Nutrition in Haiti: Evidence from the Haiti Household Expenditure and Consumption Survey

Helen H. Jensen,
Stanley R. Johnson, and Gary Stampley

Staff Report 90-SR 52
December 1990

Center for Agricultural and Rural Development
Iowa State University
Ames, Iowa 50011

Helen H. Jensen is associate professor of economics and head of the Food and Nutrition Policy Division, CARD; Stanley R. Johnson is Charles F. Curtiss Distinguished Professor of Agriculture and director of CARD; and Gary Stampley is a CARD research associate.

This report was prepared under Cooperative Agreement No. 58-319R-6-014 between the Office of International Cooperation and Development, U.S. Department of Agriculture and the Center for Agricultural and Rural Development, Iowa State University.

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ABSTRACT

The conditions of widespread hunger and continuing food deficits dominate Haiti's food and agricultural situation. A 1986-87 nationwide survey of household expenditure and food consumption provides new evidence on food sources of energy and protein, and the adequacy of diets in Haiti. The survey data document the importance of cereals and vegetables in supplying food energy and protein. Starchy roots were relatively more important to energy intake in rural areas than urban areas. Rice, bread, oil, and green and dried peas were important food items in contributing to food energy and protein (except for oil). Nearly 50 percent of household members had less than 75 percent of recommended levels of food energy intake; 36 percent had less than 75 percent of the recommended dietary allowance for protein. The most severe nutritional problems appear in rural areas and in the nothern region.

FOREWORD

The Institut Haitien de Statistique et d'Informatique (IHSI), with support from the U.S. Agency for International Development (USAID), implemented a nationwide Household Expenditure and Consumption Survey (HECS) in 1986. Socioeconomic data were gathered to analyze nutrition, welfare, and food pricing policies and other issues related to Title III and to provide IHSI with data to calculate consumer price indexes and national accounts. Data were gathered from November 1986 through September 1987.

The 1986-87 HECS obtained data on food and nonfood expenditures, the value of food consumed from home-produced supplies and from gifts, expenditures on food consumed outside of the home, the use of households in food inventories, and household characteristics, as well as other types of household information. This background paper reports the nutritional status of households based on this survey, focusing on nutrition obtained from food sources. This is one of a series of background, policy, and methods papers produced for the Center for Agricultural and Rural Development, Iowa State University based on the Haiti HECS.

ACKNOWLEDGMENTS

This report and the Haiti Household Expenditure and Consumption Survey (HECS) were possible through the cooperation of several organizations and people who helped to plan, organize, and implement the survey and study. They include Director Louis Smith and other staff of the Institut Haitien de Statistique et d'Informatique; James Walker, Chief of the Office of Economic Analysis, and Giovanni Caprio of USAID/Port-au-Prince; Marjorie Dauphin, resident advisor in Haiti, and other staff from the Bureau of the Census; and Shirley Pryor, Nutrition Economics Group of OICD/USDA.

NUTRITION IN HAITI: EVIDENCE FROM THE HAITI HOUSEHOLD EXPENDITURE AND CONSUMPTION SURVEY

The ability to provide sufficient food is one of Haiti's most pressing problems. Both food balance sheets and nutrition surveys document the widespread hunger and continuing food deficits (Deaton and Siaway 1988). The combination of past studies of Haiti indicates variation in the nutritional adequacy of diets among demographic, economic, and geographic groups. These differences show some groups more at risk for nutritional deficiencies than others.

Despite the need for good information to help identify groups at nutritional risk, relatively little data have been available to substantiate nationwide conditions of food consumption and nutritional status. The most recent nationwide survey, the Haiti Nutrition Status Survey: 1978 (USAID 1979) focused on specific groups at risk—children and mothers.

This report documents the adequacy of diets in Haiti by using a food consumption survey and information on household composition to estimate the adequacy of food within the household. While there are many factors, both food-related and environmental, that determine nutritional outcomes, inadequate diets are a key indicator of groups at nutritional risk.

This report documents major food sources of energy, protein, and other nutrients, as well as the adequacy of diets in Haiti. This information is useful both to identify the extent of nutrition problems in the country, as well as to validate the consistency in nutrition information described in earlier, and often less comprehensive, nutrition surveys.

Previous Studies

Several studies of Haitian food consumption patterns have been designed to measure the nutritional status of the population and selected groups in order to provide insights for the

development of food aid strategies and to determine the extent of nutritional problems. The primary health and nutrition problems in Haiti are protein and calorie deficiencies, and malnutrition, although the absolute measures used to assess the extent of these problems vary both by survey and in methodology. Estimates of per capita calorie intake vary from values of 1580 (Sebrell et al. 1959) to nearly 2200 calories per day in a recent ADS-II agricultural survey.

Two major nationwide food consumption and nutrition surveys, as well as several other smaller studies, have provided current available data on Haitian food consumption patterns (Table 1). All are either out of date, or limited by population surveyed or by small-scale survey design. The two surveys that provide the most useful comparison are Sebrell et al. (1959) and the Haiti Nutrition Status Survey: 1978 (USAID 1979).

The Sebrell et al. survey was a comprehensive field nutrition survey conducted throughout the country in 1958. Dietary histories were collected for part of the sample of 1168 households. The data showed corn, millet, beans, rice, and bread as important in the diet. The study noted a tendency for rice consumption to be overreported and millet to be underreported, due to the social status attached to their consumption. Millet was consumed more than rice in the rural diet. Among other foods milk, mangoes, avocados, and sugar were important. Average per capita daily calorie intake was calculated as 1580 (with no adjustment for intakes by age).

