PATTERNS OF FOOD EXPENDITURES IN HOME MANAGEMENT HOUSES AT MICHIGAN STATE COLLEGE

THESIS FOR THE DEGREE OF M. A.

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1933

Food
Cost + standard of living

Home economics

PATTERNS OF FOOD EXPENDITURES IN HOME MANAGEMENT HOUSES AT MICHIGAN STATE COLLEGE

A Thesis Submitted to the Faculty

of

Michigan State College

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Arts

Department of Home Management

Division of Home Economics

by

Julia Pond

1933

THESIS

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PATTERNS OF FOOD EXPENDITURES IN HOME MANAGEMENT HOUSES AT MICHIGAN STATE COLLEGE

CHAPTER I

INTRODUCTION

The hope that eventually certain standards can be established and followed in improving household management has been constantly with students of that phase of home economics. One avenue leading toward a realization of such a goal is that of saner, more scientific food consumption. Certain investigators have attacked this problem from the angle of a typical family group in which no specified nutritional requirements existed. This study deals with patterns of food expenditures obtained from records kept at the home management houses of Michigan State College for the past eleven years. These houses do not represent typical family groups in composition and their patterns of spending represent the practices of persons trained in nutrition. The patterns of food expenditures resulting from controlled and uncontrolled studies of current practices will undoubtedly assist in realizing the aim just stated.

A - Definition of Terms

To assure proper interpretation of the contents of this study a definition of terms may be advisable. Patterns as used here mean the manner in which the money spent for food is divided among the various food-stuffs purchased. These divisions are expressed in percentages of

the total expenditures for food. A similar application of the term is made by others, i.e. one article[1] refers to the variations in expenditure patterns as families vary in size and composition. In the same article the statement is made that - "Various investigators have shown that the standards of living of a time and place tend to make the spending habits of a given social group similar. But this fact gives us no assurance that the pattern is the best that can be evolved for a specific family in using its resources."[2] Patterns as used in the foregoing quotation and in this study represent actual expenditures and not an ideal or suggested plan of expenditures.

The term expenditures means the money cost of foodstuffs to the groups purchasing them. A home management house is a practical laboratory in which college girls live for a period of time. During that time they assume many of the responsibilities necessary in the successful operation of a home.

Throughout the study level of living is a term used. As the home management houses of Michigan State College are organized and operated each group of girls has the opportunity to plan, prepare and consume meals representative, in total money expenditure or cost per person per day, of three levels of living - low, medium, and high. It must be remembered that the term level here used means actual manner of living and is not to be confused with the term standard which denotes the

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1 - "Determination of Standards for the Establishment of Household Budgets for the Expenditure of Money, Time and Energy." Journal of Home Economics 24 (1932) 1050

2 - Ibid, p. 1049

manner of living one aspires to.

B - Purpose of Study

1. General

Studies of food consumption have been made of low and moderate income family groups but only two analyses of the food expenditures of the home management houses, found on many of our college and university campuses have been found by the writer. It is planned that this study will add a valuable and typical pattern of food expenditures to those few already existing. No doubt a pattern resulting from data kept of food purchases for meals planned by home economics seniors and checked by members of a home economics staff will contribute information of value to those interested in planes and standards of living.

2. Definite objectives

The definite objectives of the study are as follows:

A - To determine the percentage expenditures for the various classes of foodstuffs for the different levels of the two periods 1922-29 and 1930-33 and also general average patterns.

B - To determine the effect of the following upon the percentage expenditures of the various classes of foodstuffs:

1. Establishment of certain requirements.
2. Listing cheese with milk instead of with meat.
3. Listing baked goods separately instead of with staples.
4. Seasons of the year .
5. Size of group.

C - To obtain from a smaller corrected study the following:

1. Check on the accuracy of the records used.
2. Daily per capita costs of various foodstuffs.
3. Comparison of the following for the different levels:
   (a) Percentage divisions within
      (1) Meat, fish, nut, and egg group.
      (2) Fruit and vegetable group.
      (3) Milk, cream, and cheese group.
      (4) Staple group.
   (b) Unit costs and quantities of foodstuffs included in these groups:
      (1) Meat, fish, nut, and egg.
      (2) Fruit and vegetable.
      (3) Milk, cream, and cheese.
      (4) Staples.

D. To compare the findings of this study with other comparable patterns of food expenditures.

C - Review of Literature

Studies identical with this one have not been published. Gross' study of "Classified Food Costs in Practice Houses"[1] is, however, identical with certain patterns found in part I of this study. Andrews

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1 - "Classified Food Costs in a Practice House". Journal of Home Economics, 20: 22-23-24, 1928.

also gives results of a similar research problem in a New England[1] practice house. With these exceptions those which are found differ particularly in that the source of their data has been from typical family groups whose age and sex composition is unlike the groups of this study. Practically all of the available information falls into one of the two levels - low or medium. There is, however, one pattern corresponding to the high level one given here.

Patterns of food expenditure resembling the resulting low level one of this group are those of 62005 working men's families, of 6718 farm families, and an average of the two[2], and of Houghteling's of 54 Chicago laborer's families[3]. Gillett's suggestions of the division of the family food budget into fifths made to the United States Food Administration during the World War also can be termed a pattern of food expenditure for low level[4].

For those of the medium level type the following can be cited: Luck and Woodruff's for 1932 of twelve Berkeley families[5], the study of 224 American families[6], Woodruff's of one professional class family of Lawrence, Kansas for year 1926-27[7], of Achinstein's study of 400

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1 - Benjamin R. Andrews, Economics of the Household, Its Administration and Finance, pp. 267 and 269.
2 - Edith Hawley, Economics of Food Consumption, p. 103.
3 - Leila Houghteling, The Income and Standard of Living of Unskilled Laborers. (University of Chicago Press, 1927) Appendix D.
4 - Henry C. Sherman, Chemistry of Food and Nutrition, p. 527.
5 - May G. Luck and Sybil Woodruff - Cost of Living Studies III, p. 261.
6 - Sherman - op. cit. p. 524.
7 - Sybil Woodruff, "A Dietary Analysis", Journal of Home Economics, 20, 414 (1928).

families[1], of the 1924 Amsterdam study of 212 families[2], and of the 1930 Amsterdam study of 19 families[3]. Jaffa and Morgan have drawn up estimates, referred to in the Luck and Woodruff study, for feeding a family of five - man, wife, and three young children in the professional class [4]. Gross'[5] patterns derived from some of the cases included in this study represent each of the three levels cited here. Her data included a fewer number of cases than the present study and were compiled in 1927.

Though only one of the above mentioned investigations is, perhaps, strictly comparable with those worked out in this study, necessary adjustments will be made in classifications and a section devoted to a comparison of the different patterns.

1 - Asher Achinstein, The Standard of Living of 400 Families in a Model Housing Project - The Amalgamated Housing Corporation. Report of State Board of Housing State of New York (July 20, 1931) p. 44.
2 - J. M. Meulenhoff - Comptes de Menage de 212 Families de Differente Position Social (1927) 59.
3 - "Family Budget Survey in the Netherlands". Monthly Labor Review 36: 1205, 1933.
4 - Luck and Woodruff - op. cit. 263.
5 - Journal of Home Economics, 20:-op. cit. 23.

CHAPTER II

METHOD STUDY

This chapter of the study includes a description of the sample, explanation of certain terms, the classification of foodstuffs used, and the cost per person per day, typical menus, and the organization of the home management houses. The foregoing information is intended to give a picture of what might be termed the background or situation.

A - The Sample

The data given in this study were obtained from actual records kept by senior girls of Michigan State College who were living in the home management houses. Records covering the period 1922 - 1933 giving the expenditures for the various classes of foodstuffs were used. A cost of food card giving the number of meals served and the cost per person per day was used in connection with the food summary cards. The latter cards were necessary in order to determine the level represented by the expenditure.

A total of ninety records for each level was finally selected for use in the general study. Because of the distribution of the records they were grouped into two main groups. The first group included twenty-one records of the years 1922-29 and the second sixty-nine of those of the period 1930-33. The greater number of records included in the second group undoubtedly make the patterns resulting from those data more accurate. Patterns from both of these periods and a general pattern obtained from the weighted averages of the two will be given.

In order to have the samples for the different levels comparable the same seasons of the year were represented in the three levels of each year's records included. With the exception of August records from each month of the year were included. In every case where comparisons are made, whether for the same level and years or for different levels and years, exactly the same number of cases were used.

The study is divided into three main parts. The general study is the determination of food expenditure patterns for three income levels. The records mentioned in the preceding paragraph were used for this division. The intensive study is a more detailed one of a fewer number of cases. The records used were corrected by inventories and represent more nearly actual consumption than purchases. Details of quantities and costs are given. The last division is devoted to a comparison of certain findings of this study with those of the studies cited in the review of literature.

The classified records used in the general study were of food purchased and not food consumed. No adjustment was made for classification of food on hand at the beginning of the period or left at the close. Small quantity buying predominated with the exception of the majority of the staples. A check made in the intensive study confirms the fact that food purchased and food consumed did not differ greatly either in total or in subdivisions of the budget except in the case of staples for the low level. Adjustment was not made in either case for food wasted or not actually eaten. This, however, would not be significant for very little if any of the food purchased was not used.

Large enough quantities left were always served in some manner and not thrown away. To assure the use of all non perishables they had to be purchased from the preceding manager, but the incoming manager had the privilege of refusing to purchase any perishables which she could not use or to purchase them only at rates suitable to her level. The term manager, as used here, refers to a student, who for a given length of time plans the menus, purchases the food, and prepares the meals. She is assisted in the food preparation by one other student who is termed assistant cook. Each student fills the role of manager at sometime during her residence in the house.

Whenever costs per person per day are given in either the tables or the discussion they represent actual costs and not daily per capita cost of food as purchased. Before these costs were computed adjustments were made for cost of total food on hand at the beginning of period and of that left at end of period.

The term cases designates the number of different records included and each record covers the period of time one girl was manager. Where "individual meals" are listed in a table it does not mean that different meals were served, but represents the following formula:

Number of individual meals = Number of persons served x number of meals per day x number of days.

Thus 630 "individual meals" may indicate that five people each ate three meals daily for a period of forty-two days.

Classification of Foodstuffs as used in This Study:

The foodstuffs are grouped into six main divisions. The group designated in the table by milk and cream includes in addition ice cream, chocolate milk, and malted milk. Since September 1932 cheese has been listed under that heading. The foodstuffs included in the "meat, etc." division are all meats and fish, fresh or canned, fowl, nuts, and eggs and prior to September 1932 cheese was included in the group. Fats included butter, lard, crisco, oleomargarine, salad oil, etc. Sugars include all sugars, syrups, molasses, jellies, jams and conserves. Under fruits and vegetables are listed all fruits and vegetables, fresh, dried, or canned, and pickles, olives and potato chips. Staples include all foodstuffs not found in one of the other groups. They are: flours, cereals, crackers, baked goods, spaghetti, macaroni, noodles, food accessories as vinegar, salt, etc., and tea and coffee.

Cost per person per day:

Of interest to many persons, though the tables do not include the information because percentage patterns are given, is the average cost per person per day or daily per capita cost.

The cost per person per day is always definitely set at a certain figure for each level with a 10 percent leeway. For the period 1922-29 the per capita cost for high level was set at eighty cents and actual expenditures ranged from seventy-nine cents to one dollar with eighty-four cents as an average. The medium level was set at sixty cents and actual expenditures ranged from fifty-nine cents to seventy cents with sixty-four cents as an average. The low level was set at thirty cents

and actual expenditures ranged from twenty-seven cents to thirty-five cents with an average of thirty-one cents. In all three levels the average fell within the required range. The cost of food index for that period fluctuated but little which fact places the above costs on the same price level.

During the period 1930-33 the cost of food index shows a constant decrease going from 147.1 in 1930 to 100.1 in June 1932 and to 90.4 in April 1933.

