Provided by Each Food: Large Model (cont.)

Commodity Number	Nutrients Provided (cont.)						
	Phosphorus (mg.)	Iron (mg.)	Vitamin A (I.U.)	Thiamin (mg.)	Riboflavin (mg.)	Niacin (mg.)	Ascorbic Acid (mg.)
1120	31,999.4	22.7	54,596.2	12.1	59.1	37.9	455.0
1310	2,110.1	1.2	85.7	.7	4.0	2.3	14.4
1520	1,100.6	.8	5,776.4	.5	2.1	.8	7.8
1620	4,444.8	5.1	7,339.6	.1	2.3	.1	
1820	1,718.6	2.8	180.3	.2	2.8	1.0	
2120	319.7		65,685.0				
2130							
2131							
2221	105.1	1.4	510.2	.1	.1		
3240-1	435.6	7.6	3,601.0	1.5	.5	4.6	940.9
3245-3	4,680.1	84.6	26,876.0	19.5	4.4	60.2	11,619.2
3310-1	278.2	8.3	2,504.2	1.1	.8	4.9	125.2
3340-1	361.7	7.7	5,531.5	.6	.6	9.4	123.4
4120-1	182.3	3.0	477.9	.4	.3	1.8	292.1
4130-1	120.3	1.5		.2	.1	1.3	21.1
4210-1	136.2	2.8	2,985.7	.2	.5	1.0	42.0
4470-1	151.4	3.3	49,062.7	.2	.2	2.5	25.0
4701-4	2,595.1	40.9		4.0	1.4	12.9	10.5
4701-5	1,018.9	27.4		1.0	1.0	8.8	
4811-4	1,119.5	12.5	1,250.5	.8	.9	5.4	226.3
4841-1	3,949.9	50.1	1,298.1	7.4	2.8	81.6	1,186.8
4871-1	586.4	13.0	23,783.4	1.2	.9	10.9	505.0

Table IV-5. Nutritional Elements Provided by Each Food: Large Model (cont.)

Number	Commodity		Quantity (lb. per 4- week period)	Nutrients Provided (cont.)			
	Name			Calories	Protein (gm.)	Fat (gm.)	Carbohydrates (gm.)
	Beef						
5130	Ground Beef, Hamburger		4.666**	6,798.4	340.6	592.6	191.3
5141	Beef and Baby Beef Liver		.472	291.4	42.2	6.8	15.1
5164	Chuck Roast (Pot Roast)		6.534	5,763.0	480.2	411.6	281.0
	Pork						
5311	Bacon		1.757**	5,019.7	73.6	518.3	103.7
5330	Chops		1.196**	1,301.2	72.2	110.0	44.3
5346	Picnic Ham, Cured Butts		3.012	3,888.5	166.0	358.4	99.4
5381	Sausage, Bulk		.685	1,400.1	33.6	139.3	18.5
	Other Meat and Meat Mixtures						
5510	Wieners, Frankfurters, etc.		1.273**	1,484.3	82.1	118.5	45.8
5511	Bologna, Salami, etc.		1.021**	1,026.1	68.6	73.7	41.9
	Poultry						
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh		2.012	1,034.2	138.2	49.3	96.6
	Eggs						
5700-2	Extra Large		8.179	9,054.2	714.8	642.9	3,009.9
	Fish and Sea Food						
5893	Sardines in Sauce, Canned		1.999	1,965.0	161.5	134.3	3,458.3
	Cereal						
6011	Cream of Wheat		2.433	3,965.8	131.4	13.6	5,566.7
6017	All Bran, 40% Bran, Krumbles		1.186	1,689.8	70.2	15.2	550.2
6030	Wheat Germ Flakes		.601	985.9	68.8	27.3	229.0
	Bread						
6101	White, Enriched		8.972**	11,188.1	346.3	130.0	3,220.9
	Crackers						
6280	Soda, Others Similar		.810**	1,546.3	35.3	35.3	73.7
	Cake						
6351	Loaf, No Frosting		.733	1,087.8	21.3	27.3	516.0
	Cookies						
6410	Plain or Sugared		.722**	1,049.1	16.4	42.6	82.3
	Mixes						
6632	Hot Roll or Biscuit Mix, Biscuit		1.159	2,129.1	42.1	65.7	1,839.3
6671	Pancake or Waffle Mix, Buckwheat		.962	1,394.9	45.9	8.3	2,039.4

Table IV-5. Nutritional Elements Provided by Each Food: Large Model (cont.)

Commodity Number	Nutrients Provided (cont.)						
	Phosphorus (mg.)	Iron (mg.)	Vitamin A (I. U.)	Thiamin (mg.)	Riboflavin (mg.)	Niacin (mg.)	Ascorbic Acid (mg.)
5130	2,710.9	50.9		1.4	3.0	81.2	
5141	766.2	14.1	93,975.1	.6	7.1	29.3	66.0
5164	4,312.4	72.5		2.1	4.3	115.0	
5311	860.9	6.3		3.0	.9	15.3	
5330	818.1	11.0		3.5	.8	18.8	
5346	1,792.1	24.7		10.5	2.0	44.9	
5381	311.0	5.0		1.3	.5	7.1	
5510	577.9	8.7		1.0	1.1	16.0	
5511	518.7	10.2		.8	.9	12.5	
5611-31	1,368.2	10.3		.6	1.1	69.4	
5700-2	11,720.5	150.5	63,444.5	5.4	16.2	4.1	
5893	1,525.2	37.2	239.9	.1	2.5	48.2	
6011	6,218.7	468.4		5.9	1.3	14.6	
6017	7,025.0	62.6		2.1	2.5	114.0	
6030	2,991.3	22.1		5.6	2.2	12.6	
6101	3,750.3	71.8		1.0	.6	89.7	
6280	353.2	4.0		.2	.2	4.0	
6351	455.9	1.3	410.5	.1	.3	1.0	
6410	196.4	3.2	410.1	.5	.4	3.2	
6632	2,760.7	16.3		2.1	1.3	15.8	
6671	3,612.3	13.6		1.6	.5	9.6	

Table IV-5. Nutritional Elements Provided by Each Food: Large Model (cont.)

Number	Commodity		Quantity (lb. per 4- week period)	Nutrients Provided (cont.)				
	Name			Calories	Protein (gm.)	Fat (gm.)	Carbohydrates (gm.)	Calcium (mg.)
	Flour							
6692	White, Enriched		3.304**	5,464.8	157.6	14.9	1,141.5	241.2
6694	Corn Meal		6.038	9,962.7	216.8	32.6	2,148.9	163.0
	Spaghetti and Macaroni							
6724	Can, with Cheese		.429	410.5	15.8	21.4	38.4	371.9
6731	Bag or Sack, Plain		.459	785.8	26.7	2.9	159.4	45.9
6958	Hominy		.558	916.2	22.0	2.0	197.9	10.0
	Sugar							
7100	White or Powdered		14.462	25,279.5			6,532.5	
7120	Brown		.714**	1,198.1			309.6	246.3
	Candy and Sweets							
7360	Other Candy and Sweets		.687**	1,189.9	7.1	24.3	250.5	128.5
	Prepared Dessert Mixes							
7415	Gelatin, Flavored (Jello, Royal, etc.)		.302**	521.0	12.9		121.6	
	Nuts and Nut Products							
7511	Coconuts in Shell		1.201	1,038.9	9.8	100.4	40.5	61.3
	Beverages							
8420	Coffee, Regular		2.592*					
	Cooking Aids							
9311	Baking Powder		.069					
9312	Baking Soda		.155					
9340	Meat Sauces		.012	4.2	.1		.9	1.9
9350	Salt		.684*					
9360	Spices		.0295*					
9361	Pepper		.0195*					
9371	Vinegar		.471*	26.4			10.7	15.1
9436	Mustard, Prepared		.168*	61.0	4.6	6.1	4.6	76.3
	Total***			207,200.1	5,967.3	9,891.6	24,250.6	81,199.9
	Requirement***			207,200.0	5,460.0	5,653.2	20,720.0	81,200.0
	Excess Provided***				507.3	4,238.6	3,530.6	

*This quantity is specifically required in the model.

**This is the minimum quantity of this item permitted by the model.

***Any discrepancies among final digits are caused by rounding error.

Table IV-5. Nutritional Elements Provided by Each Food: Large Model (cont.)

Commodity Number	Nutrients Provided (cont.)						Ascorbic Acid (mg.)
	Phosphorus (mg.)	Iron (mg.)	Vitamin A (I.U.)	Thiamin (mg.)	Riboflavin (mg.)	Niacin (mg.)	
6692	1,305.1	43.0		.7	.4	52.9	
6694	2,711.1	30.2	8,211.7	3.7	1.3	28.4	
6724	329.0	1.0	879.4	.1	.3	.8	
6731	343.8	3.1		.2	.1	4.2	
6958	184.7	2.5	758.9	.3	.1	2.9	
7100							
7120	120.0	8.4					
7360	155.3	1.8	89.3	.1	.3	.7	
7415							
7511	283.4	5.8		.3	.0	.7	6.0
8420							
9311							
9312							
9340	1.4	.1	36.5				.2
9350							
9360							
9361							
9371	21.2	1.1					
9436	91.6	1.5					
	117,606.3	1,459.9	420,000.2	106.5	137.2	1,064.0	15,666.8
	103,600.0	1,092.0	420,000.0	106.4	137.2	1,064.0	6,300.0
	14,006.5	367.9					9,366.8

Table IV-6. Percentage of Each Nutrient Requirement and of Total Expenditure Provided by Each Food: Large Model

Number	Commodity Name	Percentage of Total Expenditure	Percentage of Nutrient Requirement ¹				
			Calories	Protein	Fat	Carbohydrates	Calcium
Milk							
1120	Fresh, Homogenized, Plain	14.1	11.3	22.1	23.7	8.1	50.0
1310	Powdered, Skim	.4	.4	1.3		.5	3.3
Ice Cream							
1520	Pre-Packaged	2.4**	1.1	.8	2.5	1.1	1.7
Cheese							
1620	Processed American (Velveeta, etc.)	1.5	1.0	2.4	3.0		4.7
1820	Cottage Cheese	1.3**	.4	3.2	.1	.1	1.1
Fats							
2120	Oleomargarine	2.4	6.9	.2	28.5		.5
2130	Lard	.6	2.7		11.1		
2131	Swiftning	2.6	8.7		35.4		
Oils							
2221	Salad Dressing	.5**	.7	.1	2.3	.2	
Citrus							
3240-1	Oranges, Fresh	1.4**	.4	.3	.1	1.0	.8
3245-3	Orangeade and Orange Base, Canned	2.7	5.8	4.0	.7	14.7	4.0
Other Fruits							
3310-1	Apples, Fresh	2.1**	.8	.2	.2	2.0	.2
3340-1	Bananas, Fresh	1.6**	.6	.3		1.4	.1
Green Leafy Vegetables							
4120-1	Cabbage, Fresh	.4**	.1	.1		.1	.3
4130-1	Celery, Fresh	.5**		.1		.1	.2
4210-1	Lettuce, Head, Fresh	1.1**		.1		.1	.1
Green and Yellow Vegetables							
4470-1	Carrots, Fresh	.4**	.1	.1		.2	.2
All Other Vegetables							
4701-4	Beans, Navy, White, Dried	.5	1.0	2.3	.2	1.8	1.2
4701-5	Beans, Navy, White, Soup	1.2	.9	1.6	.9	1.4	1.1
4811-4	Onions, Mature, Dried	1.4**	.6	.6	.1	1.3	1.0
4841-1	Potatoes, Fresh	2.5**	2.8	2.6	.1	6.5	1.0
4871-1	Tomatoes, Fresh	4.3**	.2	.4	.1	.4	.3

Table IV-6. Percentage of Each Nutrient Requirement and of Total Expenditure Provided by Each Food: Large Model (cont.)

Commodity		Percentage of Nutrient Requirement ¹ (cont.)					
Number	Phosphorus	Iron	Vitamin A ¹	Thiamin	Riboflavin	Niacin	Ascorbic Acid
1120	30.9	2.1	13.0	11.4	43.1	3.5	7.2
1310	2.0	.1		.6	2.9	.2	.2
1520	1.1	.1	1.4	.5	1.5	.1	.1
1620	4.3	.5	1.8	.1	1.7		
1820	1.7	.3		.2	2.0	.1	
2120	.3		15.6				
2130							
2131							
2221	.1	.1	.1	.1	.1		
3240-1	.4	.7	.9	1.4	.4	.4	14.9
3245-3	4.5	7.8	6.4	18.3	3.2	5.7	184.5
3310-1	.3	.8	.6	1.0	.6	.4	2.0
3340-1	.3	.7	1.3	.5	.4	.9	2.0
4120-1	.2	.3	.1	.4	.2	.2	4.6
4130-1	.1	.1		.2	.1	.1	.3
4210-1	.1	.2	.7	.2	.4	.1	.7
4470-1	.1	.3	11.7	.2	.2	.2	.4
4701-4	2.5	3.7		3.8	1.0	1.2	.2
4701-5	1.0	2.5		.9	.7	.8	
4811-4	1.1	1.1	.3	.7	.7	.5	3.6
4841-1	3.8	4.6	.3	6.9	2.0	7.7	18.9
4871-1	.6	1.2	5.7	1.1	.7	1.0	8.0

Table IV-6. Percentage of Each Nutrient Requirement and of Total Expenditure Provided by Each Food: Large Model (cont.)

Number	Commodity Name	Percentage of Total Expenditure	Percentage of Nutrient Requirement ¹ (cont.)				
			Calories	Protein	Fat	Carbohydrates	Calcium
Beef							
5130	Ground Beef, Hamburger	4.5**	3.3	6.2	10.5		.2
5141	Beef and Baby Beef Liver	.4	.1	.8	.1	.1	
5164	Chuck Roast (Pot Roast)	7.2	2.8	8.8	7.3		.3
Pork							
5311	Bacon	2.1**	2.4	1.4	9.2		.1
5330	Chops	2.0**	.6	1.3	1.9		
5346	Picnic Ham, Cured Butts	2.3	1.9	3.0	6.3		.1
5381	Sausage, Bulk	.7	.7	.6	2.5		
Other Meat and Meat Mixtures							
5510	Wieners, Frankfurters, etc.	1.5**	.7	1.5	2.1	.1	.1
5511	Bologna, Salami, etc.	1.3**	.5	1.3	1.3	.1	
Poultry							
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh	2.4	.5	2.5	.9		.1
Eggs							
5700-2	Extra Large	5.5	4.4	13.1	11.4	.2	3.7
Fish and Sea Food							
5893	Sardines in Sauce, Canned	1.5	1.0	3.0	2.4	.1	4.3
Cereal							
6011	Cream of Wheat	1.1	1.9	2.4	.2	3.9	6.9
6017	All Bran, 40% Bran, Krumbles	.8	.8	1.3	.3	1.7	.7
6030	Wheat Germ Flakes	.5	.5	1.3	.5	.6	.3
Bread							
6101	White, Enriched	3.8**	5.4	6.3	2.3	10.2	4.0
Crackers							
6280	Soda, Others Similar	.5**	.7	.6	.6	1.3	.1
Cake							
6351	Loaf, No Frosting	.6	.5	.4	.5	.9	.6
Cookies							
6410	Plain or Sugared	.7**	.5	.3	.7	.7	.1
Mixes							
6632	Hot Roll or Biscuit Mix, Biscuit	.5	1.0	.8	1.2	1.6	2.3
6671	Pancake or Waffle Mix, Buckwheat	.3	.7	.8	.1	1.5	2.5

Table IV-6. Percentage of Each Nutrient Requirement and of Total Expenditure Provided by Each Food: Large Model (cont.)

Commodity Number	Percentage of Nutrient Requirement ¹ (cont.)						
	Phosphorus	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Ascorbic Acid
5130	2.6	4.7		1.3	2.2	7.6	
5141	.7	1.3	22.4	.5	5.2	2.7	1.0
5164	4.2	6.6		2.0	3.1	10.8	
5311	.8	.6		2.8	.7	1.4	
5330	.8	1.0		3.3	.6	1.8	
5346	1.7	2.3		9.9	1.5	4.2	
5381	.3	.5		1.2	.4	.7	
5510	.6	.8		.9	.8	1.5	
5511	.5	.9		.7	.7	1.2	
5611-31							
	1.3	.9		.6	.8	6.5	
5700-2	11.3	13.8	15.1	5.1	11.8	.4	
5893	1.5	3.4		.1	1.8	4.5	
6011	6.0	42.9		5.5	.9	1.4	
6017	6.8	5.7		2.0	1.8	10.7	
6030	2.9	2.0		5.3	1.6	1.2	
6101	3.6	6.6		.9	.4	8.4	
6280	.3	.4		.2	.2	.4	
6351	.4	.1	.1	.1	.2	.1	
6410	.2	.3	.1	.5	.3	.3	
6632	2.7	1.5		2.0	.9	1.5	
6671	3.5	1.2		1.5	.4	.9	

Table IV-6. Percentage of Each Nutrient Requirement and of Total Expenditure Provided by Each Food: Large Model (cont.)

Number	Commodity		Percentage of Total Expenditure	Percentage of Nutrient Requirement ¹ (cont.)				
	Name			Calories	Protein	Fat	Carbohydrates	Calcium
	Flour							
6692	White, Enriched		.7**	2.6	3.0	.3	5.5	.3
6694	Corn Meal		1.4	4.8	4.0	.6	10.4	.2
	Spaghetti and Macaroni							
6724	Can, with Cheese		.2	.2	.3	.4	.2	.5
6731	Bag or Sack, Plain		.2	.4	.5	.1	.8	.1
6958	Hominy		.1	.4	.4		1.0	
	Sugar							
7100	White or Powdered		3.3	12.2			31.6	
7120	Brown		.2**	.6			1.5	.3
	Candy and Sweets							
7360	Other Candy and Sweets		.7**	.6	.1	.4	1.2	.2
	Prepared Dessert Mixes							
7415	Gelatin, Flavored (Jello, Royal, etc.)		.3**	.3	.2		.6	
	Nuts and Nut Products							
7511	Coconuts in Shell		.9	.5	.2	1.8	.2	.1
	Beverages							
8420	Coffee, Regular		5.3*					
	Cooking Aids							
9311	Baking Powder		.0					
9312	Baking Soda		.0					
9340	Meat Sauces		.0	.0	.0		.0	.0
9350	Salt		.1*					
	Spices							
9360	Spices		.1*					
9361	Pepper		.1*					
9371	Vinegar		.2*					
9436	Mustard, Prepared		.1*		.1	.1		.1
	Total		100.0	100.0	109.3	175.0	117.0	100.0
	Excess Provided				9.3	75.0	17.0	

¹The percentages are rounded so that they total exactly 100.0.