The 1978 USAID sponsored nutrition survey, conducted from June to September 1978, included detailed nutrition information, data on the consumption of food for preschool children, and data on food availability for locally produced and processed foods. This survey showed that almost all categories of foods were available throughout Haiti, although seasonal variation for locally produced goods and high prices may have limited access to some items. Among processed foods oils, sugars, and bread were widely available by regions and in rural areas. Urban-rural consumption differences were marked. Preschool children in rural areas consumed relatively more cereals and tubers (and

more fresh milk) than those in Port-au-Prince; children in urban areas consumed more bread, meat, sugar, and flour. Of course, the preschool children's consumption patterns do not fully describe the food consumption behavior of the overall population.

The Data

The Haiti Household Expenditure and Consumption Survey (HECS), conducted from November 1986 to September 1987, addresses the need for more current data on expenditures, food consumption data, and related nutritional assessment. The survey was conducted by the Institut Haitien de Statistique et d'Informatique (IHSI) with the support of the USAID, the U.S. Bureau of the Census, the U.S. Department of Agriculture, and the Center for Agricultural and Rural Development (CARD) at Iowa State University. IHSI implemented the survey with assistance from the Bureau of the Census. The procedures for this survey are summarized in the *Procedural History*, compiled by the Bureau of the Census (1988).

Survey Design

The unit of observation for the HECS was the household, and the sample was drawn with a two-stage probability sample design from the population of all households in Haiti. The first stage was stratified by geographic areas (four planning areas divided by urban and rural, and Port-au-Prince) and by socioeconomic characteristics (for urban areas by income; for rural areas by ecological zone, which corresponded with socioeconomic characteristics). Initially 312 target enumeration areas (SDEs) were designated, with data to be collected in 13 four-week periods through the year. In the second stage of sampling, 10 households (housing units) were drawn randomly within each SDE. In total, interviews were conducted in 260 SDEs. The survey was cut short after the eleventh period. This report includes data on 216 enumeration areas, providing data for the first nine periods of the survey (Table 2). Data for periods 10 and 11 were collected, but not available for processing at the

time this report was written. Including substitutions, the overall household response rate for the 11 periods was nearly 94 percent (Table 3). From nine periods of data, 2079 households were available for analysis.

The survey was conducted throughout the 11 months. Each household was interviewed four times during a one-week period and asked questions about food expenditures, other expenditures, and other selected information. The interviewer obtained the local market prices for items reported as expenditures in the interview period (i.e., within the SDE). Visits were made to each survey household on Tuesday, Thursday, Saturday, and Sunday.

During each of the four visits, households were asked to report on recalled food expenditures, the value of food consumed from home stocks and gifts, and expenses for food eaten outside of the home. Other information was collected on a predesignated schedule by day of interview. Food inventory information was collected on Tuesday (day l) and Sunday (day 4); nonfood expenses were compiled on Thursday (day 2).

For each period or "month," the data were collected in randomly identified SDEs throughout the country. In effect, each month was a "mini-survey." The interviews that took place throughout the year accounted for a large degree of seasonal variability in consumption and expenditures.

The completed survey instruments were returned to IHSI for checking, key punching, and verification. A preliminary edit program was written for IHSI use, but it was never fully implemented. Instead, the raw data tapes were sent to CARD at Iowa State University for reformatting, editing and range checks, and processing into analytical files. These procedures are described in a report on editing and processing the HECS (Stampley, Jensen, and Johnson 1989).

Weighting

Weights were assigned to each sample household to insure the representativeness of the sample, and to obtain unbiased sample population parameter estimates. For each sample household, the final

weight consisted of the product of the basic sampling weight and an adjustment factor to reflect the changes in the status of the sample household between the stages of listing the household and the interview (Bureau of the Census 1988). The sample within each of nine substrata (five regions, and urban/rural designation) was approximately self-weighting, but varied significantly among the strata. The household weights were adjusted at CARD to reflect the use of nine months' data instead of the originally designed 13 "months." The information presented in this report is from the weighted sample. For all analysis made at the individual (per capita) level, the household weight was multiplied by the number of members of the household to obtain weighted values.

Data Gathered

The HECS questionnaire covered:

- housing characteristics and expenditures;
- general and economic characteristics of household members;
- inventory of food on hand at the (beginning and end of the week);
- food expenditures and value of food produced at home or received as gifts, collected four times a week;
- expenditures for food consumed outside of the household;
- expenditures for nonfood items;
- agricultural production and expenses; and
- health characteristics and expenses.

Quantities of food available to the household were obtained by dividing household expenditures by market prices. Individual food items were grouped into food groups. This report focuses on measures of dietary adequacy evaluated for members of the households based on food consumption patterns. Classification of the estimated individuals in households was by household size, total expenditures, and region and location. Table 4 provides the descriptive statistics on total

expenditures, food budget shares and household size. Table 5 gives the distribution of the surveyed households (and household members) by sociodemographic characteristics.

Household Size. Individual household members included all those who typically lived with the head of the household. Categories were defined according to the total number of household members reported.

Total Expenditures Group. Total expenditures for each household were calculated on an annual basis by summing all reported household consumption expenditures, appropriately weighted to reflect the annual value. The total expenditures were used as a proxy for total income. The data are reported in gourdes, the local Haitian currency, with a fixed exchange rate of 5 gourdes = $1.