TABLE 1

PER CAPITA ALLOWANCES AT DIFFERENT LEVELS

	1931	1932		1933	
Level	Suggested Amount	Suggested Amount	1931 Amounts at 1932 Price Level	Suggested Amount	1931 Suggested Amounts at 1933 Price Level
High	$.80	$.75	$.674	$.70	$.596
Medium	$.60	$.50	$.505	$.45	$.447
Low	$.30	$.25	$.252	$.20	$.224

The above table states clearly the suggested amounts of each level of the three years represented and also shows the relationship of the suggested figures to prevailing price level. It is evident that the high level allowances for both 1932 and 1933 are greater than they would need to have been according to the cost of food index for those years. The realization, however, that costs of luxury foods such as are used on high level did not necessarily drop as much as the more common and staple foods did perhaps justify placing the high level allowance higher than the cost of food index indicates, for it must be remembered that

the food index is derived from the costs of the staple and ordinary foods rather than the luxury class foodstuffs.

The low level for 1933 was set at twenty cents rather than twenty-two cents because of the mathematical difficulties involved when other than round numbers are used.

Typical menus:

The menus are planned by the students and checked by the instructor. Those accepted menus are filed with other record cards and kept for future reference. The typical menus given in tables 2, 3, 4 were for early spring in the case of all three levels - March, April and May being the months represented.

Breakfast was a fairly standardized meal and in the case of the low and medium levels very similar. It consisted of fruit, toast, and coffee or milk. To these dishes a cereal or egg was added for high level. Luncheon was a lighter and simpler variation of the dinner menu and for low and medium levels usually consisted of a main dish, a salad or dessert, bread and butter, and a beverage. The luncheons for high level included both a salad and dessert in addition to the dishes given for low and medium levels. The dinners for low level were composed of a meat dish or substitute, usually potatoes, one other vegetable or salad, bread, and usually a dessert. The dinner menus for medium and high levels did not necessarily consist of a greater number of dishes, but instead of more expensive ones than those for low level. Always during the high level period one three course dinner was served, while the other dinners were rather elaborate two course meals.

TABLE 2

LOW LEVEL MENUS

* Breakfast	* Luncheon	* Dinner
Oranges Oatmeal Toast Milk	Vegetable Soup Peanut & Pea Salad Whole Wheat Bread	Meat & Vegetable Pie Celery, Cabbage & French Dressing Bread Baked Custard Apricot Sauce
Rice - Raisins Whole Wheat Toast Coffee	Baked Beans & Tomato Whole Wheat Bread Baked Apple & Milk	Carrot Loaf & Pea Sauce Baked Potato Cottage Cheese Salad Bread Plain Cake Lemon Sauce
Stewed Figs Milk-Toast Coffee	Macaroni & Cheese Stuffed Prune Salad Bread	Braised Beef Heart Onion, Carrot, Turnip & Potato Corn Bread Almond Junket Cake
Sliced Orange Oatmeal Patties Toast & Milk	Escalloped Corn String Bean Salad Bread Chocolate Milk	Chili Con Carni Spinach Bread Peaches & Gingerbread Coffee
Prunes Poached Egg on Toast Milk	Escalloped Tomatoes Rolls Cake Tea - Lemon	Swiss Steak & Onions Mashed Potatoes Cabbage Salad Bread Bread Pudding & Top Milk

*, Butter is included in all meals

TABLE 3

MEDIUM LEVEL MENUS

* Breakfast	* Luncheon	* Dinner
Rhubarb Whole Wheat Toast Wheatena-Whole Milk	Johnny Cake Strawberry Jam Cottage Cheese, Green Pepper & Pimento Salad Baked Apple - Cream Tea	Sliced Cold Ham Potato Chips Whole Wheat Bread Canned Peas Chocolate Cookies Mint Sherbet Coffee
Sliced Oranges Bran Rye Toast Milk	Cream of Tomato Soup Spinach & Egg Sandwich Prune & Cottage Cheese Salad	Baked White Fish Tartar Sauce Riced Potatoes Buttered Beans Cracked Wheat Bread Orange Charlotte Coffee
Fresh Fruit Scrambled Egg & Bacon Pecan Rolls Coffee	Cheese Roll Potato Salad Celery Sandwich Fruit Triffle Milk	Broiled Pork Chops Buttered Beets Rye Bread Head Lettuce - T.I.Dressing Strawberry Tapioca Pudding
Grapefruit Poached Egg on Shredded Wheat Biscuit Whole Wheat Toast Coffee	Baked Sweet Potato Cold Boiled Ham Rolls Fruit Salad Milk	Rice & Meat in Green Pepper Cases - Baked Onions Whole Wheat Bread Cucumber Salad French Dressing Ice Cream Tea
Rice with Dates Whole Wheat Toast Egg Nog	Celery with Cheese Sauce on Toast Prune Whip Cream	Escalloped Egg & Peas Baked Potato Baking Powder Biscuit Grape Jelly Cabbage Celery Salad Fresh Fruit Coffee

* Butter is included with all meals.

TABLE 4

HIGH LEVEL MENUS

* Breakfast	* Luncheon	* Dinner
Fresh Pineapple Rolls Rice Crispies & Cream Cocoa - Coffee	Creamed Tuna Fish & Peas on Toast Fresh Tomatoes Sliced Filled Cookies Orange Egg Nog	Chicken Broth - Wafers Leg of Lamb - Mint Jelly Parsley Potatoes Corn Niblets Tiny Parker House Rolls Fresh Asparagus Salad Olives Celery Peppermint-Stick Ice Cream Vanilla Cookies
Grapefruit & Cherries Baked Eggs Date Muffins Coffee	Cold Boiled Ham & Tomatoes Lettuce Sandwiches with Pickles Whole Wheat Bread Chocolate Souffle with Cream Hot Coffee Malted Milk	Liver & Bacon with Pineapple Potatoes au Gratin Baby Beets Buttered Whole Wheat Rolls Watercress Salad - French Dressing French Pastry
Strawberries on Shredded Wheat Cinnamon Rolls Toasted Coffee	Egg Salad Clover-Leaf Rolls Baked Apples with Cream Dutch Cocoa	Cold Lamb Potato Salad & Tomatoes Buttered Asparagus Nut Bread Meringues filled with Peaches & Topped with Whipped Cream Jasmine Tea
Large Glass of Orange Juice Foamy Omelette Pecan Rolls Coffee	Toasted Cheese & Bacon Sandwiches Fresh Buttered Asparagus Date Bars Ginger Ale Float	Steak & Mushrooms Mashed Potatoes Fresh Peas Whole Wheat Rolls Celery, Radish, Green Pepper and Cucumber Salad Fresh Strawberry Pies with Whipped Cream
Grapes Eggs a la Buckingham Coffee	Lobster Salad Potato Chips Hot Rolls-Ginger Pear Jam Hot Chocolate	Broiled Whitefish Horse Radish Sauce Buttered Green Beans Parsleyed New Potatoes Celery Radishes Cheese Crackers Coffee

* Butter is included in all meals

B - Organization of Home Management Houses

The groups in every case are composed of students and one home economics instructor. While the average age of each group is not known the majority of the girls are within the age limit of 19 - 23 years. The groups vary in size from six to ten persons. The average for the period 1922-29 being 8.9 persons and for the period 1930-33 being 7.6 persons per group. The size of the group decreased in the later period with the opening of a second house in 1931.

To afford the students actual practice and contact with variations in types of meals and food at different income levels each student is given one of the three levels - low, medium, or high, as a basis for her food budget. Each level is represented at least once in each group and as many more times as the number of students in the house make it possible or necessary. The student planning the menus attempts to keep the food costs within the stated price range and in the majority of cases is successful. The periods for which one particular student plans the meals and purchases the food have varied from three to six days in length.

In every instance the menus and purchase lists are originally made out by the student in charge of that particular phase of the work. These are discussed with the instructor and corrections made before purchasing is done. With exception of staples and sugars foodstuffs are purchased only in quantities needed during the period managed by one particular student. Staples are, however, purchased in quantities such as 10 pounds flour, 5 pounds sugar, 1 peck potatoes, 1 quart salad oil, etc. At the beginning of the period an inventory giving

quantities and monetary values of foodstuffs on hand is given the incoming manager by the outgoing one. At the close of the period, the manager, in addition to a revised inventory, leaves on file the cost of foods she has purchased classified as they are in this study and recorded on a permanent summary card. A separate summary card is kept for each group. Copies of all menus are also filed.

Prior to 1931 the only definite nutritional requirement was a pint of milk per person per day. In the fall of 1931 several more requirements were added which have, no doubt, affected the food pattern of all levels sufficiently to warrant being given in detail. They are: Per person per day:- 1 pint milk, 1 egg, 1 serving whole grain cereal, 2 servings vegetables besides potatoes, and 2 servings fruit per day.

Definite suggestions and requirements for the three levels were also made in 1931. In each case starred items are required. Some of the requirements were made to secure variety and not especially because they typified one level more than another.

For the minimum or low level:

1. No expensive meats or fish - not many medium priced ones. Use of meat extenders and meat substitutes.
2. Cheap fruits and vegetables.
3. Sufficient carbohydrates to supply most of the calories, such as meat dressings and starch puddings.

*4. One cottage cheese or cheese main dish.

For the moderate level:

1. Half of the meats or fish of the expensive variety.
2. More fresh fruits and vegetables (not canned).

3. Accessories occasionally such as jellies, olives, etc.

*4. Veal

For the high level:

1. More interesting breakfasts but only 2 courses.

2. More expensive meats and fish, but not all of them such.

3. Good brands of canned goods - all foods of high quality.

4. Accessories such as olives, etc.

5. Unusuallfoods as artichokes, imported cheeses, etc.

*6. Lamb.

*7. Liver.

*8. Sea-food.

*9. One three course dinner.

The foregoing suggestions and requirements account for the appearance of certain foods in the list of those purchased for the three levels and can be said in some instances definitely to affect selection. This fact is especially well brought out in the analysis of the meat, fish, and fowl expenditures, which is found in section B of chapter III.

C - Limitations of Study

There are certain limitations to the study and also some factors peculiar to it. Perhaps the outstanding limitation is that it is not a study of a typical family group in either age or sex composition. The fact that no men were included in the groups may, to some extent, have made the meat expenditures lower and those for fruit and vegetables higher than they would otherwise have been.

The groups might, however, be compared to a family having children 18 - 23 years of age and one in which the father does office or work not requiring physical labor.

The records from which the data were taken were those of food purchased and not of food consumed[1]. Tables given later on in the study will disclose the fact that because of this the low level pattern is not as accurate as it should be. The widest variation was found in the case of staples and because, in comparison, more staples are used on the low level than on either of the other two, the patterns for the low level are the least exact.

Another limitation is found in that the more authentic study is limited in the number of cases, while the larger study containing a greater number of cases is not so accurate. As was stated in the foregoing paragraph this fact applies particularly to the expenditure patterns of the low level.

The study is of groups whose dietary was planned by girls who had had some training in nutrition, meal planning, and food preparation and checked and supervised by a woman also trained in the same fields. These facts make it a study different from one of the usual family group studies where the person doing the meal planning and food purchasing may or may not be a trained person and in the majority of cases is not. Occasionally checks have been made to determine the nutritional requirements of the meals served at the home management houses and they have always been positive,

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1 Except those used in the more detailed study.

Another factor peculiar to this study is that any actual costs or amounts given are on the individual meal or daily basis rather than on a weekly or monthly one. This basis was adopted because the person in charge of the meal planning and food purchasing changed rather frequently.

CHAPTER III

FINDINGS

The findings of this study are divided into two main divisions. Part A is a general analysis of all data used while part B is a more intensive study of a fewer number of cases.

The first section of part A gives patterns of percentage distribution for the two periods 1922-29 and 1930-33 and a general weighted average pattern representing both periods. The remainder of part A is demoted to the effect of certain factors upon the percentage distribution of the various foodstuffs. The factors include: establishment of more definite nutritional requirements, changes in classification of foodstuffs, season of year, and size of the group.