*The quantity of this item is set exactly in the model.

**This item is present in the minimum quantity permitted by the model.

Table IV-6. Percentage of Each Nutrient Requirement and of Total Expenditure Provided by Each Food: Large Model (cont.)

Commodity Number	Percentage of Nutrient Requirement ¹ (cont.)						
	Phosphorus	Iron	Vitamin A	Thiamin	Riboflavin	Niacin	Ascorbic Acid
6692	1.3	3.9		.6	.3	5.0	
6694	2.6	2.8	2.0	3.5	.9	2.7	
6724	.3	.1	.2	.1	.2	.1	
6731	.3	.3		.2	.1	.4	
6958	.2	.2	.2	.3	.1	.3	
7100							
7120	.1	.8					
7360	.2	.2		.1	.2	.1	
7415							
7511	.3	.5		.3		.1	.1
8420							
9311							
9312							
9340	.0	.0	1.0				.0
9350							
9360							
9361							
9371	.	.1					
9436	.1	.1					
	113.5	133.7	100.0	100.0	100.0	100.0	248.7
	13.5	33.7					148.7

Table IV-7. Percentage of Nutrient Requirement Supplied by Diet

<u>Nutrient</u>	<u>Midget Model</u>	<u>Small Model</u>	<u>Large Model</u>
Calories	100	100	100
Protein	121	100	109
Fat	100	104	175
Carbohydrates	155	163	117
Calcium	104	100	100
Phosphorus	106	109	114
Iron	112	100	134
Vitamin A	100	100	100
Thiamin	100	100	100
Riboflavin	100	106	100
Niacin	156	110	100
Ascorbic Acid	100	100	249

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Table IV-8. Principal Sources of Nutrients in Each Diet (Major Source Listed First)

<u>Nutrient</u>	<u>Midget Model</u>	<u>Small Model</u>	<u>Large Model</u>
Calories	Flour, Milk	Sugar, Flour, Milk	Sugar, Milk
Protein	Flour, Milk	Milk, Flour	Milk, Eggs
Fat	Milk, Oleomargarine, Picnic Ham	Milk, Oleomargarine	Swiftning, Oleomargarine, Milk
Carbohydrates	Flour, Potatoes	Sugar, Flour, Wheaties	Sugar, Canned Orange Base
Calcium	Milk	Milk	Milk
Phosphorus	Milk, Flour	Milk, Wheaties	Milk, Eggs
Iron	Flour, Potatoes	Wheaties, Flour	Cream of Wheat, Eggs
Vitamin A	Carrots, Milk	Carrots, Milk, Oleomargarine	Beef Liver, Oleomargarine, Eggs
Thiamin	Picnic Ham, Potatoes, Milk	Wheaties, Milk Potatoes	Canned Orange Base, Milk
Riboflavin	Milk	Milk	Milk, Eggs
Niacin	Flour, Potatoes	Wheaties, Flour, Potatoes	Beef Chuck Roast, Cereal (Krumbles, All-Bran, 40% Bran)
Ascorbic Acid	Potatoes	Potatoes, Oranges	Canned Orange Base

Table V-1. How to Increase the Levels of Individual Nutrients: Midget Diet

Commodity		Changes in Food Quantities (in Lb.) that Add One Unit of a Specified Nutrient					
Number	Name	Calories (1000 cal.)	Fat (hg.)	Vitamin A (10,000 L U.)	Thiamin (mg.)	Riboflavin (mg.)	Ascorbic Acid (dg.)
	Milk						
1120	Fresh, Homogenized, Plain	-.069	+.078	-.042	-.27	+1.34	-.118
	Fats						
2120	Oleomargarine	+.007	+.265	+.002	-.08	-.05	+.059
	Green and Yellow Vegetables						
4470-1	Carrots, Fresh	-.001	-.098	+.242	+.03	-.01	-.022
	All Other Vegetables						
4841-1	Potatoes, Fresh	+.007	+.025	-.076	+.01	-.13	+1.581
	Pork						
5346	Picnic Ham, Cured Butts	-.034	+.031	-.003	+.30	-.04	-.161
	Flour						
6692	White, Enriched	+.630	-.559	-.001	-.02	-.10	-.272
Net Cost of These Changes (¢)		4.5	1.3	3.0	6.4	6.7	1.5
Cost of 1% of the Dietary Requirement (¢)		9.3	.7	1.3	6.8	9.2	1.0

Table V-2. Changes in the Nutrients Provided by Each Food when Ascorbic Acid is Increased by One Decigram¹ (Scarce Nutrients Only)

Commodity	<u>Milk</u>	<u>Fats</u>	<u>Vegetables</u>		<u>Pork</u>	<u>Flour</u>	Total for Diet as a Whole ²
	Fresh	Oleomargarine	Carrots, Fresh	Potatoes, Fresh	Picnic Ham or Cured Pork Butts	White, Enriched	
Change in Quantity (lb.)	-.1177	+.0589	-.0221	+1.5808	-.1606	-.2721	
Change in Nutrient							
Calories (1000 cal.)	-.0364	+.1925	-.0032	+.5027	-.2073	-.4501	-.0017
Fat (kg.)	-.0021	+.0217	-.0000	+.0006	-.0191	-.0012	-.0002
Vitamin A (10,000 I. U.)	-.0085	+.0884	-.0910	+.0111	-.0000		-.0000
Thiamin (mg.)	-.0188		-.0042	+.6323	-.5589	-.0544	-.0040
Riboflavin (mg.)	-.0918		-.0042	+.2371	-.1092	-.0327	-.0008
Ascorbic Acid (dg.)	-.0071		-.0046	+1.0117			+1.0000
Price (\$ per lb.)	.082	.240	.160	.060	.341	.096	
Change in Expenditure (\$)	-.0097	+.0141	-.0035	+.0948	-.0548	-.0261	.0149

¹Table A-1, pp. 100-101, gives the remaining data required for these calculations.

²Deviations from the sum of the parts are caused by rounding error.

Table V-3. Marginal Costs of Nutrients

Requirement			Marginal Cost Per Unit (¢)			Imputed Total Cost of Satisfying Requirements (\$)		
Nutrient	Amount	Unit	Model			Model		
			Midget	Small	Large	Midget	Small	Large
Calories	207.200	1000 Calories	4.51	3.84	6.27	9.35	7.96	12.98
Protein	546.0	Decagram		1.47			8.05	
Fat	56.532	Hectogram	1.28			.72		
Carbohydrates	20.720	Kilogram						
Calcium	81.200	Gram		6.07	3.74		4.93	3.04
Phosphorus	103.600	Gram						
Iron	109.2	Centigram		2.32			2.54	
Vitamin A	42.0000	10,000 International Units	3.04	2.77	.83	1.28	1.16	.35
Thiamin	106.4	Milligram	6.37	5.45	1.35	6.78	5.80	1.43
Riboflavin	137.2	Milligram	6.73		.73	9.23		1.01
Niacin	106.40	Centigram			.23			.24
Ascorbic Acid	63.00	Decigram	1.53	4.52		.96	2.84	
Total Cost Imputed to All Nutrients (\$)						28.33*	33.29*	19.05*

*Differs from sum of parts because of rounding.

Table V-4. How to Increase the Levels of Individual Nutrients: Large Model Diet¹

Activity		Changes in Activity Levels that Add One Unit of a Specified Nutrient					
A. Foods (lb.)		Calories	Calcium	Vitamin A	Thiamin	Riboflavin	Niacin
Number	Name	(100 cal.)	(dg.)	(100 I. U.)	(1/10 mg.)	(1/10 mg.)	(mg.)
	Milk						
1120	Fresh, Homogenized, Plain						
1310	Powdered Skim		-.0043	-.0011	-.0014	.0143	.0015
	Cheese						
1620	Processed American (Velveeta, etc.)						
	Fats						
2120	Oleomargarine						
2130	Lard						
2131	Swiftning	.0245	.0088	.0010	-.0122	-.0074	-.0131
	Citrus						
3245-3	Orangeade and Orange Base, Canned		.0740	.0032	.0461	-.0595	.0333
	All Other Vegetables						
4701-4	Beans, Navy, White, Dried						
4701-5	Beans, Navy, White, Soup						
	Beef						
5141	Beef and Baby Beef Liver		-.0023	.0004	-.0005	.0016	-.0001
5164	Chuck Roast (Pot Roast)						
	Pork						
5346	Picnic Hams, Cured Butts						
5381	Sausage, Bulk						
	Poultry						
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh						
	Eggs						
5700-2	Extra Large						
	Fish and Sea Food						
5893	Sardines in Sauce, Canned						
	Cereal						
6011	Cream of Wheat						
6017	All Bran, 40% Bran, Krumbles		.0104	.0003	-.0032	-.0068	.0086
6030	Wheat Germ Flakes		-.0104	-.0003	.0032	.0068	-.0086
	Cake						
6351	Loaf, No Frosting						
	Mixes						
6632	Hot Roll or Biscuit Mix, Biscuit						
6671	Pancake or Waffle Mix, Buckwheat						
6694	Corn Meal						
	Spaghetti and Macaroni						
6724	Can, with Cheese		.1354	.0074	-.0051	-.0878	-.0245
6731	Bag or Sack, Plain		-.1354	-.0074	.0051	.0878	.0245
6958	Hominy						
	Sugar						
7100	White or Powdered						
	Nuts and Nut Products						
7511	Coconuts in Shell						

Table V-4. How to Increase the Levels of Individual Nutrients: Large Model Diet¹ (cont.)

Activity		Changes in Activity Levels that Add One Unit of a Specified Nutrient (cont.)					
A. Foods (lb.)		Calories	Calcium	Vitamin A	Thiamin	Riboflavin	Niacin
Number	Name	(100 cal.)	(dg.)	(100 I.U.)	(1/10 mg.)	(1/10 mg.)	(mg.)
Cooking Aids							
9311	Baking Powder						
9312	Baking Soda						
9330	Extracts ²						
9340	Meat Sauces		-.0000	.0000	-.0000	.0000	-.0000
B. Selected Restrictions							
Number	Label						
<u>Excess over Minimum Nutritional Requirement</u>							
2	Protein (gm.)		-2.934	-.258	.889	3.562	.915
3	Fat (gm.)	11.111	9.740	.765	-5.513	-7.080	-7.199
4	Carbohydrates (hg.)		-.158	-.013	.129	.099	.160
6	Phosphorus (dg.)		.186	-.029	.079	.373	.280
7	Iron (mg.)		.018	.003	.290	-.064	.491
12	Ascorbic Acid (mg.)		73.764	3.213	46.092	-58.999	33.458
<u>Margin below Maximum</u>							
13	Calories (100 cal.)	-1.000					
<u>Excess over Minimum Required by Proportionality Restrictions</u>							
14	Butter and Oleomargarine for Bread and Rolls (lb. of oleomargarine)						
15	Salad Oils and Dressing for Green Leafy Vegetables (lb. of oil or dressing)						
16	Cooking Fats and Oils for Flour (lb. of fat or oil)	.024	.009	.001	-.012	-.007	-.013
17	White or Powdered Sugar for Cake and White Flours (lb. of sugar)						
18	Baking Chocolate for Cake and White Flours (lb. of chocolate)						
19	Yeast for Bread Flours (lb. of yeast)						
<u>Excess over Minimum Quantity Specifically Required</u>							
61	Cooking Fats and Oils (lb.)	.024	.009	.001	-.012	-.007	-.013
<u>C. Net Cost of These Changes (\$)</u>		.63	.37	.0083	.13	.073	.023

¹I have not attempted to record only significant figures in the entries in the table. In order to show how nutritional content affects the economizing process, I have proceeded as though both the nutritional requirements and the data on the nutritional composition of each food were precise to an unlimited number of figures. Actually, the number of significant figures in the food composition data ranges from one to five.

²At zero level in the large model solution.

Table V-5. Nutrient Effects of Substitutions Made to Increase Calcium (Scarce Nutrients Only)

Commodity	<u>Milk</u>	<u>Fats</u>	<u>Citrus</u>	<u>Beef</u>	<u>Cereal</u>		<u>Spaghetti or Macaroni</u>		<u>Cooking Aids</u>	Total for Diet as a Whole ¹
	Powdered Skim	Swiftning	Orangeade or Orange Base, Canned	Beef and Baby Beef Liver	All Bran, 40% Bran or Krumbles	Wheat Germ Flakes	Can, with Cheese	Bag or Sack, Plain	Meat Sauces	
Change in Quantity (lb.)	-.004	+.009	+.074	-.002	+.010	-.010	+.135	-.135	-.000	+.077
Change in Nutrient										
Calories (100 cal.)	-.07	+.36	+.77	-.01	+.15	-.17	+1.30	-2.32		.00
Calcium (dg.)	-.25		+.20	-.00	+.05	-.04	+1.17	-.14		+1.00
Vitamin A (100 I.U.)	-.01		+1.72	-4.48			+2.78			.00
Thiamin (1/10 mg.)	-.07		+1.24	-.03	+.18	-.97	+.20	-.57		.00
Riboflavin (1/10 mg.)	-.38		+.28	-.34	+.22	-.38	+.96	-.37		.00
Niacin (mg.)	-.02		+.38	-.14	+1.00	-.22	+.24	-1.25		.00
Price (\$ per lb.)	41.2	25.6	10.4	34.5	28.9	39.5	18.6	20.5	64.4	
Change in Expenditure (\$)	-.18	+.23	+.77	-.08	+.30	-.41	+2.52	-2.78		+.37

¹Any differences from the sums of the parts are caused by rounding error.

Table VI-1. Net Marginal Costs of Meeting Requirements for Exact Quantities

Requirement				Net Marginal Cost (¢ per lb.)		Imputed Total Cost (\$)	
No.	Commodity	Level (lb.)	Price (¢ per lb.)	Model		Model	
				Small	Large	Small	Large
	Beverages						
24	Coffee, Regular	2.592	90.1	90.10	90.10	2.34	2.34
	Cooking Aids						
25	Salt	.684	6.9	6.90	6.90	.05	.05
26	Spices	.0295	184.1	184.10	184.10	.05	.05
27	Pepper	.0195	169.7	169.70	169.70	.03	.03
28	Vinegar	.471	14.1	13.16	13.63	.06	.06
29	Mustard, Prepared	.168	23.5	13.22	19.53	.02	.03
				Total		2.55	2.56

Table VI-2. Net Marginal Costs of Meeting Minimum Requirements: Large Model

Requirement		Level (lb.)	Net Marginal Cost (\$ per lb.)	Imputed Total Cost (\$)
No.	Commodity			
A. On Groups of Foods				
58	Milk Fresh	75.828	3.40	2.58
59	Cheese American	1.244	27.91	.35
60	Fats Butter and Oleomargarine	4.379	1.94	.08
61	Cooking Fats and Oils	1.712	0.00	.00
62	Soups	2.739	12.92	.35
63	Beef Steaks and Roasts	6.534	41.16	2.69
64	Pork Ham	3.012	20.43	.62
65	Sausage	.685	27.14	.19
66	Chicken Broilers or Fryers	2.012	46.63	.94
67	Eggs	8.179	18.09	1.48
68	Fish and Sea Food	1.999	19.83	.40
69	Cereals Ready to Serve	1.787	12.11	.22
70	Cake	.733	25.24	.18
71	Spaghetti or Macaroni	.888	8.42	.07
72	Nuts and Nut Products	1.201	27.85	.33
			Total	10.48
B. On Specific Items				
73	Ice Cream Pre-Packaged	3.903	21.02	.82
74	Cheese Cottage Cheese	2.003	22.39	.45
75	Oils Salad Dressing	.773	17.07	.13
76	Citrus Oranges, Fresh	5.808	9.00	.52
77	Other Fruits Apples, Fresh	6.956	11.31	.79
78	Bananas, Fresh	4.255	13.99	.60
79	Green Leafy Vegetables Cabbage, Fresh	1.770	8.69	.15
80	Celery, Fresh	1.055	21.73	.23
81	Lettuce, Head, Fresh	1.746	25.81	.45
82	Green and Yellow Vegetables Carrots, Fresh	1.192	10.76	.13

	All Other Vegetables			
83	Onions, Mature, Dried	5.955	8.14	.48
84	Potatoes, Fresh	18.544	3.09	.57
85	Tomatoes, Fresh	5.430	33.20	1.80
	Beef			
86	Ground Beef, Hamburger	4.666	31.43 ^a	1.47
	Pork			
87	Bacon	1.757	30.75 ^a	.54
88	Chops	1.196	61.12 ^a	.73
	Other Meat and Meat Mixtures			
89	Wieners, Frankfurters, etc.	1.273	43.56 ^a	.55
90	Bologna, Salami, etc.	1.021	46.27 ^a	.47
	Bread			
91	White, Enriched	8.972	8.81	.79
	Crackers			
92	Soda and Others Similar	.810	15.34	.12
	Cookies			
93	Plain or Sugared	.722	32.80	.24
	Flour			
94	White, Enriched	3.304	-.66 ^a	-.02
	Sugar			
95	White or Powdered	7.278	0.00	.00
96	Brown	.714	2.00	.01
	Candy and Sweets			
97	Other Candy and Sweets	.687	32.92	.23
	Prepared Dessert Mixes			
98	Gelatin, Flavored (Jello, Royal, etc.)	.302	30.59	.09
			Total	12.36^b

^aWhen complementarity restrictions do not apply. Net marginal costs per pound when the complementarity restrictions do apply are as follows:

Ground Beef and Hamburger	31.50¢	Wieners and Frankfurters, etc.	43.63¢
Pork - Bacon	30.82¢	Bologna, Salami, etc.	46.33¢
Pork - Chops	61.18¢	Flour - White, Enriched	1.57¢

The net marginal cost given here for white flour is calculated for a situation in which the complementarity restrictions for yeast and baking chocolate are ineffective. However, these must become effective before any white flour can be added to the diet. I have not calculated the net marginal cost of adding flour when these restraints are effective, but it is clear that it will exceed 1.57¢ per lb.