Region and Location. Several classifications by region and location were identified, based on the survey stratification categories. The region groups are based on the four planning areas and Port-au-Prince, the capital city:

- North,
- Transversale,
- Ouest (West), not including Port-au-Prince,
- South, and
- Port-au-Prince.

Area locations included two types of designations: "urban" and "rural," as well as "other urban," "Port-au-Prince," and "rural." The two different types of classifications were used because, for many comparisons, the Port-au-Prince patterns were markedly different from the other, smaller urban areas.

Food Groups. The HECS instrument contained 85 prespecified food items as well as space to add others. In total, 265 food items were reported in the survey. The identified food items were

aggregated into 11 food groups. These food groups were based on the structure of IHSI assigned codes:

Meats, poultry, and other meat products (group 06, 07)—all different meats and meat products, and fish and fish products.

Dairy products (part of 05)—milk, cheese, other milk products, and eggs.

Oils and fats (group 05)—cooking oils, margarine, and lard and other grease products.

Cereals and cereal products (group 01)—corn, wheat, rice, millet, and other grain and grain products.

Starchy roots, tubers, and related products (group 02)—root crops and starchy vegetables.

Vegetables (group 03)—fresh vegetables, both dry and green peas, as well as processed vegetable products including tomato paste.

Fruits (group 04)—fresh and processed fruits and juices.

Sugar and sugar products (group 08)—raw sugar, sugar cane, rapadou, honey, and other sweet products.

Miscellaneous and condiments (group 09)—consists of miscellaneous and other food products including condiments.

Beverages (groups 09, 10)—coffee, tea, and other alcoholic and nonalcoholic drinks.

Purchased meals—reported expenditures by all household members of meals and snacks purchased away from home.

The set of food groups covers all reported expenditures for food by the household, the value of food received as gifts, and the value of food produced at home and consumed within the survey week. Households were asked to provide an approximation of the valued food item produced at home or received as gifts. Food group budget shares were calculated as the expenditure or value of the food group divided by the total food expenditure.

Food Quantities. The quantity of food available within the household during the week was calculated using information on the value of food from purchases, gifts, and harvest divided by the market prices reported for the primary sampling unit (SDE) during the week. In this way, quantities

of each food item were calculated associated with standard units of measure such as pounds, liters, or units. The market prices were collected by the survey enumerator in the local market during the time of the corresponding household interviews. Due to the way the information on market prices was gathered, the price observations independent of the household purchase, yet common to all households surveyed within the SDE during the week.

Measures of Food Components

The quantities of food were converted into respective nutrients and other food components using standardized food composition tables (FCT). A food composition table specific to the food commodities in the HECS was compiled using existing food composition tables. The FCT was based primarily on the Bureau of Nutrition Table de Composition d'Aliments pour Haiti (1965). This information was updated as appropriate with information from Boulos (1982) and, for some of the prepared and processed foods, with information from current U.S. Department of Agriculture food composition tables.

Recommended Dietary Allowances (RDA), used as standards for the dietary assessment, were based on standards from the Caribbean Food and Nutrition Institute, Kingston, Jamaica (1979).

Food Sources of Nutrient Intake

Food consumption patterns varied markedly in Haiti. An average of 56 percent of total expenditures were for food. For rural households, food represented 62 percent of total expenditures, compared with 40 percent in urban areas. Mean food expenditures were higher for larger households, those with higher total expenditures, and for those in the west and Port-au-Prince areas (Jensen, Johnson, and Stampley 1990).

Differences in food consumption patterns lead to variation in the availability of nutrients for households. These differences can be seen in comparing the contribution of major food groups and

individual foods to caloric and protein consumption among households of different household size, expenditure group, region, and area.

Contribution from Major Food Groups to Food Energy and Protein

Household members in Haiti derived a major share of food energy from cereals and vegetables (Table 6). These two food groups provided more than one-half of all food energy; other major contributions came from the oils and fats group. Meat and dairy products combined provided slightly more than 5 percent of food energy. The reliance on cereals and vegetables becomes even more apparent when sources of protein are examined in the diet (Table 6). Cereals and vegetables comprised nearly 70 percent of protein sources for Haitians. Animal sources of protein, the meats and dairy products groups (including fish and eggs), contributed less than 20 percent of protein.

Household Size. There was some variation in food group contributions among individuals in households of different sizes for both food energy and protein (Tables 7 and 8). For food energy, there was a tendency for the share from cereals, vegetables, and meat to increase with household size, and the contribution of oils and fats and sugar to decrease. Among protein sources, the contribution of meats tended to increase with household size; the contribution from other groups was more varied. Fass (1988) suggests that economies associated with the use of fuel and energy limit the ability of smaller households to prepare foods themselves. Larger households experience economies of size in cooked meal preparation. This is consistent with the survey evidence that meat represented a relatively more important source of food energy and protein for members of larger households than for those in smaller ones.

Expenditure Group. The level of total expenditure (income) was a factor associated with several differences among the food group contribution to food energy and protein. Although oils and fats, cereals, and sugar remained relatively constant shares of food energy, the contribution from meats including fish increased with total expenditures; and the contribution to food energy from

starchy roots declined (Table 9). Food group shares changed: meat represented an increasing share of protein sources with higher levels of household total expenditures, while the contribution from cereals and starchy roots toward protein declined (Table 10). The contribution of dairy products to protein also increased. Animal products contributed nearly 30 percent of protein for those in the highest income groups (those over 18,000 gourdes per year), less than 15 percent of protein for the nearly 35 percent of the sample in households with total expenditures of less than 6,000 gourdes per year (Table 10).