A - General Study

1 - Patterns of Food Expenditure

Percentage patterns of the food expenditures for the two periods into which the data for this study were grouped and a general pattern obtained from the weighted averages of those patterns just mentioned are given in tables 5A, 5B and 5C. The analyses of them discloses similarities and differences.

A comparison of the different levels for each period brings out definite trends in going from low to high level. The percentages for milk and cream decreased by as much as 4.3 per cent between levels and not less than 3.2 per cent. In the 1930-33 period and general patterns

TABLE 5

PERCENTAGE PATTERNS OF FOOD EXPENDITURES AT DIFFERENT LEVELS

A 1922-1929

Level	Low	Medium	High
Number cases	21	21	21
Items	per cent	per cent	per cent
Milk - Cream	18.8	14.5	11.3
Meat, etc.	22.9	26.6	29.3
Fats	14.1	12.5	9.9
Sugars	5.0	5.5	5.3
Staples	14.2	11.0	12.3
Fruits - Vegetables	25.0	29.9	31.9
	100.0	100.0	100.0

B 1930-1933

Level	Low	Medium	High
Number Cases	69	69	69
Items	per cent	per cent	per cent
Milk - Cream	17.8	14.1	10.3
Meat, etc.	20.7	24.6	28.9
Fats	10.7	8.2	6.0
Sugars	3.8	4.3	4.8
Staples	15.9	14.3	15.1
Fruit - Vegetables	33.1	34.5	34.9
	100.0	100.0	100.0

C General Table - 1922-1933*

Level	Low	Medium	High
Number Cases	90	90	90
Items	per cent	per cent	per cent
Milk - Cream	18.0	14.2	10.5
Meat, etc.	21.3	25.1	29.0
Fats	11.5	9.2	6.9
Sugars	4.1	4.6	4.9
Staples	13.9	13.5	14.5
Fruits - Vegetables	31.2	33.4	34.2
	100.0	100.0	100.0

* Obtained from weighted averages of tables 5A and 5B. The percents of table 5A were multiplied by 21 and those of 5B by 69. The totals of these two products was then divided by 90 to obtain the percents given in table 5C. This was done for the percents of each item of tables 5A and 5B.

the decreases from low to medium, and medium to high were closely identical being 3.7 per cent and 3.8 per cent in both cases. The percentages for fats displayed a trend similar to that of the milk and cream. The decreases of the period 1922-29 were 1.6 per cent between low and medium levels and 2.6 per cent between medium and high. The decrease of the 1930-33 period from low to medium was 2.5 per cent and from medium to high was 2.2 per cent. The decreases in the general patterns of food expenditures between low and medium level and medium and high level were 2.3 per cent in both instances. All decreases for fats were, therefore, very similar. The definite decreases of milk - cream, and fats as progression is made from low to high level can be accounted for by the fact that the higher levels had a larger total expenditure and did not have to spend such a large portion of that total in order to meet the quantitative milk requirements or to have enough cream, butter and other fats to make possible the preparation of meals of the standard desired.

The percentages spent for meat increased in going from low to high level. The increases from low to medium level lacked .2 per cent of being the same for both periods. A greater variation was shown from medium to high level, the increase of 1922-29 being 2.7 per cent, and that of 1930-33 being 4.3 per cent. The general pattern of food expenditures gave the same decreases in meat percentages between low and medium, and medium and high levels. These trends, of an increase in the meat expenditures, emphasize the food likes of the individuals planning the meals. Little doubt remains as to preference for in-

creased amounts and better cuts of meat over smaller amounts and the inexpensive, not so easily prepared, less appetizing cuts. The extra money might have been spent on any of the other foods, but no requirements existed and the result of food habits was shown.

In the case of the fruit and vegetable percentages trends very much alike were evidenced in patterns of food expenditure of both periods and the general pattern. The period 1922-29, however, gave a much more marked increase from low to medium to high level than either of the other patterns did. This can be attributed to the fact that in the fall of 1931, the same fruit and vegetable requirements were made for all levels. Prior to that time the only quantitative requirement had been the daily pint of milk per person. The greatest difference between any of the levels of any of the patterns was between the low and medium levels of 1922-29. This increase was 4.9 per cent and can be accounted for by the fact that the low level fruit and vegetable expenditure just made it possible to meet the nutritional requirements of two servings of fruit and two servings of vegetables besides potatoes per capita per day while the medium level per cent was greater and allowed a wider variety. The same was true of the high as of the medium level only to a larger extent. Again a food preference is emphasized.

The food habits of the students were such that they included more salads, more fruits and more vegetables as soon as the opportunity presented itself.

The staples and sugars both fluctuated between the levels and no definite trend was displayed in either of the patterns of food expenditure for the two periods. The general pattern did, however, show a gradual

slight increase as progression is made from low to high level in the case of sugar percentages. A very decided likeness was shown for the sugar percents of all three patterns of food expenditures. These percentages for the three levels of the three patterns ranged between 3.8 per cent and 5.5 per cent. That baked goods were included in the staples division undoubtedly explains the fact that slight increases for 1930-33 and the general pattern were shown in going from low to high levels. An analysis made in part B shows that on both the medium and high levels much more was spent for baked goods than is possible on the low level. The existence of a very high standard food shop in East Lansing makes it feasible for very excellent baked goods such as meringues, date bars, filled cookies, pies, cakes, nut breads, fancy and plain rolls, and etc. to be purchased as the money allowance permits. All of their goods are somewhat higher in price than other baked goods in the community, but quality justifies this difference. Were it not convenient for the girls to purchase this unusual quality and variety of baked goods they would do more baking themselves and undoubtedly decrease the percentages spent for staples on both medium and high levels.

For the three levels of the three food expenditure patterns the largest percentage was spent for fruits and vegetables, with meat second. On both low and medium levels milk and cream were third and staples fourth except for the medium level of 1922-29 and in that case the fats exceeded the staple percentage. The high level in all instances gave staples third and milk fourth place. In all of the three levels fats were fifth and sugars sixth. The three different levels, therefore,

did not differ greatly when the relative importance of the proportions spent for the various foodstuffs was considered.

A comparison was made for the food expenditure patterns of different levels of the same year and for the same levels of the same year (see tables 25 and 26 in Appendix). Because, however, of the limited number of cases grouped by years the resulting patterns are not as reliable as those just discussed.

The most outstanding trend brought out when a comparison for the different levels of the same year was made was an increase in the fruit and vegetable percentages after 1930. In the majority of cases all of the fruit and vegetable percentage expenditures were higher than those of any other. The few instances in which the above was not true the meat percentages exceeded that of fruit and vegetable.

With one exception the sugar expenditures were less than any of the other five divisions. In all but two instances there was a decrease of the milk and cream expenditures and an increase in those of the meat as progression is made from low to high level for the patterns of different years[1]. (See table 26 in Appendix).

2 - Effect of More Definite Nutritional Requirements

When these definite daily requirements per person: 1 pint milk, 1 egg, 1 whole-grained cereal, 2 vegetables besides potatoes, and 2

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[1] Note - The patterns of food expenditure for the low level are less accurate than those of either medium or high level. This is due to the fact that on low level larger proportions of foodstuffs classified under sugars and staples are used. These foodstuffs are purchased in comparatively large amounts and are more apt to carry over from one manager to another.

TABLE 6

THE EFFECT OF ESTABLISHMENT OF MORE DEFINITE REQUIREMENTS UPON PERCENTAGE PATTERNS OF FOOD EXPENDITURES*

A — Low Level

Number Cases Period	24 Period of June 1930 June 1931	24 Period of October 1931 May 1932
Items	per cent	per cent
Milk - Cream	17.9	18.0
Meat, etc.	21.4	19.4
Fats	11.3	11.5
Sugars	3.7	3.6
Staples	13.9	14.1
Fruits - Vegetables	32.0	33.4
Total	100.0	100.0

B — Medium Level

Number Cases Period	24 January 1930 through July 1931	24 September 1931 through May 1932
Items	per cent	per cent
Milk - Cream	14.8	14.1
Meat, etc.	25.3	24.4
Fats	9.2	7.8
Sugars	4.9	3.4
Staples	13.7	14.6
Fruite - Vegetables	32.1	35.7
Total	100.0	100.0

C — High Level

Number Cases Period	24 January 1930 July 1931	24 October 1931 May 1932
Items	per cent	per cent
Milk - Cream	11.0	9.6
Meat, etc.	30.0	28.7
Fats	7.3	5.5
Sugars	5.1	3.8
Staples	13.2	16.4
Fruits - Vegetables	33.4	36.0
	100.0	100.0

* These requirements were established September 1931.

fruits were instituted there were several changes made in the percentage patterns as shown in tables 6A, 6B, 6C.

In the case of the low and medium levels the percentages for milk changed but little. This constancy is due to the fact that the pint of milk per person per day had been required prior to 1931 while the other requirements made at that time were new. The milk percentage for the high level decreased 1.4 per cent after the date of the establishing of the requirements given in the preceding paragraph. The increased consumption of fruit and vegetables and cereals occurred partly at the expense of the milk per cent.

For the three levels the proportions spent for meats decreased as did those for fats and sugars on both the medium and high levels. Practically no changes were caused in the fats and sugar expenditures of the low level.

The proportions for staples and fruits and vegetables were increased in the case of the three levels. The 3.2 per cent increase of the high level was the most pronounced one for staples. The fruit and vegetable increases were: 1.4 per cent for low, 2.6 per cent for high and 3.6 per cent for medium level. These increases of the staples and fruit and vegetable percentages were made at the expense of meats for the three levels and at that of fats and sugars for the medium and high levels. The decrease in milk for the high level might also be noted here.

3 - Effect of Changing Classification of Foodstuffs

(a) - Listing Cheese with milk instead of with meat. Somewhat surprising results were obtained when table 7 was analyzed. The milk percentages of the three levels remained the same or decreased instead of increasing as was expected. A 20 per cent decrease in local retail prices of milk, coffee cream, and cottage cheese, and a 33.3 per cent decrease for whipping cream explains, to some extent, the findings. The prices of meat fell, but not in the same proportion as did those of milk and cream. An examination of the prices of meat for the different periods from which the cases used were taken shows that the decreases in meat costs were between 15 per cent and 17 per cent.[1] The 2.2 per cent decrease for meat of the high level might have been due to the use of the more expensive cheeses on that level. That this could be absorbed by the milk and cream percentage and not cause an increase in that percentage is more possible because of the use of whipping cream (which decreased in price 33.3 per cent) on the high level. The increase in the meat percentage of the low and medium levels with falling prices prevailing indicates either the use of larger quantities of meat or of more expensive cuts.

(b) - Certain baked goods listed separately - Since the winter of 1932 baked goods had been classified separately instead of being included with the staples as was formerly done. That the low level allowance permits but a very small proportion to be spent for baked

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1 - Monthly Labor Review - June 1933 - Table 2 - Average retail prices and index numbers of principal articles of food in United States for year 1913 - 1932 - 1933, p. 1448.

TABLE 7

THE EFFECT OF LISTING CHEESE WITH MILK INSTEAD OF WITH MEAT UPON PERCENTAGE PATTERNS OF FOOD EXPENDITURES*

Level	Low		Medium		High	
Number Cases	16	16	16	16	16	16
Period	February 1932 July 1932	September 1932 May 1933	January 1932-July 1932	October 1932 May 1933	February 1932 July 1932	October 1932-May 1933
Items	per cent	per cent	per cent	per cent	per cent	per cent
Milk	17.9	17.2	15.3	12.2	10.6	10.3
Meat	17.0	21.1	21.9	24.5	29.0	26.8

* Cheese was first classified with milk the fall of 1932

goods is shown by table 8. Only .7 per cent of the total food expenditures was spent at this level for goods baked outside the home, while the medium level percentage was more than three times that and the high was nearly 7 times as great as the low level percentage.