^bDiffers from sum of parts because of rounding.

Table VI-3. Net Marginal Costs of Observing Maximum Limits

No.	Requirement Commodity	Level (lb.)	Net Marginal Cost of Inability to Use More of the Commodity (¢ per lb.)	Imputed Total Cost (\$)
<u>Small Model</u>				
34	All Other Vegetables Potatoes, Fresh	49.087	2.32	-1.14
Total for Small Model				-1.14
<u>Large Model</u>				
Mixes				
36	Roll, Biscuit or Muffin	1.159	3.18	-.04
37	Pancake or Waffle	.962	4.06	-.04
Fats				
41	Lard	1.385	6.86	-.09
43	Bread Flours and Corn Meal	9.342	1.14	-.11
All Other Vegetables				
46	Beans, Navy, White, Dried	1.308	.61	-.01
51	Hominy	.558	1.31	-.01
Sugar				
52	White or Powdered	14.462	.95	-.14
Cereals				
55	Cooked	2.433	2.66	-.06
Total for Large Model				-.49*

*The total differs from the sum of the parts because of rounding error.

Table VI-4. The Marginal Costs of Conforming to Complementarity Restrictions

Requirement		Marginal Cost of Conforming in Terms of the			
		Commodity Promoted ¹ (¢ per lb.)		Commodity Restricted ² (¢ per lb.)	
		Model		Model	
No.	Description of Complementarity ³	Small	Large	Small	Large
14	Butter and Oleomargarine for Bread and Rolls				
15	Salad Oils and Dressings for Green Leafy Vegetables	*		.72	
16	Cooking Fats and Oils for Flours	6.33		1.49	
17	White or Powdered Sugar for Cake and White Flours	3.28		3.43	
18	Baking Chocolate for Cake and White Flours	67.03		1.06	
19	Yeast for Bread Flours	96.97		.17	
20	Meat Sauces for Meats	55.89	60.87	.06	.07
21	Baking Powder for Flours	27.60	27.60	.31	.31
22	Baking Soda for Flours	11.40	11.40	.29	.29
23	Flavoring Extracts for Cake and White Flours	213.40	*	1.62	.05

¹The first-named member of the pair of complements.

²The second-named member of the pair of complements.

³See Table III-4 for a detailed statement of these restrictions.

*Neither this commodity nor this commodity with its complement possesses nutrients or other attributes that are sufficient to warrant including either this commodity or the pair of commodities in the diet. Under these circumstances the commodity promoted is not an appropriate basis for a measure of the cost of conforming because the net marginal cost of adding it without its complement exceeds the net marginal saving that adding the proportionate amount of the complement would make possible. The net marginal cost of adding one pound of the commodity without its complement is 19.73¢ for salad dressing and 213.40¢ for flavoring extracts.

Table VI-5. Costs of Complementarities Involving Flour: Small Model

<u>Number</u>	<u>Commodity Name</u>	<u>Quantity (lb.)</u>	<u>Market Price (\$ per lb.)</u>	<u>Imputed Net Cost Associated with Restraint (\$ per lb. of commodity)</u>	<u>Complementarity Coefficient (per lb. of flour)</u>	<u>Gross Cost for Flour (\$/lb.)</u>	<u>Net Cost for Flour (\$/lb.)</u>	<u>Total Net Cost for Commodity (\$)</u>
	Fats							
2120	Oleomargarine	5.799	.240	.063	.23470	.056	.015	.367
	Sugar							
7100	White	25.861	.100	.033	1.04660	.105	.034	.849
	Cooking Aids							
9311	Baking Powder	.280	.276	.276	.00135	.003	.003	.077
9312	Baking Soda	.636	.114	.114	.02572	.003	.003	.073
9321	Baking Chocolate	.390	.851	.670	.01580	.013	.011	.262
9330	Flavoring Extracts	.188	2.134	2.134	.00761	.016	.016	.401
9372	Yeast	.042	1.226	.970	.00172	.002	.002	.041
					Total	.199*	.084	2.070

*The discrepancy between the total and the sum of the parts is caused by rounding error.

Table VI-6. Allocation of Total Diet Cost by Categories
(In dollars)

<u>Class of Restraint</u>	<u>Model</u>		
	<u>Midget</u>	<u>Small</u>	<u>Large</u>
Nutritional	28.33	33.29	19.05
Complementarity			
Coffee and Condiments		2.55	2.56
Maximum Limit		-1.14	-.49
Minimum Requirement			
On Groups of Foods			10.48
On Particular Items			12.36
Total Cost of Diet (\$)	28.33	34.71^a	43.96

^aDiffers from the sum of the parts because of rounding.

Table VII-1. Marginal Efficiencies and the Stigler Gap: Foods in the Large Model Solution

<u>Number</u>	<u>Commodity Name</u>	<u>Price (¢ per lb.)</u>	<u>Marginal Efficiency (% of price)</u>	<u>Stigler Gap (¢ per lb.)</u>
	Milk			
1120	Fresh, Homogenized, Plain	8.2	58.6	3.4
1310	Powdered Skim	41.2	100.0	0.0
	Ice Cream			
1520	Pre-Packaged	26.7	21.3	21.0
	Cheese			
1620	Processed American (Velveeta, etc.)	51.8	46.1	27.9
1820	Cottage Cheese	27.9	19.7	22.4
	Fats			
2120	Oleomargarine	24.0	91.9	1.9
2130	Lard	18.8	136.5	-6.9
2131	Swiftning	25.6	100.0	0.0
	Oils			
2221	Salad Dressing	28.4	39.9	17.1
	Citrus			
3240-1	Oranges, Fresh	10.8	16.6	9.0
3245-3	Orangeade and Orange Base, Canned	10.4	100.0	0.0
	Other Fruits			
3310-1	Apples, Fresh	13.2	14.3	11.3
3340-1	Bananas, Fresh	16.2	13.7	14.0
	Green Leafy Vegetables			
4120-1	Cabbage, Fresh	10.2	14.8	8.7
4130-1	Celery, Fresh	22.9	5.1	21.7
4210-1	Lettuce, Head, Fresh	26.9	4.0	25.8
	Green and Yellow Vegetables			
4470-1	Carrots, Fresh	16.0	32.8	10.8
	Other Vegetables			
4701-4	Beans, Navy, White, Dried	16.9	103.6	-.6
4701-5	Beans, Navy, White, Soup	19.4	33.4	12.9
	All Other Vegetables			
4811-4	Onions, Mature, Dried	10.2	20.2	8.1
4841-1	Potatoes, Fresh	6.0	48.4	3.1
4871-1	Tomatoes, Fresh	34.7	4.3	33.2
	Beef			
5130	Ground Beef, Hamburger	42.0	25.2	31.4
5141	Beef Liver and Baby Beef Liver	34.5	100.2	-.1
5164	Chuck Roast (Pot Roast)	48.1	14.6	41.1
	Pork			
5311	Bacon	51.8	40.6	30.8
5330	Chops	72.9	16.2	61.1
5346	Picnic Ham, Cured Butts	34.1	40.3	20.4
5381	Sausage	43.4	37.6	27.1
	Other Meat and Meat Mixtures			
5510	Wieners, Frankfurters, etc.	53.0	17.8	43.6
5511	Bologna, Salami, etc.	54.7	15.4	46.3

	Poultry			
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh	51.6	9.6	46.6
	Eggs			
5700-2	Extra Large	29.4	38.5	18.1
	Fish and Sea Food			
5893	Sardines in Sauce, Canned	34.0	41.7	19.8
	Cereal			
6011	Cream of Wheat	19.9	113.4	-2.7
6017	All Bran, 40% Bran, Krumbles	28.9	58.1	12.1
6030	Wheat Germ Flakes	39.5	69.3	12.1
	Bread			
6101	White, Enriched	18.4	52.1	8.8
	Crackers			
6280	Soda, Others Similar	28.3	45.8	15.3
	Cake			
6351	Loaf, No Frosting	37.7	33.1	25.2
	Cookies			
6410	Plain or Sugared	43.9	25.3	32.8
	Mixes			
6632	Hot Roll or Biscuit Mix, Biscuit	17.9	117.8	-3.2
6671	Pancake or Waffle Mix, Buckwheat	15.8	125.7	-4.1
	Flour			
6692	White, Enriched	9.6	118.7	-1.8
6694	Corn Meal	9.9	117.6	-1.7
	Spaghetti and Macaroni			
6724	Can, Cheese	18.6	54.7	8.4
6731	Bag or Sack, Plain	20.5	58.9	8.4
6958	Hominy	10.2	112.9	-1.3
	Sugar			
7100	White or Powdered	10.0	109.5	-1.0
7120	Brown	13.8	85.5	2.0
	Candy and Sweets			
7360	Other Candy and Sweets	45.0	26.9	32.9
	Prepared Dessert Mixes			
7415	Gelatin, Flavored (Jello, Royal, etc.)	41.4	26.1	30.6
	Nuts and Nut Products			
7511	Coconuts, in Shell	33.8	17.6	27.9
	Coffee			
8420	Regular	90.1	0.0	90.1
	Cooking Aids			
9311	Baking Powder	27.6	0.0	27.6
9312	Baking Soda	11.4	0.0	11.4
9340	Meat Sauces	64.4	5.5	60.9
9350	Salt	6.9	0.0	6.9
	Spices			
9360	Spices	184.1	0.0	184.1
9361	Pepper	169.7	0.0	169.7
9371	Vinegar	14.1	3.3	13.6
9436	Mustard, Prepared	23.5	16.9	19.5

Table VII-2. Marginal Efficiencies and the Stigler Gap: Selected List of Foods Not in the Optimal Diet

<u>Number</u>	<u>Commodity Name</u>	<u>Price (\$ per lb.)</u>	<u>Marginal Efficiency (% of price)</u>	<u>Stigler Gap (\$ per lb.)</u>
<u>"Economy" Foods</u>				
	Milk			
1210	Evaporated, Unsweetened	14.6	66.5	4.9
1220	Condensed, Sweetened	33.0	47.1	17.4
	Green Leafy Vegetables			
4121-3	Sauerkraut, Canned	10.7	14.2	9.2
4260	Spinach, Canned	16.3	31.4	11.2
	Green and Yellow Vegetables			
4480-3	Corn, Sweet, Canned	15.7	15.7	13.2
4530-3	Peas, Canned	17.8	20.0	14.2
	All Other Vegetables			
4871-3	Tomatoes, Canned	16.3	10.1	14.7
	Beef			
5120	Corned	60.6	12.7	52.9
5121	Chipped	157.9	5.1	149.9
5170	Round and Swiss Steak	66.9	9.4	60.6
	Other Meat and Meat Mixtures			
5514	Prem, Spam, Treet, etc.	49.0	23.1	37.7
	Rice			
6911	Box, Plain	21.3	53.4	9.9
6931	Bag or Sack, Plain	16.0	71.1	4.6
<u>"Preference" Foods</u>				
	Cheese			
1610	Natural American	59.4	43.3	33.7
	Fats			
2110	Butter	64.8	34.0	42.8
	Berries			
3150-1	Strawberries, Fresh	31.7	6.0	29.8
	Citrus			
3210-1	Grapefruit, Fresh	09.0	13.3	7.8
	Other Fruits			
3351-3	Cherries, Sour, Canned	24.6	8.4	22.5
3440-3	Peaches, Canned	19.2	12.3	16.8
	Green Leafy Vegetables			
4260-1	Spinach, Fresh	33.2	20.7	26.3
	Green and Yellow Vegetables			
4440-1	Beans, Snap, Fresh	19.0	15.4	16.1
4480-2	Corn, Sweet, Frozen	28.1	12.7	24.5
	Beef			
5171	Sirloin Steak	73.1	10.9	65.2
5172	Porterhouse and T-Bone Steak	75.8	11.3	67.3
	Lamb			
5260	Roast (Leg, etc.)	66.2	12.1	58.2
	Pork			
5342	Ham, Whole or Half - Not Boned	50.8	28.3	36.4
	Fish and Sea Food			
5811-3	Tuna, Canned	75.0	13.5	64.8
5812-3	Salmon, Canned	61.6	16.1	51.7
5819-2	Lobstertail, with Shell, Frozen	103.7	1.6	102.0
	Cereal			
6001	Wheaties	31.9	47.7	16.7
6019	Cheerios	37.3	49.7	18.8
6023	Puffed Rice	61.5	24.4	46.5
	Beverages			
8110	Beer	18.8	8.7	17.2
8230	Wine	63.9	5.1	60.7
8610	Soft Drinks, Bottled	11.9	11.1	10.6

Table VII-3. The Thirty-One Commodities That Can Be Introduced at the Least Expense per Pound

Number	Commodity Name	Net Marginal Cost of Introducing		Marginal Efficiency (% of price)	Stigler Gap (\$ per lb.)	Effective Non-Nutritional Requirements Concerned	Number
		(\$ per lb.)	(\$ per lb.)				
Milk							
1110	Fresh, Homogenized, Vitamin D	.4	8.6	55.8	3.8	Minimum: Fresh Milk	58
1130	Fresh, Regular, Pasteurized	.5	8.7	55.2	3.9	Minimum: Fresh Milk	58
1140	Fresh, Jersey or Guernsey	2.2	10.4	46.2	5.6	Minimum: Fresh Milk	58
1170	Fresh, Skim, Plain	3.7	7.6	51.7	3.7	None	
1171	Fresh, Skim with Vitamins	3.7	7.7	51.9	3.7	None	
Fats							
2140	Vegetable Shortening	.6	25.7	97.8	.6	None	
Green-Leafy Vegetables							
4130-5	Celery Soup	3.4	20.6	20.9	16.3	Minimum: Soups	62
Green and Yellow Vegetables							
4530-4	Peas, Dried	2.4	19.0	87.3	2.4	None	
4530-5	Peas, Soup	.1	18.0	27.8	13.0	Minimum: Soups	62
All Other Vegetables							
4703-4	Beans, Kidney, Dried	2.2	19.0	88.4	2.2	None	
4871-5	Tomatoes, Soup	1.2	17.4	18.8	14.1	Minimum: Soups	62
Beef							
5161	Rib Roast - Not Boned	2.1	50.8	15.0	43.2	Minimum: Steaks and Roasts; Meat Sauce Complementarity	63;20
5163	Other ¹ Roast - Not Boned	.6	49.2	15.2	41.7	Minimum: Steaks and Roasts; Meat Sauce Complementarity	63;20
Pork							
5351	Liver	.2	23.6	99.4	.1	Meat Sauce Complementarity	20
Poultry							
5611-32	Broilers or Fryers, Ready to Cook, Frozen	2.5	54.1	9.2	49.1	Minimum: Broilers or Fryers	66
Eggs							
5700-3	Large	1.7	29.8	33.7	19.8	Minimum: Eggs	67
5700-5	Small	2.3	27.9	27.1	20.3	Minimum: Eggs	67
Cereal							
6002	Corn Flakes	2.1	28.4	50.0	14.2	Minimum: Ready to Serve Cereals	69
6007	Pep	3.0	33.3	54.7	15.1	Minimum: Ready to Serve Cereals	69
6016	Oatmeal	.7	14.2	114.1	-2.0	Maximum: Cooked Cereals	55
6018	Shredded Wheat, Wheat Chex	1.3	26.5	49.6	13.4	Minimum: Ready to Serve Cereals	69

Table VII-3. The Thirty-One Commodities That Can Be Introduced at the Least Expense per Pound (cont.)

Number	Commodity Name	Net Marginal Cost of Introducing (¢ per lb.)	Price (¢ per lb.)	Marginal Efficiency (% of price)	Stigler Gap (¢ per lb.)	Effective Non-Nutritional Requirements Concerned	
						Name	Number
6354	Cake Loaf, Frosting, Other than Plain or Chocolate	4.4	41.2	28.1	29.6	Minimum: Cake	70
6672	Mixes Pancake or Waffle, Plain	1.7	16.8	113.7	-2.3	Maximum: Pancake or Waffle Mixes	37
6673	Pancake, Buttermilk or Potato	3.3	18.4	103.8	-.7	Maximum: Pancake or Waffle Mixes	37
6691	Flour Graham	.6	12.8	109.0	-1.2	Complementarities for Baking Powder and Baking Soda; Maximum: Bread Flours and Corn Meal	21 22 43
6711	Spaghetti and Macaroni Box, Plain	3.4	23.9	50.5	11.8	Minimum: Spaghetti or Macaroni	71
6714	Box, Cheese	2.7	26.2	57.4	11.2	Minimum: Spaghetti or Macaroni	71
6725	Can, Tomato	3.1	15.8	27.2	11.5	Minimum: Spaghetti or Macaroni	71
7521	Nuts and Nut Products Peanuts, in Shell	1.6	44.6	34.1	29.4	Minimum: Nuts and Nut Products	72
7533	Peanut Butter	3.2	51.6	39.7	31.1	Minimum: Nuts and Nut Products	72
7541	Almonds, in Shell	1.7	42.6	30.6	29.6	Minimum: Nuts and Nut Products	72

¹Not rib, chuck or pot roast.