Region and Location. The regional differences in energy and protein sources appeared both among the five designated regions, as well as by rural and urban classification. Variations in the contributions from some food groups were greater than for others (Tables 11 through 14). Oils and fats represented a larger contribution to food energy in Port-au-Prince than for other regions. Compared to other regions, starchy roots contributed relatively more to food energy in the north and south. Vegetables (including legumes) contributed relatively less food energy and protein to those living in Port-au-Prince than to those in the rest of the country.

The contrast in food sources was marked in comparing urban areas, Port-au-Prince, and rural areas. Cereals, vegetables, and oils and fats contributed the greatest percentage to food energy in all three areas. However, starchy roots and vegetables were relatively more important in rural areas than in urban areas. Meats and fish contributed only 2.5 percent of food energy for those in rural areas (Table 13).

Among the geographic areas, the contribution of cereals was relatively constant both for food energy and for protein, with a somewhat greater share of protein coming from cereals in rural areas than for others (Table 14). Those in rural areas had relatively less protein from animal products and more from starchy roots and vegetables.

Percentage Contribution from Selected Food Items to Food Energy and Protein

Selected major food items indicate the extent to which the diet in Haiti depends on a relatively small set of food items. Nine selected food items represented nearly 65 percent of food energy and protein (Table 15). Seven of the nine specific food items were common to each list.

For food energy, the dominant food item was rice, followed by oils. Rice contributed more than 15 percent of food energy, and nearly 13 percent of total protein in the diet. Bread (including biscuits) contributed an average of 5.7 percent of total food energy, and 7.2 percent of protein. Oil contributed nearly 15 percent to food energy, though little to protein. Green and dry peas made an important contribution to the quality of the diet: while they represented only 10 percent of food energy, the combined contribution to protein was just under 30 percent. That is, nearly 30 percent of protein came from green and dry peas.

Household Size. These diet shares varied by sociodemographic and location features. In comparing the food item contributions among households of varying size (Tables 16 and 17) it is apparent that the consumption patterns of households with only one member were different from others. For single member households diets were somewhat more varied, with greater contribution to food energy from other food items, breads and oils, and to protein from breads and other sources. Larger households obtained relatively more food energy from bread, rice, and yams.

Expenditure Groups. The food energy and protein contributions of the same nine specific food items varied among total expenditure groups (Tables 18 and 19). Those with the lowest total expenditures (income) again exhibited different consumption patterns from other households. The nine specifically identified food items contributed relatively less in food energy and protein to those with lowest and highest expenditures. For those with lower income, millet appeared to be a relatively important source of energy and protein; rice was less important. Green peas were also relatively important to protein intake.

Region and Location. Food energy and protein levels varied by region and location. As expected, food patterns in the western (Ouest) and Port-au-Prince areas were more similar. This included greater contribution to food energy from bread, lower energy from green peas and yams, and greater reliance on bread and dried peas as sources of protein (Tables 20 and 21).

In comparing other urban areas, Port-au-Prince, and rural areas it is apparent that although bread contributed relatively more to food energy and protein in Port-au-Prince, bread was important throughout the country as a calorie and protein source (Tables 22 and 23). Millet was especially important in rural areas for both energy and protein.

Several fresh vegetables and roots, relatively common in rural and other urban areas, were less widely used in Port-au-Prince. This included yams, green bananas, and green peas. The food item listing, and other unspecified foods, show that diets were more varied in Port-au-Prince than they were in other urban or rural areas.

Measures of Dietary Adequacy

Recommended Dietary Levels

The distribution of household members by measures of dietary adequacy provides good evidence on the extent of nutritional problems in Haiti. The recommended level of dietary intake for food energy and protein, based on recommended levels for Jamaica, were adjusted for household size and composition, including the age of household members. Households were ranked by the availability of food energy and protein as a percentage of the adjusted RDA: less than 50 percent, 50 through 75 percent, 75 through 100 percent, and greater than 100 percent. Tables 24 through 32 show the relative distribution of household members among the measured categories of adequacy.

Nearly 50 percent of Haitian household members had less than 75 percent of the recommended intake of food energy (Table 24). In contrast, 36 percent of household members had less than 75 percent of the RDA for protein (Table 24). The observation that calorie deficiency is more

widespread than protein deficiency has been observed in earlier studies (Sebrell et al. 1959; Beghin et al. 1965, 1970). But this conclusion may be somewhat misleading, given the likely use of protein to satisfy calorie deficiencies. The distributions varied by household characteristics and area.

Household Size. The extent of calorie deprivation increased with household size (Table 25). An estimated 60 percent of households with seven or more members had food energy intake of less than 75 percent of the recommended level. Differences existed for protein intake as well; however, those in the extent of deficiencies and the differences among household sizes were less pronounced (Table 26). Again, those in the largest households were the least likely to have protein intake greater than 75 percent of recommended levels.

Expenditure Groups. The level of total household expenditures was a major determinant of food energy and protein adequacy. Increases in total expenditure levels led to the greater likelihood of household members having intake levels more than 75 percent of the recommended levels. Problems of dietary adequacy were most severe for those with the lowest income, but they persisted for nearly all income groups (Tables 27 and 28).