An analysis of baked goods made in table 19 of part B showing how the money spent for baked goods at the different levels was subdivided helps to explain the rather large differences existing between the percentages of the three levels. That those of the two higher levels could be so much greater than that of the low was made possible because the total allowances were large enough to permit such. The natural tendency of the students was to purchase more baked goods, whenever possible, because such a practice means less time and energy spent in baking.

When baked goods were listed separately in the low and high level patterns the total of baked goods and staples did not equal the staple expenditures for the period 1931 - 1932 which was the one just preceding the time the new classification was instituted. In both cases the meat expenditures increased by an amount practically equal to the decrease of the staple-baked goods expenditure which indicates that the meat expenditure increase was made at the expense of staples and baked goods. The medium level displayed a different adjustment. The sum of the baked and staples expenditures for 1932-33 exceeded the staples expenditure for 1931-32 by 2.6 per cent. This increase was made at the expense of milk and sugars which decreased 1.7 per cent and 2.4 per cent respectively.

TABLE 8

THE EFFECT OF CLASSIFYING CERTAIN BAKED GOODS SEPARATELY UPON THE PERCENTAGE PATTERNS OF FOOD EXPENDITURES

	Low Level		Medium Level		High Level	
Number Cases	9	9	9	9	9	9
Period	1931-1932	1932-1933	1931-1932	1932-1933	1931-1932	1932-1933
Items						
	per cent	per cent	per cent	per cent	per cent	per cent
Milk - Cream	17.0	16.9	13.4	11.7	10.1	11.7
Meat, etc.	18.6	21.0	25.9	26.5	27.6	29.2
Fats	10.8	9.0	7.0	8.3	4.8	5.8
Sugar	2.6	4.0	4.9	2.5	4.4	2.2
Staples	17.0	14.0	13.1	12.2	17.3	9.9
Fruits - Vegetables	34.0	34.4	35.7	36.3	35.8	36.5
Baked Goods	----	.7	----	2.5	----	4.7
	100.0	100.0	100.0	100.0	100.0	100.0

4 - Seasonal comparison -

When a seasonal grouping of records was made all levels displayed only slight fluctuations in percentage patterns except in one case when the medium level dropped 5.4 per cent for June 1931 as compared with January - March period of the same year (see table 9B). This variation may have been due to a divergence in the use of milk,cream, and ice cream or to the size of the sample for the milk requirements remained the same through out the two periods. The high level percentages for milk gave small increases for summer months as compared to winter,probably due to the use of more ice cream.

Meat percentages at the low and medium levels evidence the same trends for all levels - a decrease in such expenditures during the summer months. These decreases varied on low level from 2.1 per cent to 2.8 per cent and on medium from 1. per cent to 4.9 per cent. This 4.9 per cent decrease in the meat percentage was offset by 5.2 per cent increase in fruit and vegetable expenditure. The high level meat expenditures increased very slightly during the summer months. (see table 9C).

In the majority of instances the fat percentages of all levels decreased during the summer season. The decreases ranged between 1.1 per cent to 4.4 per cent. (see tables 9A, 9B, 9C). This definitely indicates that fewer rich dishes were included in the summer menus and is a usual practice considering that only students and women were served.

Only one exception exists to the statement that the percentages for staples were higher during the summer than during the winter months.

Table - 9

THE EFFECT OF SEASONS OF YEAR UPON THE PERCENTAGE PATTERNS OF FOOD EXPENDITURES

A — Low Level

Number Cases	6	6	8	8
Period	January - April 1931	June 1931	January - March 1932	May - July 1932
Items				
Milk	16.6	16.5	20.4	18.0
Meat	23.7	21.6	19.8	17.0
Fats	12.8	11.2	12.6	8.2
Sugar	2.9	4.8	4.2	1.0
Staples	11.5	12.4	12.2	13.9
Fruits - Vegetables	32.5	33.5	30.8	41.0
	100.0	100.0	100.0	100.0

B — Medium Level

Number Cases	6	6	8	8
Period	January - March 1931	June 1931	January - March 1932	May - July 1932
Items				
Milk	16.5	11.1	13.7	14.9
Meat	24.8	23.8	24.9	20.0
Fats	8.7	9.8	8.3	6.5
Sugar	3.7	5.4	2.7	4.2
Staples	13.4	14.2	15.7	14.5
Fruits - Vegetables	32.9	35.7	34.7	39.9
	100.0	100.0	100.0	100.0

C — High Level

Number Cases	6	6	8	8
Period	January - March 1931	June 1931	January - March 1932	May - July 1932
Items				
Milk	10.4	11.1	9.5	10.9
Meat	29.8	30.9	28.9	29.4
Fats	7.7	6.6	5.2	4.0
Sugar	*8.0	3.7	2.3	1.8
Staples	12.1	16.1	16.3	16.6
Fruits - Vegetables	32.0	31.6	37.8	37.3
	100.0	100.0	100.0	100.0

* This percentage is unusually high due to the purchase of a large quantity of maple syrup.

No definite trend was indicated at all by the sugar percentages for in all cases they fluctuated both up and down.

Fruit and vegetable expenditures increased during the summer months for both the low and medium level patterns. The fact that more fresh fruits and vegetables can be obtained during summer and also that main dish salads were used more in summer accounts for this trend. Because it is customary on high level that out of season fruits and vegetables are purchased explains why the percentages of this level were practically the same for both winter and summer. The quantities used no doubt increased but the costs were less during the summer season and did not increase the percentage expenditure.

5 - Size of group as a factor in determining patterns of expenditure.

As is shown in tables 10A, 10B, 10C the size of the group did not consistently affect the pattern of expenditure for any of the levels. The larger groups did, however, spend less for fruits and vegetables than the smaller groups and in each level the group having ten and nine in number spent more for fats than the groups consisting of eight, seven, and six people. Evidently the difference in quantity buying made possible by groups varying from six to ten in size was not enough to make any definite change in the expenditure pattern. Another factor enters into the pattern of expenditure for the groups of six persons. These cases were all taken from the latter part of the period and the tendency had been to increase the fruit and vegetable consumption as progression was made from 1922 to 1933.

TABLE 10

THE EFFECT OF SIZE OF GROUP UPON THE PERCENTAGE PATTERNS OF FOOD EXPENDITURES

A — Low Level

Size of Group	Number Cases	Milk	Meat	Fats	Sugars	Staples	Fruits - Vegetables	Total
10	8	23.0	23.1	12.5	2.3	13.0	26.1	100.
9	8	16.8	21.8	14.3	6.0	16.4	24.7	100.
8	8	17.2	17.7	10.3	3.0	19.6	32.2	100.
7	8	17.7	24.0	11.2	3.6	12.1	31.4	100.
6	8	17.6	29.5	10.3	2.8	16.4	32.4	100.

B — Medium Level

Size of Group	Number Cases	Milk	Meat	Fats	Sugars	Staples	Fruits - Vegetables	Total
10	8	15.1	24.6	11.5	3.3	12.5	33.0	100.
9	8	14.2	25.3	11.8	5.0	12.9	30.8	100.
8	8	14.5	23.7	9.9	6.2	14.7	31.0	100.
7	8	13.0	25.0	10.4	4.0	13.4	34.2	100.
6	8	13.7	22.6	7.4	5.2	17.5	33.6	100.

C — High Level

Size of Group	Number Cases	Milk	Meat	Fats	Sugars	Staples	Fruits - Vegetables	Total
10	8	10.2	27.9	9.4	3.5	13.3	35.7	100.
9	8	9.8	27.7	8.9	5.7	15.4	32.5	100.
8	8	10.5	33.0	6.5	2.7	16.8	30.5	100.
7	8	10.3	27.1	6.7	6.8	16.1	33.0	100.
6	8	11.9	28.3	7.6	5.3	10.8	38.1	100.

B - Intensive Study

This section os the study is devoted to a check of the general patterns of food expenditures of part A and an intensive analysis of the milk and cream, meat, etc., staples,and fruit and vegetable divisions of a fewer number of cases.

1.- Check of accuracy of general patterns.

In order that a more accurate and intensive study could be made for a given number of cases, an inventory check was made of the six records used for each level. Deductions were made for foodstuffs purchased and not used and additions were made for foodstuffs used which were on hand at beginning of each period. All data given in this part of the study are reliable in that they more nearly represent consumption than purchases. There is, however, a weakness in that the size of the sample is much smaller than the sample of part A of this study.

Percentage patterns were first worked out for the eighteen records as given on the summary cards. The percentages were next calculated after corrections given in the foregoing paragraph were made. The first patterns are classed as original and the latter as corrected.(see table 11).

A general analysis of the three original and three corrected patterns of food expenditures discloses more inaccuracy in the pattern of the low level than in either of the other two. The greatest variation of the corrected from the original in all three levels was 6.7 per cent

TABLE 11

COMPARISON OF PERCENTAGE PATTERNS OF FOOD EXPENDITURES

Level	Low Level			Medium Level			High Level		
Number of Cases	6	6	90	6	6	90	6	6	90
	Small Sample		General	Small Sample		General	Small Sample		General
Items	Original	Corrected	average pattern	Original	Corrected	average pattern	Original	Corrected	average pattern
Milk - Cream, etc.	19.3	16.0	18.0	13.3	12.3	14.2	12.8	11.8	10.5
Meat, etc.	20.3	16.9	21.3	21.6	20.8	25.1	27.5	25.4	29.0
Fats	9.0	7.9	11.5	8.2	7.4	9.2	5.9	6.3	6.9
Sugars	1.9	4.5	4.1	4.1	5.9	4.6	2.1	3.6	4.9
Staples	15.0	21.7	13.9	14.6	16.5	13.5	15.5	18.7	14.5
Fruit - Vegetables	34.5	33.0	31.2	38.2	37.1	33.4	36.2	34.2	34.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

for staples of the low level and the least was .4 per cent for fats of high level. In every instance, except those of the fruit and vegetables, and sugar percentages, those of the low level evidenced the greatest variation.(see table 11). The medium level, as a whole, varied the least from the original, but the variations of the high levels were not enough greater to make it necessary to conclude that the high level patterns of section A are less accurate than those of the medium level.

The marked variations in the percentages for meat for the different patterns of the three levels occurred because the costs of meat did not change while the total expenditure costs did.

2 - Daily per Capita Costs of Foodstuffs.

Per capita costs are given instead of the cost per individual male unit or any other type of unit because the groups from which records used were obtained were composed entirely of women and the majority of them were of the same age. For the period of February to June 1933 with an allowance of 20 cents per person per day on low level, 45 cents on medium, and 70 cents on high level, we find the cost distribution of foodstuffs as anticipated. In each case the quantitative requirements given in the introduction were fulfilled.

The difference between low and medium levels in the amounts spent for milk were not so great. The allowance at high level for milk, cream, etc. was, however, twice that of the low level.

It is significant to note that the daily per capita meat expenditures are practically doubled in going from low to medium and from

medium to high level. (see table 12).

The daily per capita costs of fats increased by 75 per cent in going from low to medium level, and by 28.8 per cent in going from medium to high level. The costs of sugar for the medium and high levels were very much the same and are both more than twice that of the low level. It is rather surprising to find that at the high level .053 cents more was spent than at medium level and .075 cents more than at low level for staples. The fact that baked goods are included in the staples divisions probably accounts to a great extent for this tendency.

The daily amounts per capita for fruits and vegetables at the different levels immediately explains why no expensive foods of this type are possible at low level standards and only a few at medium in comparison to the high level.

3 - Analysis of expenditures within food groups.

Comparatively little information is available concerning the analysis of expenditures within food groups and for this reason the data contained in this section of the study were compiled. Detailed analyses of the expenditures of the milk and cream, meat, etc., staples, and fruits and vegetables groups are given.

(a) Milk and cream. The manner in which the milk and cream expenditures were subdivided is significant in showing the limitations of the low level and the possibilities of the other two levels as well as stressing certain likes and disliked of the students.