Table VIII-1. Marginal Utilities of Nutritional Elements, in Terms of Money

<u>Nutritional Element</u>	<u>Unit</u>	<u>Marginal Utility (¢)</u>	<u>Nutritional Element</u>	<u>Unit</u>	<u>Marginal Utility (¢)</u>
Calories	1000 calories	6.27	Iron	Centigram	
Protein	Decagram		Vitamin A	10,000 International Units	.83
Fat	Hectogram		Thiamin	Milligram	1.35
Carbohydrates	Kilogram		Riboflavin	Milligram	.73
Calcium	Gram	3.74	Niacin	Centigram	.23
Phosphorus	Gram		Ascorbic Acid	Decigram	

Table VIII-2. Marginal Utilities (in Terms of Money) of the Nutritional Components of Foods in the Diet. (¢ per lb. of food)*

Number	Commodity Name	Calories	Calcium	Vitamin A	Thiamin	Riboflavin	Niacin	Total Nutrients**	Price (¢ per lb.)	Marginal Efficiency (% of price)
	Milk									
1120	Fresh, Homogenized, Plain	1.9	2.0	.1	.2	.6	.0	4.8	8.2	58.6
1310	Powdered Skim	10.3	22.1	.0	2.2	6.5	.0	41.2	41.2	100.0
	Ice Cream									
1520	Pre-Packaged	3.7	1.3	.1	.2	.4	.0	5.7	26.7	21.3
	Cheese									
1620	Processed American (Velveeta, etc.)	10.5	11.4	.5	.1	1.4	.0	23.9	51.8	46.1
1820	Cottage Cheese	2.7	1.6	.0	.1	1.0	.0	5.5	27.9	19.7
	Fats									
2120	Oleomargarine	20.5	.3	1.2				22.1	24.0	91.9
2130	Lard	25.7						25.7	18.8	136.5
2131	Swiftning	25.6						25.6	25.6	100.0
	Oils									
2221	Salad Dressing	10.9	.2	.1	.1	.1		11.3	28.4	39.9
	Citrus Fruits									
3240-1	Oranges, Fresh	.9	.4	.1	.3	.1	.0	1.8	10.8	16.6
3245-3	Orangeade and Orange Base, Canned	6.5	1.0	.2	2.3	.3	.1	10.4	10.4	100.0
	Other Fruits									
3310-1	Apples, Fresh	1.5	.1	.0	.2	.1	.0	1.9	13.2	14.3
3340-1	Bananas, Fresh	1.7	.1	.1	.2	.1	.1	2.2	16.2	13.7
	Green Leafy Vegetables									
4120-1	Cabbage, Fresh	.5	.6	.0	.3	.1	.0	1.5	10.2	14.8
4130-1	Celery, Fresh	.3	.5		.2	.1	.0	1.2	22.9	5.1
4210-1	Lettuce, Head, Fresh	.3	.3	.1	.2	.2	.0	1.1	26.9	4.0
	Green and Yellow Vegetables									
4470-1	Carrots, Fresh	.9	.5	3.4	.3	.1	.0	5.2	16.0	32.8
	All Other Vegetables									
4701-4	Beans, Navy, White, Dried	9.6	2.8		4.1	.8	.2	17.5	16.9	103.6
4701-5	Beans, Navy, White, Soup	4.4	1.3		.5	.3	.1	6.5	19.4	33.4
4811-4	Onions, Mature, Dried	1.2	.5	.0	.2	.1	.0	2.1	10.2	20.2
4841-1	Potatoes, Fresh	2.0	.2	.0	.5	.1	.1	2.9	6.0	48.4
4871-1	Tomatoes, Fresh	.5	.2	.4	.3	.1	.0	1.5	34.7	4.3
	Beef									
5130	Ground Beef, Hamburger	9.1	.2		.4	.5	.4	10.6	42.0	25.2
5141	Beef and Baby Beef Liver	3.9	.1	16.5	1.6	11.1	1.4	34.6	34.5	100.2
5164	Chuck Roast (Pot Roast)	5.5	.2		.4	.5	.4	7.0	48.1	14.6

Table VIII-2. Marginal Utilities (in Terms of Money) of the Nutritional Components of Foods in the Diet (ϕ per lb. of food)* (cont.)

Number	Commodity Name	Calories	Calcium	Vitamin A	Thiamin	Riboflavin	Niacin	Total Nutrients**	Price (ϕ per lb.)	Marginal Efficiency (% of price)
	Pork									
5311	Bacon	17.9	.2		2.3	.4	.2	21.0	51.8	40.6
5330	Chops	6.8	.1		3.9	.5	.4	11.8	72.9	16.2
5346	Picnic Ham, Cured Butts	8.1	.1		4.7	.5	.3	13.7	34.1	40.3
5381	Sausage, Bulk	12.8	.1		2.6	.6	.2	16.3	43.4	37.6
	Other Meat and Meat Mixtures									
5510	Wieners, Frankfurters, etc.	7.3	.1		1.1	.6	.3	9.4	53.0	17.8
5511	Bologna, Salami, etc.	6.3	.2		1.1	.6	.3	8.4	54.7	15.4
	Poultry									
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh	3.2	.2		.4	.4	.8	5.0	51.6	9.6
	Eggs									
5700-2	Extra Large	6.9	1.4	.6	.9	1.5	.0	11.3	29.4	38.5
	Fish and Sea Food									
5893	Sardines in Sauce, Canned	6.2	6.5	.0	.1	.9	.6	14.2	34.0	41.7
	Cereal									
6011	Cream of Wheat	10.2	8.6		3.2	.4	.1	22.6	19.9	113.4
6017	All Bran, 40% Bran, Krumbles	8.9	1.7		2.4	1.5	2.2	16.8	28.9	58.1
6030	Wheat Germ Flakes	10.3	1.4		12.5	2.7	.5	27.4	39.5	69.3
	Bread									
6101	White, Enriched	7.8	1.3		.1	.1	.2	9.6	18.4	52.1
	Crackers									
6280	Soda, Others Similar	12.0	.3		.4	.2	.1	13.0	28.3	45.8
	Cake									
6351	Loaf, No Frosting	9.3	2.6	.0	.2	.3	.0	12.5	37.7	33.1
	Cookies									
6410	Plain or Sugared	9.1	.4	.0	1.0	.4	.1	11.1	43.9	25.3
	Mixes									
6632	Hot Roll or Biscuit Mix, Biscuit	11.5	5.9		2.5	.8	.3	21.1	17.9	117.8
6671	Pancake or Waffle Mix, Buckwheat	9.1	7.9		2.2	.4	.2	19.9	15.8	125.7
	Flour									
6692	White, Enriched	10.4	.3		.3	.1	.4	11.4	9.6	118.7
6694	Corn Meal	10.3	.1	.1	.8	.2	.1	11.6	9.9	117.6
	Spaghetti and Macaroni									
6724	Can, Cheese	6.0	3.2	.2	.2	.5	.0	10.2	18.6	54.7
6731	Bag or Sack, Plain	10.7	.4		.6	.2	.2	12.1	20.5	58.0
6958	Hominy	10.3	.1	.1	.8	.1	.1	11.5	10.2	112.9

Table VIII-2. Marginal Utilities (In Terms of Money) of the Nutritional Components of Foods in the Diet (ϕ per lb. of food)* (cont.)

Number	Commodity Name	Calories	Calcium	Vitamin A	Thiamin	Riboflavin	Niacin	Total Nutrients**	Price (ϕ per lb.)	Marginal Efficiency (% of price)
7100	Sugar White or Powdered	11.0						11.0	10.0	109.5
7120	Brown	10.5	1.3					11.8	13.8	85.5
7360	Candy and Sweets Other Candy and Sweets	10.9	.7	.0	.2	.3	.0	12.1	45.0	26.9
7415	Prepared Dessert Mixes Gelatin, Flavored (Jello, Royal, etc.)	10.8						10.8	41.4	26.1
7511	Nuts and Nut Products Coconuts, in Shell	5.4	.2		.3	.0	.0	5.9	33.8	17.6
8420	Coffee Regular								90.1	0.0
9311	Cooking Aids Baking Powder								27.6	0.0
9312	Baking Soda								11.4	0.0
9340	Meat Sauces	2.2	.6	.3	.3	.1	.1	3.5	64.4	5.5
9350	Salt								6.9	0.0
9360	Spices								184.1	0.0
9361	Pepper								169.7	0.0
9371	Vinegar	.4	.1					.5	14.1	3.3
9436	Mustard, Prepared	2.3	1.7					4.0	23.5	16.9

*An entry of ".0" means that the figure is positive, but less than .05. A blank means that no appreciable amount of this nutrient is present.

**May not equal sum of parts because of rounding error.

Table VIII-3. Marginal Utility (in Money) of Capacity to Satisfy Specified Consumption Habits or Taste Preference Requirements

Number	Commodity Name	Preference Utility (\$ per lb.)	Number	Commodity Name	Preference Utility (\$ per lb.)
	Milk			Cereal	
1120	Fresh, Homogenized, Plain	3.4	6011	Cream of Wheat	-2.7
1310	Powdered Skim	0.0	6017	All Bran, 40% Bran, Krumbles	12.1
	Ice Cream		6030	Wheat Germ Flakes	12.1
1520	Pre-Packaged	21.0		Bread	
	Cheese		6101	White, Enriched	8.8
1620	Processed American (Velveeta, etc.)	27.9	6280	Crackers Soda, Others Similar	15.3
1820	Cottage Cheese	22.4		Cake	
	Fats		6351	Loaf, No Frosting	25.2
2120	Oleomargarine	1.9		Cookies	
2130	Lard	-6.9	6410	Plain or Sugared	32.8
2131	Swiftning	0.0		Mixes	
	Oils		6632	Hot Roll or Biscuit Mix, Biscuit	-3.2
2221	Salad Dressing	17.1	6671	Pancake or Waffle Mix, Buckwheat	-4.1
	Citrus			Spaghetti and Macaroni	
3240-1	Oranges, Fresh	9.0	6724	Can, Cheese	8.4
3245-3	Orangeade and Orange Base, Canned	0.0	6731	Bag or Sack, Plain	8.4
	Other Fruits		6958	Hominy	-1.3
3310-1	Apples, Fresh	11.3	7100	Sugar	
3340-1	Bananas, Fresh	14.0	7120	White or Powdered	-1.0
	Green Leafy Vegetables			Brown	2.0
4120-1	Cabbage, Fresh	8.7	7360	Candy and Sweets	
4130-1	Celery, Fresh	21.7		Other Candy and Sweets	32.9
4210-1	Lettuce, Head, Fresh	25.8	7415	Prepared Dessert Mixes	
	Green and Yellow Vegetables			Gelatin, Flavored (Jello, Royal, etc.)	30.6
4470-1	Carrots, Fresh	10.8		Nuts and Nut Products	
	All Other Vegetables		7511	Coconuts, in Shell	27.9
4701-4	Beans, Navy, White, Dried	-.6		Beverages	
4701-5	Beans, Navy, White, Soup	12.9	8420	Coffee, Regular	90.1
4811-4	Onions, Mature, Dried	8.1		Cooking Aids	
4841-1	Potatoes, Fresh	3.1	9311	Baking Powder	27.6
4871-1	Tomatoes, Fresh	33.2	9312	Baking Soda	11.4
	Poultry		9340	Meat Sauces	60.9
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh	46.6	9350	Salt	6.9
	Eggs			Spices	
5700-2	Extra Large	18.1	9360	Pepper	184.1
	Fish and Sea Food		9361	Vinegar	169.7
5893	Sardines in Sauce, Canned	19.8	9371	Mustard, Prepared	13.6
			9436		19.5

Table VIII-4. Marginal Utility Allocations for Meats (¢ per lb. of food)

<u>Number</u>	<u>Commodity Name</u>	<u>Nutrients</u>	<u>Meat Sauce Requirement</u>	<u>Preference Utility</u>
	Beef			
5130	Ground Beef, Hamburger*	10.6	*	31.4
5141	Beef and Baby Beef Liver	34.6	-.1	0.0
5164	Chuck Roast (Pot Roast)	7.0	-.1	41.2
	Pork			
5311	Bacon*	21.0	*	30.8
5330	Chops*	11.8	*	61.1
5346	Picnic Ham, Cured Butts	13.7	-.1	20.4
5381	Sausage, Bulk	16.3	-.1	27.1
	Other Meat and Meat Mixtures			
5510	Wieners, Frankfurters, etc.*	9.4	*	43.6
5511	Bologna, Salami, etc.*	8.4	*	46.3

*The meat sauce requirement does not apply at the level at which this meat is found in this diet.

Table VIII-5. Marginal Utility Allocations for Flours (¢ per lb. of food)

<u>Attribute</u>	<u>Commodity</u>	
	<u>Flour - White, Enriched*</u>	<u>Corn Meal</u>
Nutrient Content	11.36	11.64
Subject to Maximum Limit on Flours	-1.14	-1.14
Requires Complement		
Baking Powder		-.31
Baking Soda		-.29
Extracts		
Subject to Maximum on Exemption from Complementarities	-.66	
Total of Marginal Utilities	9.57**	9.89**

*The complementarity restrictions do not apply to this commodity at the level at which it appears in the diet.

**Does not equal the sum of the parts because of rounding error.

Table IX-1*. Maximum-Saving Changes in Activity Levels Associated with Relaxing Certain Restraints by One Pound

Activity		Restraint: Name and Number					
		Complementarity				Maximum Limit on	
		Meat Sauce 20	Baking Powder 21	Baking Soda 22	Extracts 23	Roll, Biscuit or Muffin Mix 36	Pancake or Waffle Mix 37
A. Food Consumption (lb.)							
Commodity Number	Name						
	Milk						
1120	Fresh, Homogenized, Plain						
1310	Powdered Skim						
	Cheese						
1620	Processed American						
	Fats						
2120	Oleomargarine						
2130	Lard						
2131	Swiftning	+0.050				-0.102	-0.171
	Citrus						
3245-3	Orangeade and Orange Base, Canned	+0.378				-1.813	-2.369
	Beans						
4701-4	Navy, White, Dried						
4701-5	Navy, White, Soup						
	Beef						
5141	Beef and Baby Beef Liver	+0.008				+0.029	+0.049
5164	Chuck Roast (Pot Roast)						
	Pork						
5346	Picnic Ham, Cured Butts						
5381	Sausage						
	Poultry						
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh						
	Eggs						
5700-2	Extra Large						
	Fish and Sea Food						
5893	Sardines in Sauce, Canned						
	Cereal						
6011	Cream of Wheat						
6017	All Bran, 40% Bran, Krumbles	+0.046				-0.146	-0.219
6030	Wheat Germ Flakes	-0.046				+0.146	+0.219
	Cake						
6351	Loaf, No Frosting						
	Mixes						
6632	Hot Roll or Biscuit - Biscuit						
6671	Pancake or Waffle - Buckwheat					+1.000	
6694	Corn Meal						+1.000
	Spaghetti or Macaroni						
6724	Can, with Cheese	+0.258					
6731	Bag or Sack, Plain	-0.258				-0.738	-2.102
6958	Hominy					+0.738	+2.102
	Sugar						
7100	White or Powdered						

Table IX-1*. Maximum-Saving Changes in Activity Levels Associated with Relaxing Certain Restraints by One Pound (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Restraint: Name and Number Maximum Limit on (cont.)					
	Lard 41	Flour (ex- cept Cake) and Corn Meal 43	Beans - Navy, White, Dried 46	Hominy 51	Sugar - White or Powdered 52	Cereals - Cooked 55
1120						
1310		-.012	-.088	-.009		+.046
1620						
2120						
2130	+1.000					
2131	-1.002	-.268	-.139	-.263	-.428	-.188
3245-3		-.376	-1.668	-.395		-2.682
4701-4			+1.000			
4701-5						
5141		-.004	+.016	-.004		+.055
5164						
5346						
5381						
5611-31						
5700-2						
5893						
6011						+.1000
6017		-.013	+.007	-.019		-.175
6030		+.013	-.007	+.019		+.175
6351						
6632						
6671						
6694		+1.000				
6724		+.193	+.311	+.190		-2.354
6731		-.193	-.311	-.190		+2.354
6958				+1.000		
7100					+1.000	

Table IX-1*. Maximum-Saving Changes in Activity Levels Associated with Relaxing Certain Restraints by One Pound (cont.)

Activity		Restraint: Name and Number				Maximum Limit on	
		Complementarity				Roll, Biscuit or Muffin Mix	Pancake or Waffle Mix
A. Food Consumption (lb.)		Meat Sauce	Baking Powder	Baking Soda	Extracts	36	37
Commodity Number	Name	20	21	22	23		
7511	Nuts and Nut Products Coconuts, in Shell						
9311	Cooking Aids Baking Powder		-1.000				
9312	Baking Soda			-1.000			
9330	Extracts ¹				-1.000		
9340	Meat Sauces	-1.000					+ .0001
B. Selected Restrictions							
Number	Label						
<u>Excess over Minimum Nutritional Requirement</u>							
2	Protein (gm.)	-11.678				+14.091	+68.198
3	Fat (gm.)	+30.743				-22.784	-160.088
4	Carbohydrates (hg.)	-.488				-.217	+2.309
6	Phosphorus (dg.)	-.148				+11.423	+27.635
7	Iron (mg.)	-7.180				+2.487	+4.316
12	Ascorbic Acid (mg.)	+360.346				-1817.584	-2368.518
<u>Margin below Maximum</u>							
13	Calories (100 cal.)						
<u>Excess over Minimum Required by Proportionality Restriction</u>							
14	Butter and Oleomargarine for Bread and Rolls (lb. of oleomargarine)						
15	Salad Oils and Dressings for Green Leafy Vegetables (lb. of oil or dressing)						
16	Cooking Fats and Oils for Flours (lb. of fat or oil)	+ .050				-.102	-.171
17	White or Powdered Sugar for Cake and White Flours (lb. of sugar)						
18	Baking Chocolate for Cake and White Flours (lb. of chocolate)						
19	Yeast for Bread Flours (lb. of yeast)						
<u>Excess over Minimum Quantity Specifically Required</u>							
61	Cooking Fats and Oils (lb.)	+ .050				-.102	-.171
C. Net Saving from These Changes (¢)		60.87	27.60	11.40	213.40	3.18	4.06

*All the tables in Chapter IX have the same stub. Therefore in Tables 2 through 5 I have repeated the commodity number or restraint number, but not the full stub.

¹At zero level in the large model solution.