Region and Location. Among regions, nutritional problems were most severe for those in the north. Nearly 65 percent of those in households in the north had less than 75 percent of recommended intake of food energy (Table 29), and more than 55 percent of those in households in the north had less than 75 percent of recommended protein levels per day (Table 30). This indicates the likelihood of severe nutritional problems in these regions. Differences between those in households from urban and rural areas were less pronounced than between regions (Tables 31 and 32).

Daily Assessments Based on Selected Nutrients and Other Food Components

Information was available on other nutrients and food components as well, and is summarized in Tables 33 to 37 as per capita daily availabilities within the household. Both the median and mean

of the selected food components are indicated for all of Haiti (Table 33) and for the sociodemographic and geographic designations. In almost all cases, the median is lower than the mean, indicating a distribution with relatively more households having lower average consumption (a distribution skewed to the right).

Several results illustrate the variation among household types. Daily per capita availability of food energy and other nutrients declined with household size (Table 34). Among expenditure groups (Table 35), mean intake increased with expenditure group. Differences at higher income levels were less apparent.

Some regional differences emerged (Table 36). First and foremost, most severe nutrient problems occurred in the north. Mean intake of iron was significantly lower in Port-au-Prince than in other regions. Vitamin A intake was significantly lower in the north.

The most severe nutrition problems measured on a per capita basis existed in rural areas, with low levels of intake noted especially for food energy, protein, total fat, calcium, riboflavin, and niacin (Table 37).

These levels can be contrasted to those in Tables 38 through 42, which were calculated by using adult equivalent instead of per capita measures. The effect of moving to an adult equivalent basis increases the mean intake levels, since the smaller requirements of children were taken into account. Measured in this way, the adult equivalent daily availability of food energy was 2,334 k-calories. The average protein availability on an adult equivalent basis was 59 grams. In contrast, on a per capita basis, food energy availability on average was 1,788 calories per capita; protein availability was 45 grams per capita. Tables 38 through 42 provide information on nutrient availabilities by adult equivalent for demographic and location factors.

Summary

The conditions of widespread hunger and continuing food deficits have dominated Haiti's food and agricultural situation for sometime. The 1986-87 HECS provides new evidence on food sources of energy and protein, and the adequacy of diets in Haiti. The survey data document the importance of cereals and vegetables in supplying food energy and protein. Starchy roots were relatively more important to energy intake in rural areas compared to urban areas. Rice, bread, oil, and green and dried peas were important food items contributing to food energy and protein (except for oil). Per capita food energy availability was estimated to be 1,788 calories; and per capita protein availability was at 45 grams. Nearly 50 percent of those in households had less than 75 percent of recommended levels of food energy intake; 36 percent had less than 75 percent of the recommended dietary allowance for protein. The evidence clearly points to persistent nutritional and food problems with the most severe nutritional conditions appearing in rural areas and in the northern region.

Table 1. Summary of Haitian food consumption patterns studies

Study (date purchased)	Date	Area
Boulos (1954)	1954	La Saline (Port-au-Prince)
Cesar (1955)	1955	Portail Leogane (Port-au-Prince)
Grant and Groom (1958)	1956	LaSaline (Port-au-Prince)
Sebrell et al. (1959)	1958	national
King et al. (1968)	1964, 1965	Fond Parisien (rural)
	1964, 1965	Ganthier (rural)
	1965	Guerin (rural)
	1964, 65	Les Cayes (rural)
USAID (1979)	1978	national (preschool children)
UPAN (1984)		Bloc Joanisse area

Table 2. HECS coverage rate of target enumeration areas (SDEs) (November 1986-September 1987)

Month	Number of Target SDEs	Number of Covered SDEs	Number of Substitutes in Covered SDEs	Coverage Rate of SDEs (%)	SDE Substitution Rate (%)
01	24	24	3	100.0	12.5
02	24	24	2	100.0	8.3
03	24	24	4	100.0	16.7
04	24	24	4	100.0	16.7
05	24	24	3	100.0	12.5
06	24	24	1	100.0	4.2
07	24	24	1	100.0	4.2
08	24	24	1	100.0	4.2
09	24	24	1	100.0	4.2
10	24	23	3	95.8	13.0
11	24	21	6	87.5	28.6
12	24	0	0	0.0	
13	24	0	0	0.0	
1 through 11	264	260	29	98.5	11.2
1 through 13	312	260	-	83.3	

SOURCE: Bureau of the Census 1988.

Table 3. HECS household response rates by month, November 1986-September 1987

Month	Original	Reserve	Number of Completed Interviews	Number of Substitutions in Completed Interviews	Response Rate Incl. Substitution (%)	Substitution Rate (%)
01	231	30	238	26	91.2	10.9
02	231	21	240	20	95.2	8.3
03	232	29	237	28	90.8	11.8
04	229	22	240	23	95.6	9.6
05	230	14	240	17	98.4	7.1
06	229	27	240	29	93.8	12.1
07	232	20	240	20	95.2	8.3
08	230	20	240	20	96.0	8.3
09	229	26	238	25	93.3	10.5
10	218	36	230	39	90.6	17.0
11	200	29	210	31	91.7	14.8
1 through 11	2,491	274	2,593	278	93.8	10.7

SOURCE: Bureau of the Census 1988.