TABLE 12

DAILY PER CAPITA COSTS OF CLASSIFIED FOODSTUFFS OF DIFFERENT LEVELS

Level	Number Cases	Number Individual Meals	Milk	Meat	Fats	Sugars	Staples	Fruits and Vegetables
			Cost	Cost	Cost	Cost	Cost	Cost
Low	6	673	$.041	$.043	$.020	$.011	$.056	$.085
Medium	6	643	.058	.098	.035	.028	.078	.176
High	6	644	.083	.178	.043	.025	.131	.240

On low level the entire amount spent for foodstuffs of this group was divided between milk and cheese. The medium and high levels included in addition to milk and cheese, cream, ice cream and small quantities of malted, chocolate and condensed milk. The percentage spent for milk at low level was twice that of the medium level and about two and a half times that of high level. However, the actual amounts spent did not vary to any great extent from level to level. The percents and costs of both whipping and coffee cream were very similar for the medium and high levels. The percents spent for cheese of the three levels varied by no more than 1.7 per cent, but the costs were not very similar, the low level being three-fifths of the medium and three-sevenths of the high level. The high level percentage spent for ice cream exceeded the medium by 11.1 per cent, while the high level cost was more than twice that of the medium level. (see table 13). The higher total costs of this group of foodstuffs for the medium and high levels as compared to low were due to the use of coffee and whipping cream, more expensive cheeses, and ice cream and not to an increased consumption of milk or cheese. This confirms the opinion that when more money can be spent it will be spent for the above mentioned foodstuffs and not for greater quantities of the required milk.

More milk was used on low level than on either medium and high levels because soups, cream dishes, and puddings having milk foundations are frequently part os a low level menu. (see table 14).

The relationship between the cost per pound and the number of

TABLE 13

PERCENTAGE EXPENDITURES AND COSTS OF FOODSTUFFS INCLUDED IN THE MILK, CREAM AND CHEESE GROUP FOR INDICATED NUMBER OF INDIVIDUAL MEALS

January - May 1933

Level	Number Cases	Number Individual Meals	Milk		Coffee Cream		Whipping Cream		Cheese		Ice Cream		Unclassified		Total	
			$	%	$	%	$	%	$	%	$	%	$	%	$	%
Low	4	433	4.40	82.4	--	--	--	--	.94	17.6	--	--			5.34	100.
Medium	4	432	3.77	41.3	.86	9.4	1.16	12.7	1.61	17.6	1.58	17.3	.16	1.7	9.14	100.
High	4	432	3.60	31.0	1.10	8.7	1.04	9.0	2.24	19.3	3.30	28.4	.42	3.6	11.60	100.

TABLE 14

COSTS AND QUANTITIES OF MILK, CREAM, AND CHEESE GROUP FOR INDICATED NUMBER OF INDIVIDUAL MEALS.

January - May 1933

Level	Number Cases	Number Individual Meals	Milk		Coffee Cream		Whipping Cream		Cheese		
			Total Expenditure	Quarts	Total Expenditure	Pints	Total Expenditure	Pints	Total Expenditure	Pounds	Cost per pound
Low	4	433	$4.40	74	$ --	--	$ --	--	$ .94	8.5	$.11
Medium	4	432	3.77	62.8	.86	7.2	1.16	5.7	1.61	7.34	.219
High	4	432	3.60	60	1.10	9.1	1.04	5.2	2.24	5.62	.398

pounds of cheese used at different levels emphasizes the use of the more expensive cheeses on the higher levels. The cheese used at low level was just half as costly per pound as that used on medium level and only a fourth as expensive as the cheese of high level. The amount of cheese used decreased as progression was made from low to high level.

(b) Meats, fish, eggs, etc. That a greater variety, larger quantities and more expensive meats, fish, fowl, and nuts were included on the medium than on the low level and on the high than on medium level is evidenced by the data of tables 15 - 16 - 17.

In the case of all three levels approximately half of the total expenditures for protein foods was spent for muscle meats. The percentage ranged between 46.7 per cent and 50.7 per cent, the medium level being the smallest and the high level the greatest. Next in importance to muscle meats at the low level were eggs, followed by vital organs, fish, and nuts. The divisions of the medium level arranged in order of amounts of expenditures were: muscle meats, fish, eggs, vital organs, fowl and nuts. The divisions of the high level arranged in order of amount of expenditures were: muscle meats, fish, eggs, vital organs, nuts, and fowl. (see table 15) To give variety rather than for any other specific reason veal is required only on medium level and lamb only on the high level. The only requirements existing for the use of vital organs is for liver at high level. However table 15 shows definitely that this type of protein food was included at all three levels, which indicates a preferance for liver, heart, etc.

TABLE 15

PERCENTAGE EXPENDITURES AND COSTS OF FOODSTUFFS INCLUDED IN THE MEAT, FISH, NUT AND EGG GROUP FOR INDICATED NUMBER OF INDIVIDUAL MEALS
January - May 1933

Level	Number of Cases	Number of Individual Meals	Beef		Pork		Veal		Lamb		Total of muscle meats		Vital Organs		Fish		Fowl		Eggs		Nuts		Total	
			Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%
			$								$								$					
Low	4	433	2.68	38.0	$.75	10.6	--	--	--	--	3.43	48.6	$.73	10.4	$.45	6.4	--	--	2.20	31.2	$.24	3.4	$7.05	100.
Medium	4	419	2.14	13.6	2.85	18.1	2.37	15.0	--	--	7.36	46.7	1.57	9.9	2.64	16.7	.95	6.0	2.55	16.2	.71	4.5	15.78	100.
High	4	432	7.02	26.5	2.80	10.6	--	--	3.60	13.6	13.42	50.7	2.18	8.2	4.64	17.5	1.14	4.3	3.69	14.0	1.39	5.3	26.46	100.

TABLE 16

COSTS AND QUANTITIES OF FOODSTUFFS INCLUDED IN THE MEAT, FISH, NUT AND EGG GROUP FOR INDICATED NUMBER OF INDIVIDUAL MEALS. January - May 1933

Level	Number Cases	Number Individual Meals	Beef		Pork		Veal		Lamb		Vital Organs		Fish: Fresh		Fish: Canned		Fowl		Eggs		Nuts		Total		
			No. lbs.	Cost per lb.	No. lbs.	Cost per lb.	No. lbs.	Cost per lbs	No. lbs.	Cost per lb.	No. lbs.	Cost per lb.	No. lbs.	Cost per lb.	No. lbs.	Cost per lb.	No. lbs.	Cost per lb.	No. dozen	Cost per dozen	No. lbs.	Cost per lb.	Meat Fish Fowl Nuts lbs.	Eggs dozen	Cost of all $
			#	$	#	$	#	$	#	$	#	$	#	$	#	$	#	$	doz.	$	#	$			
Low	4	433	20.8	.129	4.	.187	--	--	--	--	6.2	.118	--	--	3.	.15	--	--	14.5	.152	1.2	.20	35.2	13.8	7.05
Medium	4	432	10.5	.204	15.4	.185	9.9	.24	--	--	6.7	.235	10.8	.217	1.4	.214	4.8	.198	15.4	.166	1.5	.473	61.0	15.4	15.78
High	4	432	23.8	.295	10.7	.262	--	--	12.5	.288	5.5	.396	5.0	.39	5.5	.49	5.7	.20	15.5	.238	4.2	.33	72.9	15.5	26.46

TABLE 17

TOTAL QUANTITIES AND AVERAGE COST PER POUND OF MEAT, FISH AND FOWL GROUP. January - May 1933

Level	Number Cases	Number Individual Meals	Meat		Fish		Fowl		Total	
			Total Pounds	Average cost per pound	Total Pounds	Average cost per pound	Total Pounds	Average cost per pound	Pounds	Average cost per pound
Low	4	433	31.0	.144	3.0	.15	---	---	34.0	.136
Medium	4	432	42.5	.210	12.2	.216	4.8	.198	59.5	.210
High	4	432	52.5	.297	10.5	.44	5.7	.200	68.7	.311

Indicative of the limited amounts of rather inexpensive protein foods possible at low level in comparison to the medium and high levels are the data of table 17. For the same number of individual meals approximately three-fifths as many pounds of meat and fish were used on low level as on medium, and one half as many pounds as on high level. The average cost per pound varied considerably between each two levels that of the medium level being 7.4 cents more per pound than that of the low level, and that of the high level exceeding the medium level by 10.1 cents. An even greater variation was found in the average cost per pound of the fish used on the three levels. The medium level cost per pound exceeded the low level by 6.6 cents and the high level cost per pound exceeded the medium by 22.4 cents. Canned salmon was the only type of fish used at low level. A likeness rather than a contrast was shown when the costs and quantities of fowl used at medium and high levels were compared. No fowl was used at low level.

The fact is, therefore, evident that through choice rather than requirement the tendency was to consume larger quantities and more expensive meats, fish and fowl as soon as such was possible. The quantities and qualities of meat used at medium level must more nearly satisfy the preference for meat than do those of low level for the increase in both were less between medium and high levels than between low and medium levels. When total pounds of meat, fish, fowl and nuts for the three levels were compared a seventy-three per cent increase was found in going from low to medium, while only a nineteen per cent

increase was made between medium and high levels. When total costs of all foods included in the meat, etc. classification was made there was found a 123 per cent increase from low to medium level compared to a 67 per cent increase from medium to high levels.

(c) Staples. The foodstuffs included in the staples group were baked goods, crackers, macaroni, all types of cereals, flour, coffee, tea and food accessories. The facts brought out in table 18 concerning the foregoing foods give tendencies and trends typical of the levels represented.

In the case of baked goods the percentage distributions and costs increased as progression was made from low to high level. The macaroni, etc. group gave a similar trend. Canned noodles, for the preparation of chop suey, were used at high level and not macaroni. This fact accounts for the comparatively large expenditure for this division of foodstuffs at high level. The food accessories, and coffee and tea divisions increased in costs and decreased in percentages in going from low to high level. At all levels the greatest percentages of the staple expenditures were spent for baked goods with the food accessories, and coffee and tea divisions occupying second and third places, and those for prepared cereals being the least important. In fact nothing was spent at low level for prepared cereals.

The amounts spent for coffee and tea at the different levels indicate that smaller quantities of cheaper coffee and tea were used on low level than on either medium or high level. Both costs and percents for coffee and tea expenditures were very much the same at medium and high levels.

TABLE 18

PERCENTAGE EXPENDITURES AND COSTS OF FOODSTUFFS INCLUDED IN THE STAPLES GROUP

Level	Number Cases	Number Individual Meals	Baked Goods		Crackers		Noodles Macaroni etc.		Prepared Cereals		Flour & Other Cereals		Food Accessories		Coffee Tea		Total	
			Cost	Per Cent	Cost	Per Cent	Cost	Per Cent	Cost	Per Cent	Cost	Per Cent	Cost	Per Cent	Cost	Per Cent	Cost	Per Cent
Low	3	319	$.97	25.5	$.11	2.9	$.29	7.7	--	--	$.75	19.7	$.94	24.7	$.74	19.5	$ 3.80	100.
Medium	3	317	2.71	35.0	.78	10.1	--	--	$.40	5.1	.82	10.6	1.82	23.6	1.21	15.6	7.74	100.
High	3	339	4.96	47.9	.52	5.0	1.33*	12.8	.24	2.3	.37	3.6	1.48	14.3	1.46	14.1	10.36	100.

* This amount was spent for canned noodles.

TABLE 19

DETAILED ANALYSIS OF EXPENDITURES FOR BAKED GOODS

Level	Number Cases	Number Individual Meals	Baked Goods					
			Plain Bread		Plain Rolls		Other Baked Goods	Total
			Number Loaves	Cost	Dozens	Cost	Cost	Cost
Low	3	319	11.	$.58	6	$.34	$.05	$.97
Medium	3	317	12.5	.94	2	.39	1.38	2.71
High	3	317	12.1	1.12	5.6	1.10	2.40	4.62

Baked Goods -

An analysis of the baked goods division discloses certain practices of the three levels. The amount of money spent for practically the same number of loaves of bread shows that the higher levels paid more per loaf than did the lower levels. The costs per loaf were: at low level 5.2 cents, at medium level 7.4 cents and at high level 9.2 cents or an approximate two cent increase per loaf in progressing from low to medium to high levels.