Table IX-1*. Maximum-Saving Changes in Activity Levels Associated with Relaxing Certain Restraints by One Pound (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Restraint: Name and Number Maximum Limit on (cont.)					
	Lard 41	Flour (ex- cept Cake) and Corn Meal 43	Beans - Navy, White, Dried 46	Hominy 51	Sugar - White or Powdered 52	Cereals - Cooked 55
7511						
9311		+ .001				
9312		+ .026				
9330						
9340						+ .0001
B. Selected Restrictions						
Number						
2		+23.004	+45.622	+27.129		+75.000
3	-1.000	-108.628	+78.059	-108.288	-194.222	-184.067
4		+2.032	-2.596	+1.981	+4.517	+2.331
6		+2.256	+9.387	+1.081		+15.707
7		+1.013	+18.094	+ .308		+182.499
12		-378.129	-1665.921	-396.700		-2680.702
13						
14						
15						
16	- .002	- .502	+ .139	- .263	- .428	- .188
17					+1.000	
18						
19						
61	- .002	- .268	+ .139	- .263	- .428	- .188
C. Net Saving (\$)	6.86	1.14	.61	1.31	.95	2.66

Table IX-2. Maximum-Saving Changes in Activity Levels Associated with Relaxing the Minimum Quantity Requirements on Groups of Commodities by One Pound

Activity A. Food Consumption (lb.) Commodity Number	Restraint: Name and Number Minimum Limit on						
	Milk - Fresh Whole	Cheese - American	Butter and Oleo- margarine	Soups	Beef - Steaks and Roasts	Pork	
	58	59	60	62	63	Ham 64	Sausage 65
1120	-1.000						
1310	+.079	+.067	-.172	+.037	+.114	+.068	+.095
1620		-1.000					
2120			-1.000				
2130							
2131	+.046	+.589	+.953	+.089	-.100	-.351	+.072
3245-3	+.046	+1.383	+.545	+.310	+.374	+1.720	+.813
4701-4							
4701-5				-1.000			
5141	+.002	-.017	+.056	-.004	+.006	-.009	+.001
5164					-1.000		
5346						-1.000	
5381							-1.000
5611-31							
5700-2							
5893							
6011							
6017	+.003	+.205	+.049	+.027	+.100	-.026	-.022
6030	-.003	-.205	-.049	-.027	-.100	+.026	+.022
6351							
6632							
6671							
6694							
6724	+.074	+2.945	+1.237	+.047	-.969	-1.096	-.986
6731	-.074	-2.945	-1.237	-.047	+.969	+1.096	+.986
6958							
7100							

Table IX-2. Maximum-Saving Changes in Activity Levels Associated with Relaxing the Minimum Quantity Requirements on Groups of Commodities by One Pound (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Restraint: Name and Number Minimum Limit on (cont.)						
	Chicken - Broilers or Fryers	Eggs	Fish and Sea Food	Cereals - Ready to Serve	Cake	Spaghetti or Macaroni	Nuts and Nut Products
	66	67	68	69	70	71	72
1120							
1310	+ .124	+ .172	+ .136	+ .399	+ .018	+ .042	- .002
1620							
2120							
2130							
2131	- .398	+ .144	- .020	- 1.243	+ .369	+ .236	+ .179
3245-3	+ .987	- .338	+ 1.378	+ 3.108	+ .416	+ .413	+ .152
4701-4							
4701-5							
5141	+ .002	+ .050	- .023	+ .001	- .008	- .001	- .002
5164							
5346							
5381							
5611-31	- 1.000						
5700-2		- 1.000					
5893			- 1.000				
6011							
6017	+ .255	- .093	+ .301	- .326	+ .056	+ .058	+ .002
6030	- .255	+ .093	- .301	- .674	- .056	- .058	- .002
6351					- 1.000		
6632							
6671							
6694							
6724	- 1.278	- .711	+ .678	- 3.662	+ .623	- .349	+ .025
6731	+ 1.278	+ .711	- .678	+ 3.662	- .623	- .651	- .025
6958							

Table IX-2. Maximum-Saving Changes in Activity Levels Associated with Relaxing the Minimum Quantity Requirements on Groups of Commodities by One Pound (cont.)

Activity A. Food Consumption (lb.)	Restraint: Name and Number Minimum Limit on (cont.)						
	Milk - Fresh Whole 58	Cheese - American 59	Butter and Oleo- margarine 60	Soups 62	Beef - Steaks and Roasts 63	Pork Ham 64 Sausage 65	
Commodity Number							
7511							
9311							
9312							
9330							
9340			+0.001		-0.001	-0.001	-0.001
B. Selected Restrictions							
Number							
2	-3.826	-143.575	-44.117	-22.327	-32.317	+12.695	+4.109
3	+6.699	+257.856	+119.081	+23.920	-151.855	-319.584	-209.816
4	-.103	-3.754	-2.131	-.274	+3.820	+7.495	+4.892
6	-.259	-24.804	-4.961	-.565	+1.119	+3.579	+2.803
7	+0.029	-4.311	+4.446	-7.553	-1.953	+8.774	+2.975
12	+42.792	+1387.182	+549.055	+311.399	+379.079	+1726.080	+818.682
13							
14							
15			-1.000				
16	+0.046	+0.589	-0.047	+0.089	-0.100	-0.351	+0.072
17							
18							
19							
61	+0.046	+0.589	+0.953	+0.089	-0.100	-0.351	+0.072
C. Net Saving (\$)	3.40	27.91	1.94	12.92	41.16	20.43	27.14

¹At zero level in the large model solution.

Table IX-2. Maximum-Saving Changes in Activity Levels Associated with Relaxing the Minimum Quantity Requirements on Groups of Commodities by One Pound (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Restraint: Name and Number Minimum Limit on (cont.)						
	Chicken - Broilers or Fryers 66	Eggs 67	Fish and Sea Food 68	Cereals - Ready to Serve 69	Cake 70	Spaghetti or Macaroni 71	Nuts and Nut Products 72
7511							
9311							
9312							
9330							
9340		+ .0001					
B. Selected Restrictions							
Number							
2	-16.459	-41.387	-65.564	+105.565	-35.324	-39.266	-6.391
3	-265.464	-40.619	-51.899	-746.832	+157.110	+85.057	- .938
4	+6.360	+1.252	+2.318	+16.106	-3.022	-1.347	- .005
6	+5.213	-7.870	+6.915	-22.268	-3.193	-3.390	-1.840
7	+12.305	-17.213	-7.096	-1.777	- .885	-1.220	-3.842
12	+994.275	-326.572	+1383.674	+3129.831	+416.511	-415.868	+146.907
13							
14							
15							
16	- .398	+ .144	- .020	-1.243	+ .369	+ .236	+ .179
17							
18							
19							
61	- .398	+ .144	- .020	-1.243	+ .369	+ .236	+ .179
C. Net Saving (\$)	46.63	18.09	19.83	12.11	25.24	8.42	27.85

Table IX-3. Maximum-Saving Changes in Activity Levels Associated with Relaxing Requirements for Specific Commodities by One Pound

Activity A. Food Consumption (lb.) Commodity Number	Requirement: Name and Number									
					Other Fruits		Green Leafy Vegetables			Green and Yellow Vegetables - Carrots, Fresh
	Ice Cream - Pre-Packaged 1520	Cheese - Cottage 1820	Fats and Oils - Salad Dressing 2221	Citrus - Oranges, Fresh 3240-1	Apples, Fresh 3310-1	Bananas, Fresh 3340-1	Cabbage, Fresh 4120-1	Celery, Fresh 4130-1	Lettuce, Head, Fresh 4210-1	4470-1
1120										
1310	+ .044	+ .178	+ .010	- .001	+ .011	+ .006	+ .013	+ .009	+ .014	- .439
1620										
2120										
2130										
2131	+ .132	+ .024	+ .418	+ .004	+ .025	+ .025	- .015	- .017	- .010	+ .380
3245-3	+ .047	- .443		+ .188	+ .055	+ .109	+ .145	+ .150	+ .035	+ 1.454
4701-4										
4701-5										
5141	+ .006	+ .012	+ .004		+ .002	+ .006	- .001	- .002	+ .008	+ .159
5164										
5346										
5381										
5611-31										
5700-2										
5893										
6011										
6017	+ .001	- .048	- .006	+ .066	- .004	+ .011	+ .007	+ .013	- .005	+ .123
6030	- .001	+ .048	+ .006	- .006	+ .004	- .011	- .007	- .013	+ .005	- .123
6351										
6632										
6671										
6694										
6724	+ .099	- .640	- .022	+ .081	- .072	- .054	+ .042	+ .060	- .030	+ 3.010
6731	- .099	+ .640	+ .022	- .081	+ .072	+ .054	- .042	- .060	+ .030	- 3.010
6958										
7100										

Table IX-3. Maximum-Saving Changes in Activity Levels Associated with Relaxing Requirements for Specific Commodities by One Pound (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Requirement: Name and Number									
	All Other Vegetables			Beef - Ground Beef, Hamburger ² 5130	Pork		Other Meat and Meat Mixtures		Bread - White, Enriched 6101	Crackers - Soda, Others Similar 6280
	Onions, Mature, Dried 4811-4	Potatoes, Fresh 4841-1	Tomatoes, Fresh 4871-1		Bacon ² 5311	Chops ² 5330	Wieners, Frankfurters, etc. ² 5510	Bologna, Salami, etc. ² 5511		
1120										
1310	+ .013	+ .020	- .027	+ .111	+ .063	+ .081	+ .132	+ .126	+ .008	+ .029
1620										
2120										
2130										
2131	+ .021	- .036		+ .046	+ .339	- .346	- .037	- .071	+ .187	+ .360
3245-3	+ .113	+ .275	+ .239	+ .373	+ .810	+ 1.478	+ .284	+ .300	+ .608	+ .239
4701-4										
4701-5										
5141	- .001	- .001	+ .017	+ .005	- .002	- .006	+ .008	+ .007	- .009	- .001
5164										
5346										
5381										
5611-31										
5700-2										
5893										
6011										
6017	+ .008	+ .019	+ .015	+ .100	- .011	- .003	+ .026	+ .026	+ .115	+ .028
6030	- .008	- .019	- .015	- .100	+ .011	+ .003	- .026	- .026	- .115	- .028
6351										
6632										
6671										
6694										
6724	+ .040	- .198	+ .175	- .949	- .696	- 1.108	- 1.071	- 1.031	+ .174	- .196
6731	- .040	+ .198	- .175	+ .949	+ .696	+ 1.108	+ 1.071	+ 1.031	- .174	+ .196
6958										
7100										

Table IX-3. Maximum-Saving Changes in Activity Levels Associated with Relaxing Requirements for Specific Commodities by One Pound (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Requirement: Name and Number									
	Cookies - Plain or Sugared 6410	Flour - White, Enriched ² 6692	Sugar - Brown 7120	Candy and Sweets - Other 7360	Prepared Dessert Mixes - Gelatin, Flavored 7415	Coffee - Regular 8420	Salt 9350	Spices 9360	Pepper 9361	Vinegar 9371
1120										
1310	+.072	+.023	-.015	+.056					-.001	-.019
1620										
2120										
2130										
2131	+.179	-.100	+.441	+.380	+.422				+.016	+.129
3245-3	+.221	+.232	+.255	-.043					+.024	+.336
4701-4										
4701-5										
5141	+.005	-.007	-.008	+.003					-.001	-.010
5164										
5346										
5381										
5611-31										
5700-2										
5893										
6011										
6017	-.013	+.117	+.036	-.007					+.003	+.047
6030	+.013	-.117	-.036	+.007					-.003	-.047
6351										
6632										
6671										
6694		+1.000								
6724	-.486	-.216	+.467	-.172					+.043	+.615
6731	+.486	+.216	-.467	+.172					-.043	-.615
6958										
7100										

Table IX-3. Maximum-Saving Changes in Activity Levels Associated with Relaxing Requirements for Specific Commodities by One Pound (cont.)

Activity	Requirement: Name and Number									
	Ice Cream - Pre-Packaged	Cheese - Cottage	Fats and Oils - Salad Dressing	Citrus - Oranges, Fresh	Apples, Fresh	Bananas, Fresh	Cabbage, Fresh	Celery, Fresh	Lettuce, Head, Fresh	Green and Yellow Vegetables - Carrots, Fresh
Commodity Number	1520	1820	2221	3240-1	3310-1	3340-1	4120-1	4130-1	4210-1	4470-1
7511										
9311										
9312										
9330										
9340										+ .0002
B. Selected Restrictions										
Number										
2	-5.010	-50.758	-2.299	-1.512	+3.502	+ .493	-1.010	-1.547	+ .812	-103.976
3	+28.852	-18.010	+21.835	+4.979	+6.911	+8.649	-5.204	-5.591	-6.028	+303.519
4	- .610	+ .786	- .553	- .078	- .244	- .248	+ .136	+ .163	+ .110	-5.164
6	- .438	-2.399	- .900	+ .027	+ .310	+ .054	+ .246	- .009	+ .096	-11.648
7	+ .007	-1.698	-1.660	- .202	- .454	- .391	- .702	- .420	-1.004	- .136
12	+47.132	-437.373	+1.114	+26.483	+37.639	+81.400	-18.860	+129.872	+13.043	+1445.998
13										
14										
15			-1.000				+ .136	+ .136	+ .136	
16	+ .132	+ .024	+ .418	+ .004	+ .025	+ .025	- .015	- .017	- .010	+ .380
17										
18										
19										
61	+ .132	+ .024	+ .418	+ .004	+ .025	+ .025	- .015	- .017	- .010	+ .380
C. Net Saving (¢)	21.02	22.39	17.07	9.00	11.31	13.99	8.69	21.73	25.81	10.76

¹At zero level in the large model solution.

²When the complementarity restrictions apply.

Table IX-3. Maximum-Saving Changes in Activity Levels Associated with Relaxing Requirements for Specific Commodities by One Pound (cont.)

Activity <u>A. Food Consumption (lb.)</u>	Requirement: Name and Number									
	All Other Vegetables			Beef - Ground Beef, Hamburger ²	Pork		Other Meat and Meat Mixtures		Bread - White, Enriched	Crackers - Soda, Others Similar
	Onions, Mature, Dried	Potatoes, Fresh	Tomatoes, Fresh		Bacon ²	Chops ²	Wieners, Frankfurters, etc. ²	Bologna, Salami, etc. ²		
Commodity Number	4811-4	4841-1	4871-1	5130	5311	5330	5510	5511	6101	6280
7511										
9311										
9312										
9330										
9340				- .0011	- .0011	- .0011	- .0011	- .0011		
<u>B. Selected Restrictions</u>										
<u>Number</u>										
2	-3.152	+3.910	-6.765	-32.742	-.477	+4.192	-15.766	-19.867	-36.512	-31.730
3	+10.676	-24.790	+7.013	-148.754	-168.021	-292.310	-155.855	-148.624	+76.010	+111.242
4	-.211	+.566	-.032	+3.758	+4.016	+6.938	+3.716	+3.603	-1.106	-2.077
6	-.765	+.035	-.915	+1.767	+1.032	+2.596	+2.934	+2.215	-.368	-1.807
7	-1.317	+.534	-.755	-1.868	+5.248	+6.553	+1.066	-2.232	-2.753	-1.871
12	+75.947	+212.316	+148.200	+378.103	+813.803	+1484.590	+290.114	+306.074	+608.797	+240.839
13										
14										
15									+.134	
16	+.021	-.036		+.046	+.339	-.346	-.037	-.071	+.187	+.360
17										
18										
19										
61	+.021	-.036		+.046	+.339	-.346	-.037	-.071	+.187	+.360
<u>C. Net Saving (\$)</u>	8.14	3.09	33.20	31.50	30.82	61.18	43.63	46.33	8.81	15.34

Table IX-3. Maximum-Saving Changes in Activity Levels Associated with Relaxing Requirements for Specific Commodities by One Pound (cont.)