Note: There were 240 target interviews each month.

Table 4. Descriptive statistics of weighted household variables: Haiti 1986-87

	Mean	Standard Deviation	Coefficient of Variation	Standard Error of Mean	Number of Obs.	Sum of Weights
Total Expenditure (gourdes)	11,483	19,792	172.36	433.16	2,079	921,806
Food Expenditure (gourdes)	4,968	4,529	91.16	99.28	2,079	921,806
Food Budget Share	0.56	0.19	34.60	0.004	2,077	921,688
Household Size	4.87	2.56	52.44	0.056	2,079	921,806
Per Capita Total Expenditure[a] (gourdes)	2,360	3,740	158.49	82.03	2,079	4,486,271

[a] Weights are household weights times number of household members.

SOURCE: Household Expenditure and Consumption Survey, Haiti (weighted sample) 1986-87.

Note: Unless otherwise specified, all tables are from the HECS weighted sample collected during the HECS, Haiti, November 1986 to September 1987.

Table 5. Sample size and proportion of sample, HECS 1986-87

Group	Households		Individuals (Household Members)	
	Weighted Sample Size	Proportion of Total Sample	Weighted Sample Size	Proportion of Total Sample
Total Haiti	921,806	100.0		
Household Size				
One	73,442	7.97	73,442	1.64
Two	92,675	10.05	185,243	4.13
Three	129,407	14.04	388,222	8.65
Four	158,980	17.25	635,635	14.17
Five	130,093	14.11	650,463	14.50
Six	129,338	14.03	775,646	17.30
Seven	75,219	8.16	523,473	11.74
Eight or more	132,652	14.39	1,250,314	27.87
Expenditure Group (gourdes)				
0-2,000	83,772	9.08	273,222	6.10
2,001-4,000	193,358	20.98	771,807	17.20
4,001-6,000	141,196	15.32	673,525	15.02
6,001-8,000	111,032	12.05	562,205	12.60
8,001-10,000	77,042	8.36	388,091	8.65
10,001-12,000	55,091	5.98	271,559	6.05
12,001-14,000	55,515	6.02	278,278	6.20
14,001-16,000	40,000	4.32	219,298	4.89
16,001-18,000	21,357	2.32	103,818	2.31
18,001-20,000	21,223	2.30	126,621	2.82
20,000 +	122,268	13.26	814,014	18.14
Region				
North	126,276	13.70	643,288	14.34
Transversale	279,093	30.28	1,243,325	27.71
Ouest (w/o PAP)	228,077	24.74	1,161,507	25.90
South	152,549	16.55	741,431	16.53
Port-au-Prince	135,821	14.73	692,886	15.41
Area				
Other urban	123,423	13.39	626,744	13.99
Port-au-Prince	135,821	14.73	692,886	15.51
Rural	662,562	71.88	3,162,808	70.50

Note: Total number of observed households is 2,079.

Table 6. Mean percentage contribution of major food groups to available per capita food energy (K-calories) and protein (grams) in all Haiti

	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.-Cond.	Beverages	Proportion of Total Sample
Food energy	3.1	2.2	16.5	38.3	8.2	20.0	2.1	8.1	0.9	0.6	99.9
Protein	13.8	5.4	0.1	38.4	5.4	32.7	1.4	0.5	2.5	0.0	99.9

Table 7. Mean percentage contribution of major food groups available per capita to food energy (k-calories) by household size

Household Size	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.-Cond.	Beverages
One	2.0	3.1	23.7	34.5	4.1	15.3	3.0	12.2	1.1	1.1
Two	2.2	1.8	19.7	35.0	7.1	18.8	2.2	11.4	0.9	0.8
Three	2.6	2.1	19.2	35.5	7.6	20.5	2.2	8.3	1.6	0.4
Four	2.9	2.2	16.9	38.6	6.7	20.9	2.0	8.2	0.9	0.7
Five	2.6	2.0	14.8	39.4	7.9	20.3	1.8	9.3	1.3	0.6
Six	2.8	2.3	16.3	39.1	7.2	20.9	1.9	8.4	0.7	0.4
Seven	3.1	1.9	15.5	41.0	8.1	19.8	2.2	6.9	1.2	0.5
Eight or more	3.9	2.5	15.9	37.6	10.5	19.1	2.2	7.0	0.6	0.7

Table 8. Mean percentage contribution of major food groups to available per capita protein (grams) by household size

Household Size	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.- Cond.	Beverages
One	10.7	7.4	0.2	42.7	3.1	28.8	2.3	1.5	3.4	0.0
Two	12.2	4.9	0.2	40.0	5.5	31.1	1.9	1.1	3.0	0.0
Three	13.0	5.0	0.2	36.6	5.3	34.0	1.6	0.5	3.8	0.0
Four	13.3	5.5	0.1	38.1	4.5	34.1	1.6	0.4	2.5	0.0
Five	13.2	5.4	0.1	39.4	5.13	2.3	1.1	0.5	2.9	0.0
Six	12.4	5.3	0.1	38.6	4.7	35.3	1.3	0.4	2.0	0.0
Seven	13.0	4.7	0.1	39.5	5.2	33.0	1.3	0.4	2.9	0.0
Eight or More	16.1	5.7	0.1	37.4	6.6	30.6	1.3	0.3	1.8	0.0

Table 9. Mean percentage contribution of major food groups to available per capita food energy (k-calories) by expenditure group