While both low and high levels used the same number of rolls those at low level cost 5.6 cents per dozen and those at high and medium levels nineteen cents per dozen. Only a third as many rolls, however, were used at medium level as on either of the other two levels. (see table 19).

Other baked goods included cookies, cakes, meringues, pecan rolls, nut breads, etc. The amount spent at low level for such was almost negligible. The costs for this type of foodstuff practically doubled in going from medium to high level. Nearly all of the foodstuff included in this group were purchased at the food shop previously mentioned in this study.

When total amounts spent for baked goods were considered there was a 55.7 per cent increase from low to medium level and a 70.4 per cent increase from medium to high level.

It is evident from the foregoing discussion that the low level was limited in the amount spent for goods baked outside the home and that the tendencies of students living on the two higher levels were to buy more baked goods of a higher quality as far as practicable.

(d) Fruits and vegetables. A division of the fruit and vegetable group into the classification shown in table 20 brought out rather interesting facts. At all three levels the percentages of the various totals spent for fresh fruits were very similar. Two and six-tenths per cent more was spent at medium than at high level and 2.8 per cent more than at low level. The percentages expended for canned fruits varied only 2.1 per cent between the high and low levels, the high level being the greater of the two. Five times as much was spent for canned fruits at medium level than at the low and almost twice as much at medium than at high level. Of the dried fruits the largest percentage was spent at low level, it being more than twice that of the high and between three and four times that of the medium level. The total fruit percentages of the three levels show a greater variation between the medium and high levels than between any other two. The percantage of the medium level exceeded the high by 9.3 per cent and the low by 7.7 per cent. There is no reason known to account for this fact.

A smaller percentage was spent for fresh vegetables at the medium level than at the low. The high level percentage for this group of vegetables was 12.3 per cent greater than the medium and 7.5 per cent greater than the low level percentage.

The expenditure for canned vegetables decreased in going from low to high levels, all three levels ranged between 12 per cent and 23.8 per cent. For dried vegetables the smallest percentage was spent at high level and the largest at low level. The total percentage expenditures for vegetables for the three levels ranged between one-half and two-thirds of the total amounts for fruits and vegetables.

TABLE 20

PERCENTAGE EXPENDITURES AND COSTS OF FOODSTUFFS INCLUDED IN THE FRUIT AND VEGETABLE GROUP FOR INDICATED NUMBER OF INDIVIDUAL MEALS
January - May 1933

Level	Number of Cases	Number of Individual Meals	Fresh Fruits		Canned Fruits		Dried Fruits		Fresh Vegetables		Canned Vegetables		Dried Vege tables		Totals							
															Pickles and etc.		Fruits		Vegetables		Grand	
			Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%	Cost	%
			$		$		$		$		$		$		$		$		$		$	
Low	6	643	2.76	21.6	.72	5.6	.92	7.2	4.91	38.4	3.04	23.8	.43	3.4	--	--	4.40	34.4	8.38	65.6	12.78	100.
Medium	6	643	6.47	24.4	4.16	15.6	.55	2.1	8.91	33.6	4.93	18.5	.12	.5	1.38	5.3	11.18	42.1	13.96	52.6	26.52	100.
High	6	644	7.73	21.8	2.70	7.7	1.15	3.3	16.27	45.9	4.29	12.0	.11	.3	3.20	9.0	11.58	32.8	20.67	58.2	35.45	100.

TABLE 21

COMPARISON OF QUANTITIES AND TYPES OF FRESH FRUITS FOR DIFFERENT LEVELS
January - May 1933

Level	Number of Cases	Number of Individual Meals	Grapefruit	Oranges	Lemons	Bananas	Apples	Rhubarb
			Number	Number	Number	Number	Pounds	Pounds
Low	4	433	---	35	3	32	15	6.5
Medium	4	432	24.7	81.4	15.5	28.8	17.5	5.1
High	4	432	21	42	17	13	8.5	2

The percentage expended for pickles, olives, and potato chips was 9 per cent for high and 5.3 per cent for medium with nothing for low level. The low level probably will not permit such if the nutritional requirements for the essential fruits and vegetables are to be met.

Even though the percentage of the low level spent for fresh fruits was very similar to that of the high level, the actual amounts were very different. For the same number of individual meals $2.76 was spent at low, $6.47 at medium and $7.73 at high level. No regular progression was found in going from low to high levels in amount spent for canned fruits as is shown in table 20. The costs for dried fruit were as irregular as those for canned fruits. The largest amount was spent at high level and was $1.15 or 43 cents more than was spent at low level and 60 cents more than was spent at medium level. This comparatively large amount at the high level can be accounted for by the fact that two of the cases used were those for the period just prior to Christmas and rather expensive dried fruits were included at that time. Such costly dried fruits were not used on either of the other two levels.

The amounts spent for fresh vegetables practically doubled in going from low to medium and from medium to high levels. The costs of the canned vegetables for the three levels were more similar than costs of any other class, the range being between $3.04 and $4.93 with the least spent at low level and the most at medium level. The dried vegetable costs were very much as one would expect. Those of the low exceeded the medium level by 31 cents and the high level by 32 cents. The actual costs of the pickles, etc. had much the same relationship

as did their percentage expenditures in that the high level cost was almost twice that of the medium level.

It is interesting to note that the total amounts spent for fruit on low level was a little more than a third of the medium and high level amounts. The total amounts spent for vegetables for the three levels did not show the same relationship as those for fruit. The low level costs were practically two-thirds of that of the medium level and two-fifths of that of the high level. The grand totals of costs for the fruit and vegetable division evidensed very marked increases as progression was made from low to high levels. There was 107 per cent increase from low to medium level and 33.6 per cent increase from medium to high. These per cents undoubtedly indicate that the medium level allowed to a great extent the desired amounts of fruits and vegetables while low level did not.

A comparison of the types of fresh fruits used at different levels discloses these facts: no grapefruit was used at low level while a similar number of such was used at medium and high levels; all three levels used oranges but by far the greatest number was used on medium level. That the number instead of pecks or pounds of oranges was given may to some extent account for the wide variation of the medium from the other two levels. The low level expenditure was not great enough to allow as extensive use of any of the citrus fruits as were the expenditures for medium and high levels. Bananas, rhubarb, and apples as the inexpensive fresh fruits explains why greater quantities of them were consumed at the low and medium levels than at high level. (see table 21).

CHAPTER IV

DISCUSSION

Though only one study based upon the same type of data as this one has been found by the author it was thought worthwhile to select for comparison other studies comparable with the patterns of food expenditures of the three levels of this investigation. It is realized that the majority of the studies cited are of typical family groups and, therefore, different from this one. With that difference in mind comparisons were made.

Tables 22, 23 and 24 contrast the general average patterns of food expenditures for each of the three levels of this investigation with similar patterns of comparable studies and with certain suggested standards.

The study made by Houghteling[1] depicts a pattern of food expenditures for the family of an unskilled workingman. Only in the cases of the sugar and fat percents does it not differ widely from pattern of low level of this study. In the Houghteling pattern much less is spent for milk, and fruits and vegetables while a great deal more is spent for meat, etc., and staples than is in the pattern for low level of this study. Recalling that the pattern of this investigation is for a group of women and that the Houghteling one included workingmen the differences pointed out are not so surprising.

The Gross[2] study of 1927 gives a decrease of 5 per cent in the

1 - Leila Houghteling. The Income and Standard of Living of Unskilled Laborers. (University of Chicago Press, 1927) Appendix D.
2 - "Economics of Food Costs in a Practice House" Journal of Home Economics 20 (1928) 22 - 23 - 24.

TABLE 22

COMPARISON OF PERCENTAGE PATTERNS AT LOW LEVEL OF CLASSIFIED FOODSTUFFS

Items	Average of 90 Cases	Houghteling 54 Chicago Laborers Families	Gross' 1927 Study	Gillett's Suggested Standard
Milk - Cream	18.0	10.9	13.0	20 or more
Meat, etc.	21.3	32.0	19.0	20 or less
Fats	11.5	8.3	10.0	)
Sugars	4.1	3.7	6.2	)40 or less or more
Staples	13.9	26.8	25.3	)
Fruits - Vegetables	31.2	18.3	25.8	20 or more
	100.0	100.0	100.0	100.0

milk and cream percentage as compared to the same percentage of the pattern of food expenditure for the low level of this study. The variations for meats, fats, and sugars, between the two patterns, do not in any case exceed 2.3 per cent. The staples percentage of the Gross pattern is 11.4 per cent greater than that of this study while the fruit and vegetables percentage is 5.4 per cent less. The increase for fruit and vegetables can be accounted for by the fact that records used in the Gross study were those of the year 1927 which was prior to the time that the fruit and vegetable requirements previously mentioned were made. The limited number of cases used in the Gross study may to some extent account for the other variations just cited.

The pattern for low level of food expenditures of this investigation compares rather favorably with Gilletts[1] suggested standards. The milk per cent varies by 2 per cent, the meat by 1.3 per cent, the sugars, fats, and staples (grouped together) by 10.5 per cent, and fruits and vegetables by 11.2 per cent from the suggested standards. The 10.5 per cent variations is less than that of Gillett's standard and the 11.2 per cent is greater. These are both variations in the proper direction and no doubt indicate that the meals for low level were wisely planned.

Several more patterns of food expenditures comparable with the one for medium level of this study are to be found than for patterns of either of the other two levels.

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[1] - Henry C. Sherman, Chemistry of Food and Nutrition, p. 527.

Sherman's[1] pattern of food expenditures of costs in 226 American dietaries is comparatively typical of food consumption through out the United States. It is representative of the different income levels and of both urban and rural dietaries. The milk and fruit and vegetable percentages are less while those of the meat and staples are greater than the percentages of the pattern of food expenditures for medium level of this study. The sugar percentages of the two patterns are identical and only a .3 per cent difference exists in those for fats.

The Woodruff[2] study is of a single Kansas family of the professional class. In every instance, with the exception of fruits and vegetables, the percentages of the Woodruff pattern are slightly higher than those of the pattern of food expenditures for the medium level of this investigation. The fruit and vegetable percentages differ by 12.5 per cent that of the pattern of medium level being greater than of the Woodruff study.

Achinstein's[3] report of 400 families seems more nearly to resemble the medium than low level pattern of food expenditures. This resemblance is no doubt accounted for by the fact that Achinstein's study represents food expenditure of incomes from less than $1000 to $5000 and over. It is a composite picture of all the types of families in the amalgamated experiment. The families were, however, principally of Jewish origin.

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1 - Henry C. Sherman, Chemistry of Food and Nutrition, p. 524.
2 - Sybil Woodruff, "A Dietary Analysis", Journal of Home Economics, 20, 414 (1929).
3 - Asher Achinstein, The Standard of Living of 400 Families in a Model Housing Project - The Amalgamated Housing Corporation. Report of State Board of Housing State of New York (July 20, 1931) p. 44.

The greatest differences when the Achinstein study is contrasted with the medium level pattern of food expenditure of this study and shown in the meat, and staples percentages, those of the Achinstein being the higher. The fats, sugar and fruit-vegetables per centages are all higher in the medium level pattern of food expenditure of this study than those of Achinstein's study. These differences range between 3.4 per cent and 5.3 per cent.

The 1924 Amsterdam[1] study represents a food expenditure pattern derived from dietaries of 212 families of the medium income level. The milk percentage of the Amsterdam pattern is somewhat lower, while the percentages for meats, fats, and sugars are higher than those of this investigation. The percentage for staples is almost twice as great and that of fruits and vegetables just half that of similar percentages of the pattern of food expenditures for the medium level of this study. The 1930 Amsterdam[2] pattern of food expenditures differs from the medium level food expenditure pattern of this investigation in much the same manner as does the 1924 Amsterdam pattern. There are, however, greater differences in the cases of milk and fruits and vegetables, and smaller ones in the meat, etc., fats, and sugar percentages.