Activity	Requirement: Name and Number										
	Cookies - Plain or Sugared 6410	Flour - White, Enriched ² 6692	Sugar - Brown 7120	Candy and Sweets - Other 7360	Prepared Dessert Mixes - Gelatin, Flavored 7415	Coffee - Regular 8420	Salt 9350	Spices 9360	Pepper 9361	Vinegar 9371	Mustard, Prepared 9436
<u>A. Food Consumption (lb.)</u>											
Commodity Number											
7511											
9311											
9312											
9330		-.008									
9340											
<u>B. Selected Restrictions</u>											
Number											
2	+4.731	-6.145	-10.124	+2.243	-42.700				-.939	-40.522	
3	+2.610	-56.948	+220.048	+129.968	+191.667				+9.339	+48.254	
4	-.066	+1.402	-4.882	-3.187	-4.027				-.278	-.990	
6	+1.432	+.352	-1.040	+.140					-.391	-4.608	
7	-.554	-3.616	-11.738	-2.017					-2.294	-9.019	
12	+224.871	+232.434	+254.487	-40.512					+23.605	+334.890	
13									-.560	-3.630	
14											
15											
16	+.179	-.100	+.441	+.380	+.422				+.016	+.129	
17											
18		+1.047									
19		+.016									
61	+.179	-.100	+.411	+.380	+.422				+.016	+.129	
<u>C. Net Saving (\$)</u>	32.80	1.57	2.00	32.92	30.59	90.10	6.90	184.10	169.70	13.63	19.53

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound)

Activity A. Food Consumption (lb.) Commodity Number	Thirteen "Economy" Foods									
	Milk		Vegetables				Meats			
	Evaporated, Unsweetened 1210	Condensed, Sweetened 1220	Sauerkraut, Canned 4121-3	Spinach, Canned 4260-3	Corn, Sweet, Canned 4480-3	Peas, Canned 4530-3	Tomatoes, Canned 4871-3	Corned 5120	Chipped 5121	Steak, Round and Swiss 5170
1120										
1310	-.164	-.176	-.031	+.298	-.026	-.007	+.033	-.171	-.225	-.009
1620										
2120										
2130										
2131	-.108	-.311	+.012	-.292	+.003	+.036	+.012	+.043	+.140	+.059
3245-3	-.036	-.066	-.039	-1.107	-.101	-.388	-.322	+.023	+.071	-.031
4701-4										
4701-5										
5141	-.007	-.006	-.001	-.117	-.006	-.008	-.018	-.012	-.017	
5164										-1.000
5346										
5381										
5611-31										
5700-2										
5893										
6011										
6017	-.009	-.013	+.003	-.104	-.021	-.023	-.027	-.067	-.049	-.009
6030	+.009	+.013	-.003	+.104	+.021	+.023	+.027	+.067	+.049	+.009
6351										

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Thirteen "Economy" Foods (cont.)			Twenty-Two "Preference" Foods					
	Meats	Rice		Cheese	Fats	Berries	Citrus	Other	
	Other Meat and Meat Mixtures	Box, Plain	Bag or Sack, Plain	Natural American	Butter	Straw- Berries, Fresh	Grape- fruit, Fresh	Cherries, Sour, Canned	Peaches, Canned
	Prem, Spam, Treet, etc.	6911	6931	1610	2110	3150-1	3210-1	3351-3	3440-3
	5514								
1120									
1310	-.139	-.019	-.019	+.007	-.008	-.034	-.005	+.028	+.007
1620				-1.000					
2120					-1.000				
2130									
2131	+.090	-.269	-.269	-.047	+.016	+.002	-.009	-.057	-.046
3245-3	-.516	-.394	-.394	-.173	+.009	-.029	-.084	-.180	-.146
4701-4									
4701-5									
5141	-.006	+.003	+.003	+.003	-.001	-.002	+.001	-.012	-.008
5164									
5346									
5381									
5611-31									
5700-2									
5893									
6011									
6017	+.003	-.057	-.057	-.020	-.001	-.001	-.004	-.011	-.027
6030	-.003	+.057	+.057	+.020	+.001	+.001	+.004	+.011	+.027
6351									

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Twenty-Two "Preference" Foods (cont.)									
	Vegetables			Meat				Fish and Sea Food		
	Green, Leafy	Green and Yellow		Beef - Steak		Lamb	Pork	Tuna, Canned	Salmon, Canned	Lobstertail, with Shell, Frozen
	Spinach, Fresh	Beans, Snap, Fresh	Corn, Sweet, Frozen	Sirloin	Porterhouse and T-Bone	Roast (Leg. etc.)	Ham, Whole or Half - Not Boned			
4260-1	4440-1	4480-2	5171	5172	5260	5342	5811-3	5812-3	5819-2	
1120										
1310	+ .365	- .023	- .059	+ .005	+ .015	- .128	- .020	+ .015	+ .031	+ .126
1620										
2120										
2130										
2131	- .303	+ .018	+ .088	- .052	- .107	+ .118	- .134	+ .342	+ .219	+ .009
3245-3	-1.401	- .233	- .234	+ .013	+ .041	- .422	+ .339	- .129	- .114	+1.159
4701-4										
4701-5										
5141	- .170	- .009	- .005		+ .001	- .006	- .004	- .025	- .009	- .020
5164				-1.000	-1.000					
5346							-1.000			
5381										
5611-31										
5700-2										
5893								-1.000	-1.000	-1.000
6011										
6017	- .096	- .011	- .011	+ .003	+ .012	- .088	- .026	- .088	- .037	+ .277
6030	+ .096	+ .011	+ .011	- .003	- .012	+ .088	+ .026	+ .088	+ .037	- .277
6351										

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

<u>Activity</u> A. Food Consumption (lb.) <u>Commodity Number</u>	<u>Twenty-Two "Preference" Foods (cont.)</u>					
	<u>Cereals</u>			<u>Beverages</u>		
	<u>Wheaties</u> <u>6001</u>	<u>Cheerios</u> <u>6019</u>	<u>Puffed</u> <u>Rice</u> <u>6023</u>	<u>Beer</u> <u>8110</u>	<u>Wine</u> <u>8230</u>	<u>Soft Drinks,</u> <u>Bottled</u> <u>8610</u>
1120						
1310	+ .311	+ .377	+ .376	- .021		
1620						
2120						
2130						
2131	-1.010	-1.133	-1.035	-.034	-.127	-.052
3245-3	+1.500	+1.067	+1.216	+ .035		
4701-4						
4701-5						
5141	+ .008	+ .025	+ .015	- .002		
5164						
5346						
5381						
5611-31						
5700-2						
5893						
6011						
6017	-.423	-.313	-.447	-.001		
6030	-.577	-.687	-.553	+ .001		
6351						

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Activity	Thirteen "Economy" Foods (cont.)										
	Milk		Vegetables					Meats			Steak, Round and Swiss
	Evaporated, Unsweetened	Condensed, Sweetened	Green, Leafy	Green and Yellow	All Other	Beef					
Commodity Number	1210	1220	Sauerkraut, Canned 4121-3	Spinach, Canned 4260-3	Corn, Sweet, Canned 4480-3	Peas, Canned 4530-3	Tomatoes, Canned 4871-3	Corned 5120	Chipped 5121	5170	
6632											
6671											
6694											
6724	-.164	-.233	+.043	-2.406	+.218	+.050	-.199	+1.197	+1.591	+.079	
6731	+.164	+.233	-.043	+2.406	-.218	-.050	+.199	-1.197	-1.591	-.079	
6958											
7100											
7511											
9311											
9312											
9330											
9340				-.0001				+.0011	+.0011		
<u>B. Selected Restrictions</u>											
<u>Number</u>											
2	+8.029	+12.139	-1.950	+83.809	-1.098	+6.320	+7.796	+64.756	+88.060	+3.027	
3	-20.879	-113.974	+7.946	-235.945	+13.094	+19.477	-2.558	+126.921	+161.999	+12.247	
4	+.385	+2.488	-.130	+4.025	-.176	-.598	-.102	-3.477	-4.482	-.313	
6	+.828	+1.569	-.780	+7.616	+.428	+.789	+.883	-3.714	+7.668	+.134	
7	+.509	+.612	+1.771	+5.633	+.007	+4.501	+.354	+12.411	+14.695	+.037	
12	-36.922	-67.395	+34.175	-1051.658	-78.973	-351.575	-248.934	+16.249	+61.645	-31.381	
13											

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Activity	Thirteen "Economy" Foods (cont.)			Twenty-Two "Preference" Foods (cont.)					
	Meats			Fruit					
	Other Meat and Meat Mixtures	Rice		Cheese	Fats	Berries	Citrus	Other	
<u>A. Food Consumption (lb.)</u>	Prem, Spam, Treet, etc.	Box, Plain	Bag or Sack, Plain	Natural American	Butter	Strawberries, Fresh	Grapefruit, Fresh	Cherries, Sour, Canned	Peaches, Canned
<u>Commodity Number</u>	5514	6911	6931	1610	2110	3150-1	3210-1	3351-3	3440-3
6632									
6671									
6694									
6724	+1.203	+1.155	+1.155	-.300	+.057	+.109	-.018	-.215	-.028
6731	-1.203	-.155	-.155	+.300	-.057	-.109	+.018	+.215	+.028
6958									
7100									
7511									
9311									
9312									
9330									
9340	+1.0011								
<u>B. Selected Restrictions</u>									
<u>Number</u>									
2	+8.963	+23.987	+23.987	+13.850	-2.327	-4.949	-.175	+8.803	+1.487
3	+200.901	-113.573	-113.573	-23.870	+9.691	+7.687	-4.571	-34.182	-21.370
4	-4.720	+2.086	+2.086	+.328	-.143	-.076	+.113	+.675	+.508
6	-1.137	+3.212	+3.212	-13.821	-.334	-.522	-.056	+.784	-.025
7	+.324	-.846	-.846	+.267	-.243	+2.640	+.012	+.578	+.186
12	-522.603	-395.471	-395.471	-172.638	+8.161	+230.658	+36.296	-156.751	-128.599
13									

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Activity	Twenty-Two "Preference" Foods (cont.)									
	Vegetables			Meat			Fish and Sea Food			
	Green, Leafy	Green and Yellow		Beef - Steak		Lamb	Pork	Tuna, Canned	Salmon, Canned	Lobstertail, with Shell, Frozen
<u>Spinach, Fresh</u>	<u>Beans, Snap, Fresh</u>	<u>Corn, Sweet, Frozen</u>	<u>Sirloin</u>	<u>Porterhouse and T-Bone</u>	<u>Roast (Leg, etc.)</u>	<u>Ham, Whole or Half - Not Boned</u>	<u>5811-3</u>	<u>5812-3</u>	<u>5819-2</u>	
<u>Commodity Number</u>	<u>4260-1</u>	<u>4440-1</u>	<u>4480-2</u>	<u>5171</u>	<u>5172</u>	<u>5260</u>	<u>5342</u>			
6632										
6671										
6694										
6724	-2.765	-.087	+.492	-.039	-.130	+1.097	+.023	+2.154	+.788	+.710
6731	+2.765	+.087	-.492	+.039	+.130	-1.097	-.023	-2.154	-.788	-.710
6958										
7100										
7511										
9311										
9312										
9330										
9340		-.0002					+.0011			
<u>B. Selected Restrictions</u>										
<u>Number</u>										
2	+91.613	+3.336	-9.744	-.763	-4.043	+14.584	+15.525	-15.986	-.139	-44.167
3	-258.441	+4.601	+64.869	-6.240	-19.582	+181.119	-39.201	+278.818	+106.184	-34.174
4	+4.339	-.137	-1.245	+.149	+.487	-4.301	+.779	-6.002	-2.345	+1.626
6	+9.738	-.471	+.800	-.291	-.380	-1.581	-.441	+5.055	+6.827	+8.362
7	+10.125	+2.678	-2.593	-.166	-.161	-.639	+3.482	-25.955	-19.666	-8.187
12	-1150.379	-156.332	-200.807	+13.069	+41.896	-428.412	+338.679	-132.473	-115.090	+1163.233
13										

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Twenty-Two "Preference" Foods (cont.)						
Activity	Cereals			Beverages		
	Wheaties 6001	Cheerios 6019	Puffed Rice 6023	Beer 8110	Wine 8230	Soft Drinks, Bottled 8610
<u>A. Food Consumption (lb.)</u>						
Commodity Number						
6632						
6671						
6694						
6724	-2.540	-3.699	-2.874	+.120		
6731	+2.540	+3.699	+2.874	-.120		
6958						
7100						
7511						
9311						
9312						
9330						
9340						
<u>B. Selected Restrictions</u>						
Number						
2	+89.168	+132.499	+85.656	-2.515	+.600	
3	-582.906	-672.986	-618.442	-10.170	-57.566	-23.444
4	+12.263	+13.929	+12.915	-.056	+.262	+.540
6	-21.632	-15.015	-27.116	+.401		
7	+.668	+3.564	-11.107	-.405		
12	+1515.602	+1086.213	+1233.521	+34.388		
13						

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Activity B. Selected Restrictions Number	Thirteen "Economy" Foods (cont.)									
	Milk		Vegetables					Meats		
			Green, Leafy	Green and Yellow		All Other	Beef			
	Evaporated, Unsweetened 1210	Condensed, Sweetened 1220	Sauerkraut, Canned 4121-3	Spinach, Canned 4260-3	Corn, Sweet, Canned 4480-3	Peas, Canned 4530-3	Tomatoes, Canned 4871-3	Comed 5120	Chipped 5121	Steak, Round and Swiss 5170
14										
15										
16	- .108	- .311	+ .012	- .292	+ .003	+ .036	+ .012	+ .043	+ .140	+ .059
17										
18										
19										
61	- .108	- .311	+ .012	- .292	+ .003	+ .036	+ .012	+ .043	+ .140	+ .059
C. Net Saving (¢)	4.89	17.44	9.18	11.18	13.24	14.24	14.66	52.97	149.95	19.54

1At zero level in the large model solution.

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Activity B. Selected Restrictions	Thirteen "Economy" Foods (cont.)			Twenty-Two "Preference" Foods (cont.)					
	Meats	Rice		Cheese	Fats	Fruit			
	Other Meat and Meat Mixtures	Box, Plain	Bag or Sack, Plain	Natural American	Butter	Berries	Citrus	Other	
Number	Prem, Spam, Treet, etc.	6911	6931	1610	2110	Straw- Berries, Fresh	Grape- fruit, Fresh	Cherries, Sour, Canned	Peaches, Canned
	5514					3150-1	3210-1	3351-3	3440-3
14									
15									
16	+ .090	- .269	- .269	- .047	+ .016	+ .002	- .009	- .057	- .046
17									
18									
19									
61	+ .090	- .269	- .269	- .047	+ .016	+ .002	- .009	- .057	- .046
C. Net Saving (¢)	37.74	9.93	4.63	5.77	40.85	29.80	7.80	22.52	16.84

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

Activity	Twenty-Two "Preference" Foods (cont.)									
	Vegetables			Meat			Fish and Sea Food			
	Green, Leafy	Green and Yellow		Beef - Steak		Lamb	Pork	Tuna,	Salmon,	Lobstertail,
<u>Spinach, Fresh</u>	<u>Beans, Snap, Fresh</u>	<u>Corn, Sweet, Frozen</u>	<u>Sirloin</u>	<u>Porterhouse and T-Bone</u>	<u>Roast (Leg, etc.)</u>	<u>Ham, Whole or Half - Not Boned</u>	<u>Canned</u>	<u>Canned</u>	<u>with Shell, Frozen</u>	
<u>Number</u>	<u>4260-1</u>	<u>4440-1</u>	<u>4480-2</u>	<u>5171</u>	<u>5172</u>	<u>5260</u>	<u>5342</u>	<u>5811-3</u>	<u>5812-3</u>	<u>5819-2</u>
14										
15										
16	-.136									
17	-.303	+.018	+.088	-.052	-.107	+.118	-.134	+.342	+.219	+.009
18										
19										
61	-.303	+.018	+.088	-.052	-.107	+.118	-.134	+.342	+.219	+.009
C. Net Saving (¢)	26.31	16.07	24.53	24.06	26.16	58.28	16.05	45.01	31.85	82.18

Table IX-4. Least-Cost Changes in Activity Levels Associated with Introducing Selected Foods Not in the Optimal Diet (Unit: one pound) (cont.)

<u>Activity</u> <u>B. Selected Restrictions</u>	<u>Twenty-Two "Preference" Foods (cont.)</u>					
	<u>Cereals</u>			<u>Beverages</u>		
	<u>Wheaties</u> <u>6001</u>	<u>Cheerios</u> <u>6019</u>	<u>Puffed</u> <u>Rice</u> <u>6023</u>	<u>Beer</u> <u>8110</u>	<u>Wine</u> <u>8230</u>	<u>Soft Drinks,</u> <u>Bottled</u> <u>8610</u>
<u>Number</u>						
14						
15						
16	-1.010	-1.133	-1.035	-.034	-.127	-.052
17						
18						
19						
61	-1.010	-1.133	-1.035	-.034	-.127	-.052
<u>C. Net Saving (¢)</u>	<u>4.58</u>	<u>6.66</u>	<u>34.36</u>	<u>17.17</u>	<u>60.65</u>	<u>10.58</u>

Table IX-5. Least-Cost Ways of Adding Variety to the Diet - the Thirty-One Substitutions that Can Be Made at the Least Expense per Pound (Unit: one pound)

Activity A. Food Consumption (lb.) Commodity Number	Milk - Fresh					Fats	Green, Leafy	Vegetables Green and Yellow Peas	
	Homoge- nized, Vitamin D	Regular, Pasteurized	Jersey or Guernsey	Skim, Plain	Skim, with Vitamins	Vegetable Shortening	Celery, Soup	Dried	Soup
	1110	1130	1140	1170	1171	2140	4130-5	4530-4	4530-5
1120	-1.000	-1.000	-1.000						
1310				- .090	- .080		- .053	- .126	+ .024
1620									
2120									
2130									
2131				- .003	- .011	- .982	+ .047	+ .291	+ .092
3245-3				- .022	- .051		+ .471	-1.520	- .114
4701-4							-1.000		-1.000
4701-5									
5141				+ .001	- .003		- .013	- .004	+ .008
5164									
5346									
5381									
5611-31									
5700-2									
5893									
6011									
6017				- .002	- .004		+ .054	+ .051	+ .010
6030				+ .002	+ .004		- .054	- .051	- .010
6351									
6632									
6671									
6694									
6724				- .026	- .093		+ .371	+1.249	+ .147
6731				+ .026	+ .093		- .371	-1.249	- .147
6958									
7100									

Table IX-5. Least-Cost Ways of Adding Variety to the Diet - the Thirty-One Substitutions that Can Be Made at the Least Expense per Pound (Unit: one pound) (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Vegetables		Meat			Eggs		
	All Other		Beef		Pork	Poultry		
	Beans, Kidney, Dried 4703-4	Tomatoes, Soup 4871-5	Rib Roast - Not Boned 5161	Other Roast ² - Not Boned 5163	Liver 5351	Broilers or Fryers, Ready to Cook, Frozen 5611-32	Large 5700-3	Small 5700-5
1120								
1310	- .088	+ .037	+ .017	+ .016	-1.299		+ .019	+ .058
1620								
2120								
2130								
2131	+ .100	+ .028	- .080	- .070	+1.452		+ .018	+ .047
3245-3	-1.536	+ .178	+ .055	+ .050	+2.593		- .041	- .113
4701-4								
4701-5		-1.000						
5141	+ .015	- .025	+ .001	+ .001	- .445		+ .006	+ .017
5164			-1.000	-1.000				
5346								
5381								
5611-31						-1.000		
5700-2							-1.000	-1.000
5893								
6011								
6017	- .026	+ .009	+ .015	+ .014	+ .153		- .011	- .031
6030	+ .026	- .009	- .015	- .014	- .153		+ .011	+ .031
6351								
6632								
6671								
6694								
6724	+ .273	- .031	- .145	- .130	+8.999		- .077	- .240
6731	- .273	+ .031	+ .145	+ .130	-8.999		+ .077	+ .240
6958								
7100								