Expenditure Group (gourdes)	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.-Cond.	Beverages
0-2,000	0.6	1.4	18.5	37.1	13.2	16.0	1.5	9.9	1.6	0.2
2,001-4,000	1.4	1.1	16.3	37.1	11.2	20.9	1.7	8.2	1.8	0.1
4,001-6,000	1.9	1.5	14.5	37.8	9.9	23.8	1.7	8.2	0.5	0.2
6,001-8,000	2.4	2.0	15.6	41.3	8.4	19.5	1.7	7.8	0.9	0.3
8,001-10,000	3.7	1.8	16.4	36.8	6.3	23.4	2.0	8.1	0.7	0.7
10,001-12,000	2.8	1.8	16.9	39.9	7.4	20.8	2.2	6.9	0.6	0.5
12,001-14,000	3.2	2.9	16.0	41.5	5.0	21.0	1.8	7.0	0.6	0.9
14,001-16,000	3.3	2.3	16.5	39.9	6.8	21.5	2.5	5.9	0.6	0.7
16,001-18,000	3.3	2.5	16.6	43.5	4.6	18.0	2.0	8.0	0.9	0.6
18,001-20,000	4.3	3.6	14.5	36.6	6.1	19.3	2.0	11.4	0.8	1.3
20,000+	6.4	4.3	18.7	36.5	5.6	15.1	3.1	8.3	0.6	1.5

Table 10. Mean percentage contribution of major food groups to available per capita protein (grams) by expenditure group

Expenditure Group (gourdes)	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.- Cond.	Beverages
0-2,000	3.8	4.7	0.0	46.4	9.8	28.8	2.0	1.4	3.1	0.0
2,001-4,000	7.8	3.0	0.1	40.7	7.7	35.1	1.3	0.6	3.7	0.0
4,001-6,000	10.4	4.0	0.1	38.8	6.2	37.0	1.2	0.5	1.8	0.0
6,001-8,000	12.7	5.1	0.1	41.6	5.6	30.8	1.1	0.4	2.6	0.0
8,001-10,000	14.8	4.0	0.1	35.6	3.9	37.6	1.1	0.4	2.5	0.0
10,001-12,000	15.1	4.4	0.1	37.4	4.7	34.8	1.3	0.3	2.0	0.0
12,001-14,000	14.0	6.4	0.1	38.0	3.1	35.1	1.1	0.3	1.9	0.0
14,001-16,000	15.7	5.7	0.1	35.6	4.3	35.0	1.4	0.2	2.1	0.0
16,001-18,000	15.2	5.5	0.1	41.4	3.2	30.7	1.2	0.3	2.4	0.0
18,001-20,000	19.7	8.5	0.1	34.0	3.5	30.4	1.3	0.4	2.1	0.0
20,000+	23.5	9.3	0.2	33.7	3.4	25.8	1.9	0.3	2.0	0.0

Table 11. Mean percentage contribution of major food groups to available per capita food energy (k-calories) by region

Region	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.- Cond.	Beverages
North	2.1	2.3	16.6	32.6	14.5	18.3	2.1	10.0	1.2	0.2
Transversale	2.7	2.0	16.3	40.2	6.6	22.4	1.6	7.2	0.6	0.4
Ouest (w/o PAP)	3.2	1.6	15.8	42.0	6.0	19.4	1.9	8.4	1.1	0.7
South	2.1	1.6	15.4	34.6	13.5	22.7	2.2	6.4	1.1	0.4
Port-au-Prince	5.4	4.4	19.1	38.0	3.3	15.0	3.0	9.4	0.8	1.5

Table 12. Mean percentage contribution of major food groups to available per capita protein (grams) by region

Region	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.- Cond.	Beverages
North	11.4	6.3	0.1	35.8	8.5	32.7	1.6	0.9	2.6	0.0
Transversale	13.3	4.6	0.1	39.1	4.5	35.2	1.1	0.4	1.6	0.0
Ouest (w/o PAP)	12.8	4.0	0.1	42.4	3.6	32.7	1.1	0.4	2.9	0.0
South	11.3	3.9	0.1	36.1	9.6	34.3	1.6	0.3	2.8	0.0
Port-au-Prince	21.0	9.8	0.2	35.2	2.3	26.6	1.9	0.3	2.7	0.0

Table 13. Mean percentage contribution of major food groups to available per capita food energy (k-calories) by area

Area	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.- Cond.	Beverages
Other Urban	3.6	3.0	18.0	37.5	6.2	19.2	2.6	8.6	0.6	0.6
Port-au-Prince	5.4	4.4	19.1	38.0	3.3	15.0	3.0	9.4	0.8	1.5
Rural	2.5	1.6	15.6	38.6	9.7	21.2	1.7	7.7	1.0	0.4

Table 14. Mean percentage contribution of major food groups to available per capita protein (grams) by area

Area	Meat Etc.	Dairy Products	Oils & Fats	Cereals Etc.	Starchy Roots	Vegetables	Fruits	Sugar	Misc.- Cond.	Beverages
Other Urban	17.4	6.8	0.2	35.5	3.8	32.3	1.6	0.4	2.0	0.0
Port-au-Prince	21.0	9.8	0.2	35.2	2.3	26.6	1.9	0.3	2.7	0.0
Rural	11.5	4.1	0.1	39.6	6.3	34.2	1.2	0.5	2.5	0.0