The Luck and Woodruff[3] study of the professional class families of Berkeley, California more closely ressembles the pattern of food expenditures for the medium level in this study than do any of the other five

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1 - J. M. Meulenhoff - Comptes dee Menage de 212 Families de Differente Position Social (1927) 59.
2 - "Family Budget Survey in the Netherlands". Monthly Labor Review 36, 1205, 1933.
3 - Mary G. Luck and Sybil Woodruff - Cost of Living Studies III, p. 261.

TABLE 23

COMPARISON OF PERCENTAGE PATTERNS AT MEDIUM LEVEL OF CLASSIFIED FOODSTUFFS 6

Items	Average of 90 cases for medium level	Sherman's 224 American Dietaries	Woodruff Single Kansas Family	Achinstein's Report of 400 Families	Gross 1927 Study	1924 Amsterdam Study 212 Families	1930 Amsterdam Study 19 Families	Luck Woodruff study of 9 Families	Jaffa estimate for professional class	Morgan estimate for professional class
Milk - Cream	14.2	10.6	18.0	13.4	11.0	12.7	10.6	17.3	11.4	16.7
Meat, etc.	25.1	37.7	27.9	32.4	27.8	21.3	26.9	23.3	24.9	34.1
Fats	9.2	9.5	11.0	5.8	11.7	14.1	13.9	8.9	10.5	14.7
Sugars	4.6	4.6	5.9	.8	4.6	6.0	3.7	4.0	2.2	1.9
Staples	13.5	21.8	15.7	18.8	15.2	28.4	28.4	17.1	35.8	12.9
Fruits-Vegetables	33.4	15.8	20.9	28.8	29.4	16.2	13.6	29.4	15.2	19.7
	100.0	100.0	100.0	100.0	100.0	98.7	97.1	100.0	100.0	100.0

studies previously discussed. The smallest variation between the two patterns is .3 per cent and the greatest is 4 per cent.

As on low level the medium level percentage for milk and cream of the Gross[1] study is less than that of the pattern of food expenditure for the medium level of this study. The variations for meat [illegible] etc., fats, sugars and staples are comparatively small. The fruit and vegetable percentage of this study exceed that of the Gross study by 4.0 per cent. The same factors which caused the variations between the two low level patterns no doubt caused the variations just cited for the medium level patterns.

Quoting from the Luck and Woodruff study[2] this criticism is made of the Jaffa and Morgan balances, "The distribution of costs in Jaffa's food plan for a professional class family is affected by the allowance of one-fourth of the entire cost for sundries and extras. If this is reduced to not more than 5 per cent, as the Berkeley experience suggests, the distribution of costs will differ but slightly from those of the Morgan budget, The prices assigned to milk products, vegetables, and sweets in Morgan and Jaffa budgets were based on cheaper items than those habitually used by the Berkeley group. The use of cod liver oil in Morgan's budget increases the proportional costs of fats."[3] Dismissing these technical divergences it is evident that medium level pattern of food expenditure of this study quite closely resembles the Jaffa and Morgan estimates except in the case of the Morgan estimates for meat and fruits and vegetable.

1 - "Classified Food Costs in a Practice House". Journal of Home Economics, 20: 22-23-24, 1928.
2 - Luck and Woodruff - Op. cit. p. 262

By using three cases from the Luck and Woodruff[1] study it was possible to obtain another pattern of food expenditure comparable with the one for the high level of this investigation. With the exception of sugars, and the fruits and vegetables percentages those of the Luck-Woodruff pattern exceed those of the pattern for the high level of this study. The variations between the two studies range between 1.2 per cent and 10.4 per cent. The greatest variation is between the fruit and vegetables percentages.

The pattern of food expenditure for the high level of the Gross[2] study very closely resembles the high level pattern of this study. Other than the variations in the case of fats and sugars they are all very small. It is interesting to observe that the meat, etc. and fruit and vegetable percentage of the patterns for high level of both this study and the Gross study are identical. Here, too, as for the low and medium levels, the size of the sample of the Gross study in comparison to the size of the sample of this study may account for the variations existing between the two patterns.

One difference is outstanding in the food expenditure patterns of all three levels of this study as compared to similar patterns of other studies. The fruit and vegetable percents are higher for the patterns of this study than are those of the studies quoted. There is also a tendency for the meat and staple percentages of the patterns resulting from this investigation to be lower than similar percentages of other studies.

1 - Luck and Woodruff - op. cit. p. 259.
2 - Journal of Home Economics, 20: op. cit. 23.

TABLE 24

COMPARISON OF PERCENTAGE PATTERNS AT HIGH LEVEL OF CLASSIFIED FOODSTUFFS

Items	Average of 90 Cases	Luck Woodruff Study 3 Families	Gross 1927 Study
Milk - Cream	10.5	15.9	9.5
Meat, Etc.	29.0	32.7	29.0
Fats	6.9	7.2	11.2
Sugars	4.9	2.7	5.0
Staples	14.5	15.7	13.2
Fruits - Vegetables	34.2	23.8	34.1
	100.0	100.0	100.0

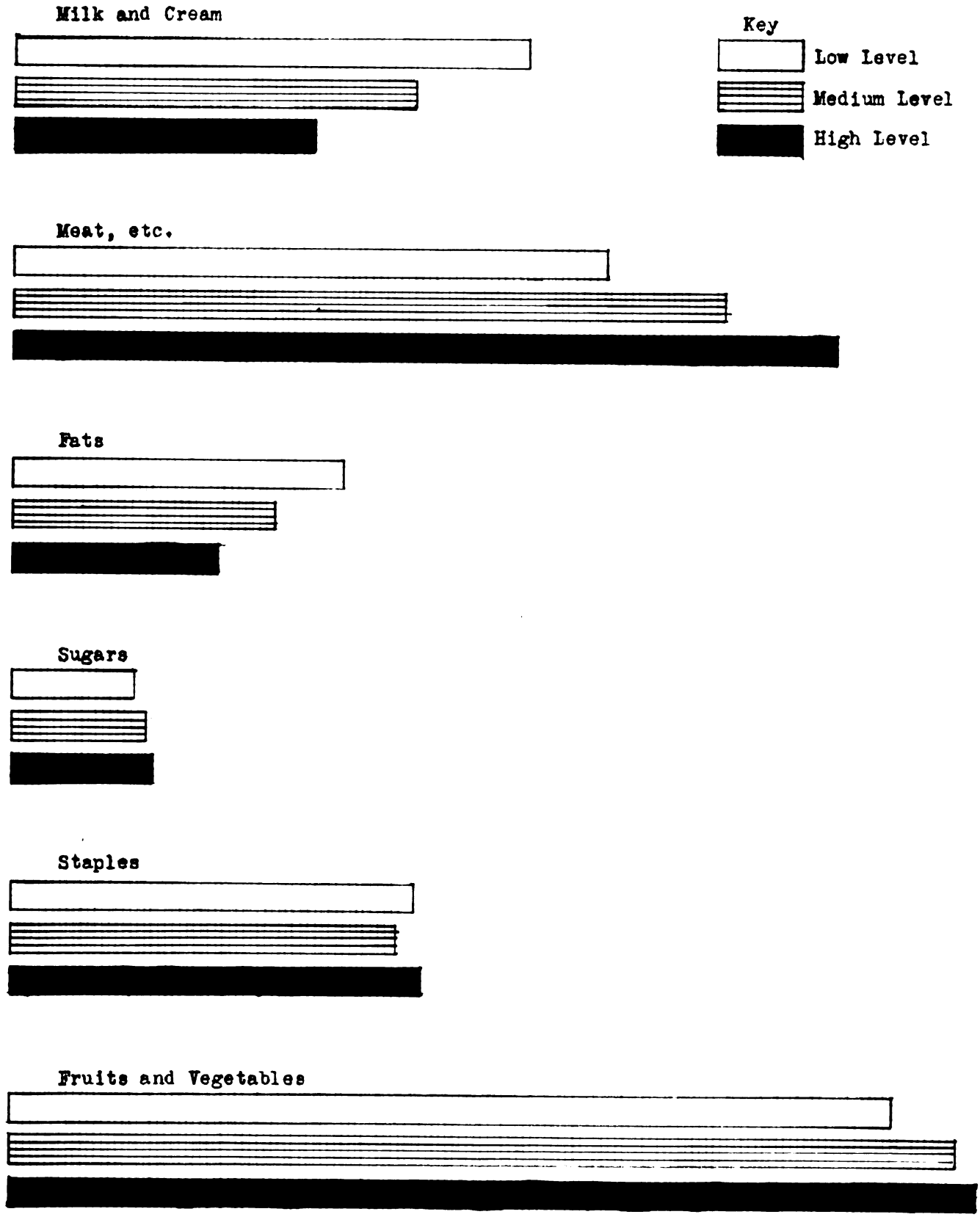
To give a clearer picture and one easily grasped of the general patterns of food expenditures for the three levels represented in this study figure 1 was made. It brings out definitely the similarities of the percentages expended for staples and for sugars at the three levels, the rather gradual decrease in percentages for fats and the gradual increase in those spent for fruits and vegetables as progression was made from low to high levels, the more marked decrease of the percentages expended for milk and cream and the more marked increase in those expended for meats, etc. in going from low to high levels.

The findings of this study have shown several rather unusual facts and also one which differs decidedly from the findings of any study known to the author. The last mentioned is the unusually large percentage expended for fruits and vegetables at the three levels. In none of the studies was there found the analysis of meats, etc. into a group consisting solely of muscle meats. The result of this grouping brought out the fact that almost half of the total amount spent for the protein foods was spent for muscle meats. This was true for all levels.

The analysis of the baked goods expenditure included in the staples division discloses the limitations of a low level expenditure in the practice of purchasing baked goods other than plain breads and rolls and the possibilities at medium and high levels for purchasing a very large proportion of baked goods used.

In concluding this fact is significant: The patterns resulting from this investigation are semi-directed ones or compromise patterns between the desires of students and certain nutritional requirements as checked by the instructor.

FIGURE 1 - COMPARISON OF AVERAGE PERCENTAGE EXPENDITURES OF CLASSIFIED FOODSTUFFS



CHAPTER V

SUMMARY OF FINDINGS AND CONCLUSIONS

The patterns of food expenditure and other data given in this study were obtained from records kept at the home management houses of Michigan State College during the period 1922-33. Three levels of living were represented - low, medium, and high. During the earlier part of the period the only nutritional requirement was a pint of milk per person per day. The fall of 1931 these additional requirements were made: 2 servings vegetable besides potatoes per person, 2 servings fruits, 1 serving whole grain cereal, and 1 egg.

An analysis of the general average patterns of food expenditure for the three levels brings out certain definite trends concerning the milk and cream, meat, etc., and fat percentages. The milk and cream and fat percentages decreased in going from low to high level while those for meat, etc. and fruits and vegetables increased. In the case of the meats and fruits and vegetables a preference for better quality, greater variety, and larger quantities was shown as progression was made from low to medium levels, i.e. for the same number of meals 34 pounds of meat were used on low level at cost of $4.62, 59.5 pounds were used on medium level at a cost of $12.50, and 68.7 pounds were used at high level at a cost of $21.36. The low level permits just the fulfillment of the nutritional requirements for fruits and vegetables while the medium and high level expenditures permit greater variety and larger quantities. The increases in both meat, etc. and fruits and vegetables at medium and high levels were probably due to choice. Sugars and staples fluctuated between the levels with no definite trend indicated.

The percentages for sugar of the three levels were very much alike all being between 4.1 per cent and 4.9 per cent. Contrary to popular opinion the staple percentage for high level was higher than that of either the low or medium level, probably due to the fact that the baked goods expenditure at higher levels was much greater than at low level.