Table IX-5. Least-Cost Ways of Adding Variety to the Diet - the Thirty-One Substitutions that Can Be Made at the Least Expense per Pound (Unit: one pound) (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Cereals				Cake	Mixes	
	Corn Flakes 6002	Pep 6007	Oatmeal 6016	Shredded Wheat, Wheat Chex 6018	Loaf, Frosting, Other Than Plain or Chocolate 6354	Pancake or Waffle - Plain 6672	Pancake - Buttermilk or Potato 6673
1120							
1310	+ .338	+ .297	- .092	+ .322		+ .015	+ .015
1620							
2120							
2130							
2131	-1.273	- .731	+ .172	-1.236	+ .010	- .214	- .214
3245-3	+2.207	+ .609	+1.467	+2.104	+ .121	+ .049	+ .049
4701-4							
4701-5	+ .004	+ .016	- .046	+ .006	- .003	- .003	- .003
5141	+ .004	+ .016	- .046	+ .006	- .003	- .003	- .003
5164							
5346							
5381							
5611-31							
5700-2							
5893							
6011			-1.000				
6017	- .313	- .422	+ .238	- .463	+ .016	- .012	- .012
6030	- .688	- .578	- .238	- .537	- .016	+ .012	+ .012
6351							
6632							
6671						-1.000	-1.000
6694							
6724	-2.885	-2.238	+2.826	-2.963	+ .183	- .277	- .277
6731	+2.885	+2.238	-2.826	+2.963	- .183	+ .277	+ .277
6958							
7100							

Table IX-5. Least-Cost Ways of Adding Variety to the Diet - the Thirty-One Substitutions that Can Be Made at the Least Expense per Pound (Unit: one pound) (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Flour		Spaghetti and Macaroni			Nuts and Nut Products		
	Graham		Box		Can	Peanuts		Almonds
	6691	6711	Plain 6714	Cheese 6714	Tomato 6725	In Shell 7521	Butter 7533	In Shell 7541
1120								
1310	-0.040			-0.005	+0.048	-0.119	-0.176	-0.206
1620								
2120								
2130								
2131	+0.405			-0.088	+0.186	+0.555	+0.585	+0.112
3245-3	-1.100			-0.248	+0.104	-1.980	-2.438	+0.022
4701-4								
4701-5								
5141	+0.014			+0.004	-0.011	+0.009	+0.009	-0.009
5164								
5346								
5381								
5611-31								
5700-2								
5893								
6011								
6017	-0.085			-0.037	+0.036	-0.419	-0.606	-0.026
6030	+0.085			+0.037	-0.036	+0.419	+0.606	+0.026
6351								
6632								
6671								
6684	-1.000							
6724	+0.519			-0.829	-0.366	+1.424	+1.927	+0.878
6731	-0.519		-1.000	-0.172	-0.634	-1.424	-1.927	-0.878
6958								
7100								

Table IX-5. Least-Cost Ways of Adding Variety to the Diet - the Thirty-One Substitutions that Can Be Made at the Least Expense per Pound (Unit: one pound) (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Milk - Fresh					Fats	Vegetables		
	Homoge- nized, Vitamin D 1110	Regular, Pasteurized 1130	Jersey or Guernsey 1140	Skim, Plain 1170	Skim, with Vitamins 1171	Vegetable Shortening 2140	Green, Leafy	Green and Yellow	
							Celery, Soup 4130-5	Peas	Dried 4530-4
7511									
9311									
9312									
9330									
9340									
B. Selected Restrictions									
<u>Number</u>									
2				+1.594	+3.927		-33.000	+30.547	-10.476
3				-2.232	-9.026	+8.111	+41.882	+184.850	+36.284
4				+.026	+.144		-.452	-4.721	-.762
6				+.081	+.346		-1.905	+3.501	+.550
7				+.006	-.020		-6.494	+5.965	-6.115
12				-18.830	-47.842		+473.461	-1520.118	-100.266
13									
14									
15									
16				-.003	-.011	+.018	+.047	+.291	+.092
17									
18									
19									
61				-.003	-.011	+.018	+.047	+.291	+.092
C. Net Saving (\$)	.40	.50	2.20	3.67	3.70	.56	3.37	2.41	.08

¹At zero level in the large model solution.

²Not rib, chuck or pot roast.

Table IX-5. Least-Cost Ways of Adding Variety to the Diet - the Thirty-One Substitutions that Can Be Made at the Least Expense per Pound (Unit: one pound) (cont.)

Activity A. Food Consumption (lb.) Commodity Number	Vegetables		Meat			Eggs		
	All Other		Beef		Pork	Poultry		
	Beans, Kidney, Dried 4703-4	Tomatoes, Soup 4871-5	Rib Roast - Not Boned 5161	Other Roast ² - Not Boned 5163	Liver 5351	Broilers or Fryers, Ready to Cook, Frozen 5611-32	Large 5700-3	Small 5700-5
7511								
9311								
9312								
9330								
9340					+ .0006			
B. Selected Restrictions								
Number								
2	+58.260	-15.705	-4.820	-4.448	-310.829		-4.797	-13.572
3	+60.488	+ .819	-22.762	-20.507	+1063.558		-3.686	-14.087
4	-2.274	+ .228	+ .569	+ .515	-19.389		+ .125	+ .427
6	+9.545	- .169	- .097	- .098	-37.978		- .913	-2.584
7	+18.663	-5.858	- .441	- .362	+45.859		-1.905	-5.688
12	-1533.611	-208.036	+56.202	+50.801	+2600.261		-39.274	-108.737
13								
14								
15								
16	+ .100	+ .028	- .080	- .070	+1.452		+ .018	+ .047
17								
18								
19								
61	+ .100	+ .028	- .080	- .070	+1.452		+ .018	+ .047
C. Net Saving (\$)	2.21	1.20	2.09	.61	.21	2.50	1.66	2.25

Table IX-5. Least-Cost Ways of Adding Variety to the Diet - the Thirty-One Substitutions that Can Be Made at the Least Expense per Pound (Unit: one pound) (cont.) -

Activity A. Food Consumption (lb.) Commodity Number	Cereals				Cake	Mixes	
	Corn Flakes 6002	Pep 6007	Oatmeal 6016	Shredded Wheat, Wheat Chex 6018	Loaf, Frosting, Other Than Plain or Chocolate 6354	Pancake or Waffle - Plain 6672	Pancake - Buttermilk or Potato 6673
7511							
9311							
9312							
9330							
9340				- .0001			
B. Selected Restrictions							
Number							
2	+96.512	+62.476	-53.892	+113.407	-8.260	+13.371	+13.371
3	-728.187	-449.148	+224.670	-700.680	+3.092	-109.299	-109.299
4	+15.514	+9.189	-3.716	+15.022	+ .085	+2.147	+2.147
6	-26.725	-23.452	-3.545	-14.695	- .888	-4.178	-4.178
7	-3.724	-11.792	-171.916	+1.497	+ .231	- .439	- .439
12	+2224.556	+622.979	+1462.373	+2121.184	+120.576	+487.712	+487.712
13							
14							
15							
16	-1.273	-.731	+.172	-1.236	+.010	-.214	-.214
17							
18							
19							
61	-1.273	-.731	+.172	-1.236	+.010	-.214	-.214
C. Net Saving (\$)	2.10	2.96	.65	1.25	4.38	1.75	3.35

Table IX-5. Least-Cost Ways of Adding Variety to the Diet - the Thirty-One Substitutions that Can Be Made at the Least Expense per Pound (Unit: one pound) (cont.)

Activity A. Food Consumption (lb.)	Flour		Spaghetti and Macaroni			Nuts and Nut Products		
	Graham 6691	Plain 6711	Box		Can	Peanuts		Almonds
			Cheese 6714	Tomato 6725	In Shell 7521	Butter 7533	In Shell 7541	
Commodity Number								
7511						-1.000	-1.000	-1.000
9311								
9312								
9330								
9340								
B. Selected Restrictions								
Number								
2	-12.558		+26.219	-29.645	+16.363	+28.538	-15.883	
3	+208.934		-43.425	+84.324	+381.698	+494.173	+130.673	
4	-4.682		+6.602	-1.514	-9.007	-11.590	-2.593	
6	+4.732		+5.373	-2.466	-6.629	-7.848	-1.115	
7	-2.403		+7.735	-1.124	-26.212	-32.565	+383	
12	-1102.282		-248.583	+149.535	-1993.672	-2455.016	+9.541	
13								
14								
15								
16	+4.405		-0.088	+0.186	+0.555	+0.585	+0.112	
17								
18								
19	-0.002							
61	+4.405		-0.088	+0.186	+0.555	+0.585	+0.112	
C. Net Saving (¢)	.58	3.40	2.74	3.07	1.56	3.25	1.71	

Editor's note:
**This page is blank in order to allow for the double
page spread necessary for certain subsequent tables.**

Table X-1. Seasonal Model: Maximum Consumption Limits

Restraint Number	Commodity or Group	Restriction		Amount (in lb.)
	Cheese			
30	Natural American	x_{1610}	U	1.962
31	Cottage	x_{1820}	U	4.154
	Fats			
32	Oleomargarine	x_{2120}	U	6.538
	Green Leafy Vegetables			
33	Cabbage, Fresh	x_{4120-1}	U	5.009*
	All Other Vegetables			
34	Potatoes, Fresh	x_{4841-1}	U	49.087*
	Beef			
35	Ground Beef or Hamburger	x_{5130}	U	9.692
	Pork			
36	Sausage	$x_{5380} + x_{5381}$	U	1.962*
	Other Meat and Meat Mixtures			
37	Wieners, Frankfurters, etc.	x_{5510}	U	2.769
	Bread			
38	White, Enriched	x_{6101}	U	17.154
39	Spaghetti and Macaroni	$\sum x_j$ (j = 6711, 6714, 6715, 6716, 6722, 6723, 6724, 6725, 6726, 6731)	U	2.527*
	Milk			
40	Powdered Skim	x_{1310}	U	1.296
	Fats			
41	Lard	x_{2130}	U	1.385
	Citrus			
42	Grapefruit Juice, Single Strength, Canned	x_{3219-3}	U	2.428
43	Orange Juice, Concentrated, Canned	x_{3248-3}	U	.577
44	Orange Juice, Single Strength, Canned	x_{3249-3}	U	4.385
	Green Leafy Vegetables			
45	Sauerkraut, Canned	x_{4121-3}	U	1.169
	All Other Vegetables			
46	Beans, Navy, White, Dried	x_{4701-4}	U	1.308
47	Beans, Kidney, Dried	x_{4703-4}	U	.538
48	Tomatoes, Canned	x_{4871-3}	U	2.288
49	Tomato Juice, Canned	x_{4873-3}	U	3.335
	Beef			
50	Beef and Baby Beef Liver	x_{5141}	U	.799
51	Stewing, Boneless	x_{5181}	U	1.154
52	Boiling	x_{5183}	U	1.302
	Pork			
53	Liver	x_{5351}	U	.692
54	Side or Salt	x_{5391}	U	1.015
	Cereals			
55	Cooked	$\sum x_j$ (j = 6011, 6014, 6016, 6022, 6028, 6029)	U	2.433*
	Bread			
56	Whole or Cracked Wheat	x_{6104}	U	7.308
	Flour			
57	Graham	x_{6691}	U	1.923

*2.5 times the mean consumption per consuming family.

Table X-2. Solutions of the "Seasonal" Model: Items Specifically Required by the Model

Commodity		Requirement per Four-Week Period (lb.)	Average Price (\$ per lb.)				Expenditure per Four-Week Period (\$)			
			February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)	February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)
Number	Name									
Items Required in Exactly Predetermined Amounts										
	Beverages									
8420	Coffee, Regular	2.592	.956	.901	.882	.901	2.48	2.34	2.29	2.34
	Cooking Aids									
9350	Salt	.684	.085	.069	.061	.086	.06	.05	.04	.06
9360	Spices	.0295	1.910	1.841	1.850	1.908	.06	.05	.05	.06
9361	Pepper	.0195	1.640	1.697	1.525	1.783	.03	.03	.03	.03
9371	Vinegar	.471	.128	.141	.100	.131	.06	.07	.05	.06
9436	Mustard, Prepared	.168	.234	.235	.229	.238	.04	.04	.04	.04
	Expenditure Sub-Total (\$)						2.72*	2.57*	2.50	2.59
Items Specifically Required in Minimum Amounts										
	Ice Cream									
1520	Pre-Packaged	3.903	.270	.267	.252	.270	1.05	1.04	.98	1.05
	Cheese									
1820	Cottage	2.003	.271	.279	.269	.278	.54	.56	.54	.56
	Oils									
2221	Salad Dressing	.773	.304	.284	.267	.305	.23	.22	.21	.24
	Citrus									
3240-1	Oranges, Fresh	5.808	.095	.108	.108	.100	.55	.63	.63	.58
	Other Fruits									
3310-1	Apples, Fresh	6.956	.111	.132	.087	.093	.77	.92	.61	.65
3340-1	Bananas, Fresh	4.255	.156	.162	.165	.166	.66	.69	.70	.71
	Green Leafy Vegetables									
4120-1	Cabbage, Fresh	1.770	.096	.102	.060	.070	.17	.18	.11	.12
4130-1	Celery, Fresh	1.055	.251	.229	.249	.256	.26	.24	.26	.27
4210-1	Lettuce, Head, Fresh	1.746	.263	.269	.316	.285	.46	.47	.55	.50
	Green and Yellow Vegetables									
4470-1	Carrots, Fresh	1.192	.168	.160	.169	.199	.20	.19	.20	.24

Table X-2. Solutions of the "Seasonal" Model: Items Specifically Required by the Model (cont.)

Commodity		Requirement per Four-Week Period (lb.)	Average Price (\$ per lb.)				Expenditure per Four-Week Period (\$)			
Number	Name		February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)	February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)
All Other Vegetables										
4811-4	Onions, Mature, Dried	5.955	.082	.102	.088	.096	.49	.61	.52	.57
4841-1	Potatoes, Fresh	18.544	.036	.060	.032	.034	.67	1.11	.59	.63
4871-1	Tomatoes, Fresh	5.430	.326	.347	.055	.328	1.77	1.88	.30	1.78
Beef										
5130	Ground, Hamburger	4.666	.400	.420	.426	.417	1.87	1.96	1.99	1.95
Pork										
5311	Bacon	1.757	.536	.518	.560	.528	.94	.91	.98	.93
5330	Chops	1.196	.692	.729	.730	.626	.83	.87	.87	.75
Other Meat & Meat Mixtures										
5510	Wieners, Frankfurters, etc.	1.273	.505	.530	.516	.529	.64	.67	.66	.67
5511	Bologna, Salami, etc.	1.021	.542	.547	.514	.527	.55	.56	.52	.54
Bread										
6101	White, Enriched	8.972	.183	.184	.183	.178	1.64	1.65	1.64	1.60
Crackers										
6280	Soda, Others Similar	.810	.282	.283	.280	.295	.23	.23	.23	.24
Cookies										
6410	Plain or Sugared	.722	.450	.439	.461	.453	.32	.32	.33	.33
Flour										
6692	White, Enriched	3.304	.098	.096	.100	.094	.32	.32	.33	.31
Sugar										
7100	White or Powdered	7.278	.103	.100	.102	.105	.75	.73	.74	.76
7120	Brown	.714	.137	.138	.139	.134	.10	.10	.10	.10
Candy and Sweets										
7360	Other	.687	.496	.450	.493	.503	.34	.31	.34	.35
Gelatin										
7415	Flavored	.302	.413	.414	.409	.441	.12	.13	.12	.13
Expenditure Sub-Total (\$)							16.50*	17.49*	15.06*	16.54*

*Differs from the sum of the parts because of rounding.

Table X-3. Solutions of the "Seasonal" Model: Items Not Specifically Required by the Model

Number	Commodity Name	Requirement per Four-Week Period (lb.)			
		February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)
<u>Items Selected to Meet the Minimum Conventional Requirements for Groups of Commodities</u>					
	Milk				
1120	Fresh, Homogenized, Plain	75.828	75.828	75.828	75.828
	Cheese				
1620	Processed American (Velveeta, etc.)	1.244	1.244	1.244	1.244
	Fats				
2120	Oleomargarine	4.379	4.379	4.379	4.379
2130	Lard	1.385	1.385	1.385	1.385
2131	Swiftning	.327	.327	.327	
2140	Vegetable Shortening (Crisco, Spry, etc.)				.327
	Green and Yellow Vegetables				
4530-5	Peas, Soup		2.739		
	All Other Vegetables				
4701-5	Beans, Navy, White, Soup	2.739			2.739
4871-5	Tomatoes, Soup			2.739	
	Beef				
5163	Other Roast, Not Boned	6.534			6.534
5164	Chuck Roast (Pot Roast)		6.534	6.534	
	Pork				
5346	Picnic Ham, Cured Butts	3.012	3.012	3.012	3.012
5381	Sausage, Bulk	.685	.685	.685	.685
	Poultry				
5611-31	Chicken, Broilers or Fryers, Ready to Cook, Fresh	2.012	2.012	2.012	2.012
	Eggs				
5700-2	Extra Large		8.179	8.179	8.179
5700-5	Small	8.179			
	Fish and Sea Food				
5813-32	Other Fish, Cleaned, Frozen				1.999
5893	Sardines in Sauce, Canned	1.999	1.999	1.999	
	Cereal				
6017	All Bran, 40% Bran, Krumbles	1.313	.554	.333	.200
6018	Shredded Wheat, Wheat Chex		.601		
6030	Wheat Germ Flakes	.474	.631	1.454	1.587
	Cake				
6340	Fruit			.733	
6351	Loaf, No Frosting		.733		
6352	Loaf, Plain Frosting				.333
6353	Loaf, Chocolate Frosting	.733			

Table X-3. Solutions of the "Seasonal" Model: Items Not Specifically Required by the Model (cont.)