The relative importance of the various classes of foodstuffs included in the pattern of food expenditure was very much the same for the three levels. Arranged in order of importance they were: fruits and vegetables, meat and etc., milk, staples, fats, and sugars. In the case of the high level staples were listed before milk.

The institution of more definite nutritional requirements caused these changes for the three levels: meat percentages decreased while the percentages for staples and fruits and vegetables increased. For medium and high levels the percentages for fats and sugars decreased. Due to the previous existence of the requirement of 1 pint milk per person per day the milk percentages fluctuated just slightly.

When cheese was listed with milk instead of meat the anticipated increase in the milk percentage and decrease in the meat percentage did not occur. Due to a 20 per cent reduction in the retail prices of milk and coffee cream and a 33 per cent in that of whipping cream, and only a 15 - 17 per cent decrease in the retail prices of meat, the milk percentages either remained the same or dropped, while those of meat increased at low and medium levels and decreased at low level.

The most significant fact obtained from the data when baked goods other than bread were listed separately instead of with staples was the wide range for this expenditure of the three levels. The low level

percentage for baked goods was practically nil while that of the medium was three times the low and the high level expenditure seven times that of the low level. The total allowances of the higher levels permit this practice without lowering the nutritional standards and, perhaps, due to the time element the students prefer to purchase some baked goods.

The seasonal comparison of percentage expenditures confirms popular opinion. The percentages for meat and fats were less during the summer than in winter months while those for staples and fruits and vegetables were greater.

The data resulting when a study was made to determine the effect if any of the size of the group upon the pattern of food expenditures were such that no trends were indicated. The larger groups, however, spent less for fruits and vegetables and more for fats than did the smaller groups.

The check made to determine the accuracy of the general average pattern verifies the fact that the pattern of food expenditure for low level is less accurate than either the medium or high level patterns. Nevertheless, the relative importance of the different classes of foodstuffs was the same in the three patterns of each of the three levels. (see table 5C).

The comparison for the three levels of the daily per capita costs of the various foodstuffs were as follows: for milk the low and medium levels very similar while the high level cost was twice that of the low; the meat costs doubled each time in going from low to medium to high

level; the cost of fats increased 75 per cent from low to medium and 28.8 per cent from medium to high; the costs for sugar were similar at medium and high levels and the low level cost was practically one-half the medium level; for staples there was a 39 per cent increase from low to medium and a 68 per cent increase from medium to high level; for fruits and vegetables there was a 107 per cent increase from low to medium level compared to a 37 per cent increase from medium to high. It might be said that the medium level allowance permitted the students to purchase the types and quantities of the good they desired, while the low level did not. This assumption is supported by the fact that the increases between low and medium levels were practically always greater than those between medium and high levels.

The analysis of the milk and cream classification brought out certain interesting practices. Only milk and the inexpensive cheeses were used on low level, while the medium and high levels included milk, more expensive cheese, cream and ice cream. The cheese increased in cost and decreased in amount in going from low to high level. The largest quantities of milk were used at low level. A significant fact is that the extra money spent at medium and high levels was not spent for milk but for the other foodstuffs of this group.

At all three levels nearly half of the money spent for meats, fish, fowl and eggs was spent for muscle meats. Through preference the tendency was to increase the amount and the quality of meats used to the extent the money expended would allow. The quantities and qualities of meat at medium level, however, more nearly satisfied the desire for

meat than did the low level for the increase in percentage between low and medium level far exceeded the increase between medium and high level in the case of both total cost and quantities. The total pounds used increased by 73 per cent and by 19 per cent respectively. Total costs increased by 123 per cent and 67 per cent respectively, from low to medium to high level.

In the staples division at all three levels the largest percentage was spent for baked goods including bread, which increased in both percentages and costs as progression was made from low to high levels. The food accessory group was the next largest and decrease in percentages but increased in costs in progressing from low to high level. The coffee and tea, flour, and other cereals, crackers, macaroni and noodles, and prepared cereals followed in somewhat the order given.

Between 34.4 per cent and 42.1 per cent was spent for fruits and vegetables at the different levels and between 52.6 per cent and 65.6 per cent for vegetables.[1] That the low level did not permit the use of pickles, olives, and such is evidenced by the fact that nothing was spent for these types of foodstuffs at low level. Here as in other instances greater increases come between low and medium levels than between medium and high levels. A 107.5 per cent increase from low to medium compared to a 33.6 per cent increase from medium to high level was shown for fruits and vegetables. More citrus fruits were used on the higher levels and more bananas, rhubarb, and apples was used on the lower levels.

One very outstanding fact is brought out when the patterns of food expenditure for the three levels of this study were compared with

1 - These percents do not total 100 because the percent spent for pickles and etc. is not included.

comparable studies. The percentages spent for fruits and vegetables were higher than similar percentages of any other study. There was also a tendency, but less pronounced, for the percentages for meats and staples of this study to be lower than those percentages of other studies.

ACKNOWLEDGMENT

The writer wishes to express her sincere appreciation to Dr. Irma H. Gross for her untiring interest and helpful criticisms during the planning and progress of this study.

Appreciation is due also to Dr. Marie Dye for her suggestions.

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APPENDIX

TABLE 25

PERCENTAGE PATTERNS OF FOOD EXPENDITURES FOR SAME LEVEL OF DIFFERENT YEARS

A — Low Level 1922 - 1929

Year	1922-1923	1927	1928	1929	Average for period
Number of Cases	4	3	5	9	21
Items					
Milk - Cream	17.1	13.5	17.5	23.4	18.8
Meat	20.9	17.1	27.1	23.3	22.9
Fats	12.7	17.2	15.3	12.8	14.14.1
Sugar	6.3	8.0	2.9	4.6	5.0
Staples	17.1	21.1	13.6	9.6	14.2
Fruits - Vegetables	25.9	23.1	23.6	26.3	25.00
	100.0	100.0	100.0	100.0	100.0

B — Medium Level 1922 - 1929

Year	1922-1923	1927	1928	1929	Average for period
Number Cases	4	3	5	9	21
Items					
Milk - Cream	11.7	16.5	13.3	16.3	14.5
Meat	28.0	26.7	26.5	25.5	26.6
Fats	13.7	11.6	13.3	11.7	12.5
Sugar	5.6	5.1	4.3	6.5	5.5
Staples	11.4	13.6	11.3	9.6	11.0
Fruits - Vegetables	29.6	26.5	31.3	30.4	29.9
	100.0	100.0	100.0	100.0	100.0

C — High Level 1922 - 1929

Year	1922-1923	1927	1928	1929	Average for period
Number Cases	4	3	5	9	21
Items					
Milk - Cream	10.1	11.8	10.0	12.9	11.3
Meat	29.2	37.5	29.4	27.1	29.3
Fats	10.8	7.3	10.7	9.7	9.9
Sugar	3.9	2.0	3.4	7.6	5.3
Staples	14.9	8.7	12.1	11.9	12.3
Fruits - Vegetables	31.1	32.7	34.4	30.8	31.9
	100.0	100.0	100.0	100.0	100.0

Table 25 - continued

D Low Level 1930 - 1933

Year	1930	1931	1932	1933	Average for period
Number Cases	8	24	28	9	69
Items					
Milk - Cream	19.8	16.8	17.9	18.6	17.8
Meat	19.7	22.4	19.7	18.8	20.7
Fats	10.8	11.9	10.0	9.0	10.7
Sugar	2.9	4.4	3.7	3.6	3.8
Staples	15.2	13.5	13.7	15.1	13.9
Fruits - Vegetables	31.6	31.0	35.0	34.9	33.1
	100.0	100.0	100.0	100.0	100.0

E Medium Level 1930 - 1933

Year	1930	1931	1932	1933	Average for period
Number Cases	8	24	28	9	69
Items					
Milk - Cream	16.1	14.1	13.5	14.2	14.1
Meat	25.8	25.7	23.7	22.5	24.6
Fats	10.2	8.8	7.1	7.3	8.2
Sugar	6.1	3.7	4.3	4.6	4.3
Staples	12.9	14.7	14.5	13.7	14.3
Fruits - Vegetables	28.9	33.0	36.9	37.7	34.5
	100.0	100.0	100.0	100.0	100.0

F High Level 1930 - 1933

Year	1930	1931	1932	1933	Average for period
Number Cases	8	24	28	9	69
Items					
Milk - Cream	12.7	9.7	9.9	11.4	10.3
Meat	29.7	30.0	28.3	26.6	28.9
Fats	8.0	7.0	4.8	5.4	6.0
Sugar	4.1	5.9	3.6	6.2	4.8
Staples	13.5	13.9	16.6	15.1	15.1
Fruits - Vegetables	32.0	33.5	36.8	35.3	34.9
	100.0	100.0	100.0	100.0	100.0

TABLE 26

PERCENTAGE PATTERNS OF FOOD EXPENDITURES FOR DIFFERENT LEVELS OF SAME YEAR

A 1922 - 1923

Number Cases / Items	Low Level 4	Medium Level 4	High Level 4
Milk - Cream	17.1	11.7	10.1
Meats	20.9	28.0	29.2
Fats	12.7	13.7	10.8
Sugar	6.3	5.6	3.9
Staples	17.1	11.4	14.9
Fruits - Vegetables	25.9	29.6	31.1
	100.0	100.0	100.0

B 1927

Number Cases / Items	Low Level 3	Medium Level 3	High Level 3
Milk - Cream	13.5	16.5	11.8
Meat	17.1	26.7	37.5
Fats	17.2	11.6	7.3
Sugar	8.0	5.1	2.0
Staples	21.1	13.6	8.7
Fruits - Vegetables	23.1	26.5	32.7
	100.0	100.0	100.0

C 1928

Number Cases / Items	Low Level 5	Medium Level 5	High Level 5
Milk - Cream	17.5	13.3	10.0
Meat	27.1	26.5	29.4
Fats	15.3	13.3	10.7
Sugar	2.9	4.3	3.4
Staples	13.6	11.3	12.1
Fruits - Vegetables	23.6	31.3	34.4
	100.0	100.0	100.0

Table 26 - continued

D 1929

Items	Low Level	Medium Level	High Level
Number Cases	9	9	9
Milk - Cream	23.4	16.3	12.9
Meat	23.3	25.5	27.1
Fats	12.8	11.7	9.7
Sugar	4.6	6.5	7.6
Staples	9.6	9.6	11.9
Fruits - Vegetables	26.3	30.4	30.8
	100.0	100.0	100.0

E 1930

Items	Low Level	Medium Level	High Level
Number Cases	8	8	8
Milk - Cream	19.8	16.1	12.7
Meat, etc.	19.7	25.8	29.7
Fats	10.8	10.2	8.0
Sugar	2.9	6.1	4.1
Staples	15.2	12.9	13.5
Fruits - Vegetables	31.6	28.9	32.0
	100.0	100.0	100.0

F 1931

Items	Low Level	Medium Level	High Level
Number Cases	24	24	24
Milk - Cream	16.8	14.1	9.7
Meat	22.4	25.7	30.0
Fats	11.9	8.8	7.0
Sugar	4.4	3.7	5.9
Staples	13.5	14.7	13.9
Fruits - Vegetables	31.0	33.0	33.5
	100.0	100.0	100.0

Table 26 - continued

G 1932

Number Cases Items	Low Level 28	Medium Level 28	High Level 28
Milk - Cream	17.9	13.5	9.9
Meat	19.7	23.7	28.3
Fats	10.0	7.1	4.8
Sugar	3.7	4.3	3.6
Staples	13.7	14.5	16.6
Fruits - Vegetables	35.0	36.9	36.8
	100.0	100.0	100.0

H 1933

Number Cases Items	Low Level 9	Medium Level 9	High Level 9
Milk - Cream	18.6	14.2	11.4
Meat	18.8	22.5	26.6
Fats	9.0	7.3	5.4
Sugar	3.6	4.6	6.2
Staples	15.1	13.7	15.1
Fruits - Vegetables	34.9	37.7	35.3
	100.0	100.0	100.0