<u>Commodity</u> <u>Number</u>	<u>Average Price (\$ per lb.)</u>				<u>Expenditure per Four-Week Period (\$)</u>			
	<u>February</u> <u>(Period 2)</u>	<u>May</u> <u>(Period 5)</u>	<u>August-</u> <u>September</u> <u>(Period 9)</u>	<u>November</u> <u>(Period 12)</u>	<u>February</u> <u>(Period 2)</u>	<u>May</u> <u>(Period 5)</u>	<u>August-</u> <u>September</u> <u>(Period 9)</u>	<u>November</u> <u>(Period 12)</u>
1120	.088	.082	.084	.086	6.67	6.22	6.37	6.52
1620	.513	.518	.518	.534	.64	.64	.64	.66
2120	.253	.240	.250	.235	1.11	1.05	1.09	1.03
2130	.190	.188	.193	.170	.26	.26	.27	.24
2131	.286	.256	.271	.278	.09	.08	.09	
2140	.294	.257	.286	.272				.09
4530-5	.218	.180	.188	.237		.49		
4701-5	.180	.194	.196	.195	.49			.53
4871-5	.177	.174	.167	.174			.46	
5163	.474	.492	.492	.479	3.10			3.13
5164	.486	.481	.474	.478		3.14	3.10	
5346	.342	.341	.432	.398	1.03	1.03	1.30	1.20
5381	.433	.434	.439	.404	.30	.30	.30	.28
5611-31	.494	.516	.520	.470	.99	1.04	1.05	.95
5700-2	.294	.294	.344	.364		2.40	2.81	2.98
5700-5	.237	.279	.328	.348	1.94			
5813-32	.503	.514	.466	.396				.79
5893	.340	.340	.385	.455	.68	.68	.77	
6017	.287	.289	.289	.290	.38	.16	.10	.06
6018	.267	.265	.262	.261		.16		
6030	.431	.395	.439	.414	.20	.25	.64	.66
6340	.532	.658	.338	.728			.25	
6351	.448	.377	.407	.503		.28		
6352	.418	.439	.432	.350				.26
6353	.402	.515	.368	.541	.28			

Table X-3. Solutions of the "Seasonal" Model: Items Not Specifically Required by the Model (cont.)

Commodity		Requirement per Four-Week Period (lb.)			
		February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)
Number	Name				
6724	Spaghetti and Macaroni Canned, Cheese	.888		.888	.888
6731	Bag or Sack, Plain		.888		
7511	Nuts and Nut Products Coconuts in Shell	1.201	1.201	1.201	1.201
<u>Items Required by Complementarity Restrictions</u>					
9340	Cooking Aids Meat Sauces	.012	.012	.012	.012
<u>Items Not Required by Conventional Requirements</u>					
1310	Milk Powdered Skim	.118			.308
3245-3	Citrus Orangeade and Orange Base, Canned	2.218	2.201	2.168	2.242
4701-4	All Other Vegetables Beans, Navy, White, Dried				1.308
5141	Beef Beef and Baby Beef Liver	.310	.190	.205	.345
5351	Pork Liver	.692	.692	.509	.257
6011	Cereal Cream of Wheat			.160	.418
6016	Oatmeal	2.433	1.135	2.273	
6632	Mixes Hot Roll or Biscuit Mix, Biscuit	1.781			
6671	Pancake or Waffle Mix, Buckwheat	5.663	7.610		
6672	Pancake or Waffle Mix, Plain			7.112	8.792
6958	Hominy	28.286	28.533	27.718	27.959

Total Cost of Diet (\$)

*Differs from the sum of the parts because of rounding.

Table X-3. Solutions of the "Seasonal" Model: Items Not Specifically Required by the Model (cont.)

Commodity Number	Average Price (\$ per lb.)				Expenditure per Four-Week Period (\$)			
	February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)	February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)
6724	.178	.186	.168	.177	.16		.15	.16
6731	.204	.205	.214	.212		.18		
7511	.200	.338	.370	.182	<u>.24</u>	<u>.41</u>	<u>.44</u>	<u>.22</u>
				Expenditure Sub-Total (\$)	18.58*	18.77	19.83	19.74*
9340	.585	.644	.773	.737	<u>.01</u>	<u>.01</u>	<u>.01</u>	<u>.01</u>
				Expenditure Sub-Total (\$)	.01	.01	.01	.01
1310	.380	.412	.407	.386	.04			.12
3245-3	.112	.104	.097	.104	.25	.23	.21	.23
4701-4	.173	.169	.171	.142				.19
5141	.384	.345	.360	.377	.12	.07	.07	.13
5351	.275	.236	.252	.293	.19	.16	.13	.08
6011	.205	.199	.215	.213			.03	.09
6016	.143	.142	.150	.141	.35	.16	.34	
6632	.170	.179	.195	.183	.30			
6671	.143	.158	.166	.180	.81	1.20		
6672	.148	.168	.153	.148			1.09	1.01
6958	.098	.102	.098	.087	<u>2.77</u>	<u>2.91</u>	<u>2.72</u>	<u>2.43</u>
				Expenditure Sub-Total (\$)	4.84*	4.73	4.59	3.27*
Total Cost of Diet (\$)					42.65*	43.58	41.99	43.14*

Table X-4. Cost of a Given Diet when Purchased at Each of the Four Sets of Prices¹

Diet	Prices				Maximum Difference Caused by Changes in Prices
	February (Period 2)	May (Period 5)	August-September (Period 9)	November (Period 12)	
February (Period 2)	<u>42.65</u>	43.90	42.31	43.62	+1.35
May (Period 5)	43.08	<u>43.58</u>	42.09	43.63	-1.49
August-September (Period 9)	43.17	43.91	<u>41.99</u>	43.47	+1.92
November (Period 12)	43.40	44.28	42.47	<u>43.14</u>	+1.14

¹The figure underlined is the cost of the diet when purchased at the prices prevailing in the period for which it was computed.

Table X-5. Seasonal Variation in the Marginal Costs of Nutrients

Requirement			Marginal Cost per Unit (¢)				Imputed Total Cost of Satisfying Requirement (\$)			
Nutrient	Amount	Unit	February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)	February (Period 2)	May (Period 5)	August- September (Period 9)	November (Period 12)
Calories	207.200	1000 calories	5.19	5.62	5.12	4.50	10.75	11.64	10.60	9.32
Protein	546.0	Decigram								
Fat	56.532	Hectogram								
Carbohydrates	20.720	Kilogram								
Calcium	81.200	Gram	1.55	2.48	2.67	2.90	1.26	2.02	2.17	2.35
Phosphorus	103.600	Gram								
Iron	109.2	Centigram	.12	.05	.14	.17	.13	.05	.15	.18
Vitamin A	42.0000	10,000 International Units	.12	.58	.83	.60	.05	.24	.35	.25
Thiamin	106.4	Milligram	1.39	1.04	1.71	1.40	1.48	1.11	1.82	1.49
Riboflavin	137.2	Milligram	2.03	1.19	.92	1.32	2.78	1.63	1.26	1.81
Niacin	106.40	Centigram				.08				.09
Ascorbic Acid	63.00	Decigram	.22	.15	.01	.18	.14	.09	.01	.11
Imputed Total Cost of Nutrients (\$)							16.58*	16.79*	16.36	15.60

*Differs from the sum of the parts because of rounding.

Table A-1. Nutrients per Pound and per Dollar

Commodity		Nutrients per Pound ¹					
Number	Name	Calories	Fat (gm.)	Vitamin A (I. U.)	Thiamin (mg.)	Riboflavin (mg.)	Ascorbic Acid (mg.)
	Milk						
1120	Fresh, Homogenized, Plain	309	17.7	720	.16	.78	6
	Fats						
2120	Oleomargarine	3269	367.7	15,000			
	Citrus						
3240-1	Oranges, Fresh	147	.7	620	.25	.09	162
	Green and Yellow Vegetables						
4470-1	Carrots, Fresh	143	1.1	41,160	.19	.19	21
	All Other Vegetables						
4841-1	Potatoes, Fresh	318	.4	70	.40	.15	64
	Pork						
5346	Picnic Ham, Cured Butts	1291	119.0		3.48	.68	
	Flour						
6692	White, Enriched	1654	4.5		.20	.12	
	Sugar						
7100	White	1748					

Table A-1. Nutrients per Pound and per Dollar (cont.)

Commodity		Price ² (\$/lb.)	Nutrients per Dollar					
Number	Name		Calories	Fat (gm.)	Vitamin A (I. U.)	Thiamin (mg.)	Riboflavin (mg.)	Ascorbic Acid (mg.)
1120	Milk Fresh, Homogenized, Plain	.082	3,768	216	8,780	1.95	9.51	73
2120	Fats Oleomargarine	.240	13,621	1,532	62,500			
3240-1	Citrus Oranges, Fresh	.108	1,361	6	5,741	2.31	.83	1,500
4470-1	Green and Yellow Vegetables Carrots, Fresh	.160	894	7	257,250	1.19	1.19	131
4841-1	All Other Vegetables Potatoes, Fresh	.060	5,300	7	1,167	6.67	2.50	1,067
5346	Pork Picnic Ham, Cured Butts	.341	3,786	349		10.20	1.99	
6692	Flour White, Enriched	.096	17,229	47		2.08	1.25	
7100	Sugar White	.100	17,480					

¹Data provided by Dr. Louise Kelley. They are based largely upon [75]. See [34, p. 10]

²Prices paid in Lansing, Michigan, in May, 1955.

Table B-1. Solving a Diet Model

Section 1 (a)								
Row No.	c_j	Process Vector	P_0	P_1 A-Calories	P_2 A-Fat	P_3 A-Vitamin A	P_4 A-Thiamin	P_5 A-Riboflavin
			0	10.00	10.00	10.00	10.00	10.00
1	10.00	P_1 (A-Calories: cal.)	207,200	1				
2	10.00	P_2 (A-Fat: gm.)	5,653.2		1			
3	10.00	P_3 (A-Vitamin A: L.U.)	420,000			1		
4	10.00	P_4 (A-Thiamin: mg.)	106.4				1	
5	10.00	P_5 (A-Riboflavin: mg.)	137.2					1
6	10.00	P_6 (A-Ascorbic Acid: mg.)	6,300					
7		z	6,393,968	10.00	10.00	10.00	10.00	10.00
8		z-c	6,393,968	0.00	0.00	0.00	0.00	0.00
Section 1 (c)								
1			1,459.2			.0034742		
2			11.2			.0000267		
3								
4			1.9			.0000046		
5			1.9			.0000046		
6			214.3			.0005102		
7		z						
8		z-c	4,216,884			10.040200		
Section 2 (a)								
1	10.00	P_1 (A-Calories)	205,740.82	1		-.0034742		
2	10.00	P_2 (A-Fat)	5,641.98		1	-.0000267		
3	.160	P_{16} (Carrots)	10.20			.0000243		
4	10.00	P_4 (A-Thiamin)	104.46			-.0000046	1	
5	10.00	P_5 (A-Riboflavin)	135.26			-.0000046		1
6	10.00	P_6 (A-Ascorbic Acid)	6,085.71			-.0005102		
7		z	2,177,083.9	10.00	10.00	-.0402002	10.00	10.00
8		z-c	2,177,083.9	0.00	0.00	-10.040200	0.00	0.00
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Section 9 (a)								
1	.096	P_{19} Flour	65.906					
2	.240	P_{14} Oleomargarine	4.373					
3	.160	P_{16} Carrots	6.035					
4	.341	P_{16} Picnic Ham	10.474					
5	.082	P_{18} Milk	139.112					
6	.060	P_{17} Potatoes	83.415					
7		z	28.33					
8		z-c	28.33					

Table B-1. Solving a Diet Model (cont.)

Section 1 (a)			c_j	10.00	0	0	0	0	0
Row No.	c_i	Process Vector	P_6 A-Ascorbic Acid	P_7 D-Calories	P_8 D-Fat	P_9 D-Vitamin A	P_{10} D-Thiamin	P_{11} D-Riboflavin	
1	10.00	P_1 (A-Calories: cal.)		-1					
2	10.00	P_2 (A-Fat: gm.)			-1				
3	10.00	P_3 (A-Vitamin A: I. U.)				-1			
4	10.00	P_4 (A-Thiamin: mg.)					-1		
5	10.00	P_5 (A-Riboflavin: mg.)						-1	
6	10.00	P_6 (A-Ascorbic Acid: mg.)	1						
7		z	10.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
8		$z-c$	0.00	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
Section 1 (c)									
1									-.0034742
2									-.0000267
3									
4									-.0000046
5									-.0000046
6									-.0005102
7		z							
8		$z-c$							-10.040200
Section 2 (a)									
1	10.00	P_1 (A-Calories)		-1					-.0034742
2	10.00	P_2 (A-Fat)			-1				.0000267
3	.160	P_{16} (Carrots)							-.0000243
4	10.00	P_4 (A-Thiamin)					-1		.0000046
5	10.00	P_5 (A-Riboflavin)						-1	.0005102
6	10.00	P_6 (A-Ascorbic Acid)	1						.0005102
7		z	10.00	-10.00	-10.00	.0402002	-10.00	-10.00	
8		$z-c$	0.00	-10.00	-10.00	.040200	-10.00	-10.00	
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Section 9 (a)									
1	.096	P_{19} Flour		-.0006297	.0055940	.0000001	.023407	.096683	
2	.240	P_{14} Oleomargarine		-.0000065	-.0026526	-.0000002	.083268	.050433	
3	.160	P_{16} Carrots		.0000012	.0009808	-.0000242	-.034991	.000221	
4	.341	P_{18} Picnic Ham		.0000338	-.0003106	.0000003	-.297506	.042200	
5	.082	P_{13} Milk		.0000685	-.0007813	.0000042	.266889	-1.338124	
6	.060	P_{17} Potatoes		-.0000068	-.0002486	.0000076	-.013539	.125721	
7		z		-.0000451	-.0001276	-.0000030	-.063744	-.065578	
8		$z-c$		-.0000520	-.0001273	-.0000031	-.063805	-.067063	

Table B-1. Solving a Diet Model (cont.)

Section 1 (a)

Row No.	c _j	Process Vector	0	.082	.240	.108	.160	.060
			P ₁₂ D-Ascorbic Acid	P ₁₃ Milk	P ₁₄ Oleomargarine	P ₁₅ Oranges	P ₁₆ Carrots	P ₁₇ Potatoes
1	10.00	P ₁ (A-Calories: cal.)		309	3,269	147	143	318
2	10.00	P ₂ (A-Fat: gm.)		17.7	367.7	.7	1.1	.4
3	10.00	P ₃ (A-Vitamin A: I. U.)		720	15,000	620	41,160	70
4	10.00	P ₄ (A-Thiamin: mg.)		.16		.25	.19	.40
5	10.00	P ₅ (A-Riboflavin: mg.)		.78		.09	.19	.15
6	10.00	P ₆ (A-Ascorbic Acid: mg.)	-1	6		162	21	64
7		z	-10.00	10,536.4	186,367	9,300.4	413,254.8	4,529.5
8		z-c	-10.00	10,536.318	186,366.760	9,300.292	413,254.640	4,529.440

Section 1 (c)

1				2.501	52.114	2.154	143	.243
2				.019	.401	.017	1.1	.002
3								
4				.003	.069	.003	.19	.0003
5				.003	.069	.003	.19	.0003
6				.367	7.653	.316	21	.036
7		z						
8		z-c		7,288.944	150,603.003	6,224.924	413,254.640	702.814

Section 2 (a)

1	10.00	P ₁ (A-Calories)		306.499	3216.886	144.846	0	317.757
2	10.00	P ₂ (A-Fat)		17.681	367.299	.683	0	.398
3	.160	P ₁₆ (Carrots)		.0175	.3644	.0151	1	.0017
4	10.00	P ₄ (A-Thiamin)		.157	-.069	.247	0	.400
5	10.00	P ₅ (A-Riboflavin)		.777	-.069	.087	0	.150
6	10.00	P ₆ (A-Ascorbic Acid)	-1	5.633	-7.653	161.684	0	63.964
7		z	-10.00	3,307.456	35,763.997	3,075.476	.160	3,826.686
8		z-c	-10.00	3,307.374	35,763.757	3,075.368	0.000	3,826.626

Section 9 (a)

1	.096	P ₁₉ Flour	.002721			-.366716		
2	.240	P ₁₄ Oleomargarine	-.000589		1	.073087		
3	.160	P ₁₆ Carrots	.000221			-.013332	1	
4	.341	P ₁₈ Picnic Ham	.001606			-.192624		
5	.082	P ₁₃ Milk	.001177	1		-.147275		
6	.060	P ₁₇ Potatoes	-.015808			2.549431		1
7		z	-.000149	.082	.240	.055408	.160	.060
8		z-c	-.000151	0.000	0.000	-.052739	0.000	0.000

Table B-1. Solving a Diet Model (cont.)

Section 1 (a)

Row No.	c_i	Process Vector	P_{18} Picnic Ham	P_{19} Flour	P_{20} Sugar
1	10.00	P_1 (A-Calories: cal.)	1,291	1,654	1,748
2	10.00	P_2 (A-Fat: gm.)	119.0	4.5	
3	10.00	P_3 (A-Vitamin A: I. U.)			
4	10.00	P_4 (A-Thiamin: mg.)	3.48	.20	
5	10.00	P_5 (A-Riboflavin: mg.)	.68	.12	
6	10.00	P_6 (A-Ascorbic Acid: mg.)			
7		z	14,141.6	16,588.2	17,480
8		$z-c$	14,141.259	16,588.104	17,479.9

Section 1 (b)

Row No.	Process Vector	P_0
1	P_1	1,449
2	P_2	5,139
3	P_3	10
4	P_4	560
5	P_5	722
6	P_6	300

Section 1 (c)

Row No.	c_i	Process Vector	P_{18} Picnic Ham	P_{19} Flour	P_{20} Sugar
1	10.00	P_1 (A-Calories)	1,291	1,654	1,748
2	10.00	P_2 (A-Fat)	119.0	4.5	
3	.160	P_{16} (Carrots)			
4	10.00	P_4 (A-Thiamin)	3.48	.20	
5	10.00	P_5 (A-Riboflavin)	.68	.12	
6	10.00	P_6 (A-Ascorbic Acid)			
7		z	14,141.6	16,588.2	17,480
8		$z-c$	14,141.259	16,588.104	17,479.9

Section 9 (a)

1	.096	P_{19} Flour		1	1.100649
2	.240	P_{14} Oleomargarine			.011383
3	.160	P_{16} Carrots			-.002074
4	.341	P_{18} Picnic Ham	1		-.059006
5	.082	P_{13} Milk			-.119738
6	.060	P_{17} Potatoes			.011906
7		z	.341	.096	.078837
8		$z-c$	0.000	0.000	-.020653