Table 15. Mean percentage contribution of major items to available per capita food energy and protein in all Haiti

	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
Food energy	6.9	5.7	4.5	15.4	2.9	5.6	2.7	8.0	14.7	33.7
Protein	6.3	7.2	4.8	12.8	2.4	6.8	20.1	2.4	2.6	34.5

Table 16. Mean percentage contribution of major food items to available per capita food energy by household size

Household Size	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
One	6.6	6.6	0.6	10.8	0.8	4.6	2.9	5.5	21.7	40.0
Two	7.5	4.8	3.3	14.6	2.3	6.2	4.2	5.2	16.9	35.2
Three	7.1	4.6	4.9	13.9	2.9	6.3	2.3	8.2	17.0	32.7
Four	7.5	6.0	4.2	14.8	2.0	5.4	2.4	9.2	15.6	32.8
Five	6.0	5.0	5.9	17.3	2.8	6.2	2.0	8.2	13.0	33.7
Six	7.9	5.9	3.8	15.0	2.6	4.9	3.0	9.1	14.9	32.9
Seven	8.5	5.1	7.3	13.8	3.5	5.4	3.9	7.7	14.1	30.7
Eight or more	5.6	6.6	3.3	16.4	3.4	5.7	2.3	7.3	13.9	35.4

Table 17. Mean percentage contribution of major food items to available per capita protein by household size

Household Size	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
One	6.7	10.2	0.9	10.8	2.7	8.6	15.3	0.2	1.1	43.6
Two	7.4	7.7	4.4	13.5	3.5	10.5	13.8	2.4	1.4	35.4
Three	6.6	6.3	5.2	11.7	3.3	6.0	20.7	2.1	1.6	36.5
Four	6.7	7.3	4.9	12.3	2.4	6.3	21.3	3.2	2.6	32.9
Five	5.5	6.6	5.7	15.1	2.6	5.4	20.9	1.9	3.2	33.1
Six	7.4	7.0	4.2	12.1	1.9	7.6	22.5	1.9	1.9	33.6
Seven	7.3	6.3	7.5	11.1	2.0	9.1	19.6	2.9	2.1	32.0
Eight or more	5.3	8.1	3.6	13.5	2.4	6.0	18.9	2.4	3.5	36.3

Table 18. Mean percentage contribution of major food items to available per capita food energy by expenditure group

Expenditure Group (gourdes)	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
0-2,000	6.5	3.3	6.9	9.1	3.2	4.2	2.4	5.3	17.7	41.4
2,001-4,000	7.6	3.8	8.4	11.7	4.3	5.7	3.6	6.4	14.8	33.8
4,001-6,000	8.1	3.9	6.9	14.0	3.6	5.6	3.6	7.2	13.0	34.2
6,001-8,000	6.2	5.6	4.4	18.4	3.6	6.5	3.2	6.7	14.5	31.0
8,001-10,000	6.0	7.7	2.9	14.7	2.4	7.4	1.9	11.7	14.8	30.7
10,001-12,000	9.2	4.9	2.4	18.4	2.9	5.7	2.8	9.0	14.9	29.9
12,001-14,000	8.1	7.1	2.6	16.6	2.3	5.1	1.6	12.2	14.7	29.8
14,001-16,000	7.8	6.0	2.4	19.0	2.9	5.9	3.0	9.6	15.1	28.3
16,001-18,000	11.3	5.5	2.1	19.4	2.3	4.8	3.5	7.7	15.4	27.9
18,001-20,000	5.8	7.2	2.2	15.4	1.6	7.0	2.0	9.3	12.9	36.5
20,000+	4.5	8.6	1.2	17.4	1.0	4.5	1.5	8.0	15.3	38.0

Table 19. Mean percentage contribution of major food items to available per capita protein by expenditure group

Expenditure Group (gourdes)	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
0-2,000	7.2	5.4	9.0	9.5	3.0	6.9	13.7	0.6	0.5	44.2
2,001-4,000	7.4	5.4	9.0	11.1	2.8	9.8	17.4	1.2	0.8	35.1
4,001-6,000	7.6	5.3	7.5	12.2	2.3	9.0	19.3	2.1	1.9	32.7
6,001-8,000	5.9	7.4	4.4	15.8	2.7	7.9	17.5	2.8	2.9	32.6
8,001-10,000	5.3	8.6	3.1	11.8	3.0	4.6	27.8	1.9	3.0	30.8
10,001-12,000	7.9	6.1	2.4	14.9	2.2	7.3	22.6	4.0	2.2	30.5
12,001-14,000	7.0	7.7	2.4	12.9	1.9	3.8	27.5	1.8	3.9	31.1
14,001-16,000	6.7	7.2	2.4	14.0	2.2	7.1	23.3	1.9	2.5	32.8
16,001-18,000	9.4	7.0	2.4	16.6	1.8	8.0	19.4	2.8	3.5	29.0
18,001-20,000	4.8	8.7	2.2	11.3	2.7	4.7	22.0	4.2	4.4	34.9
20,000+	3.8	10.3	1.2	13.2	1.8	3.5	19.3	3.5	4.6	38.8

Table 20. Mean percentage contribution of major food items to available per capita food energy by region

Region	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
North	6.3	3.9	1.2	15.9	3.7	6.0	3.2	6.5	13.9	39.4
Transversale	7.0	3.3	6.3	17.2	2.4	5.9	2.7	8.7	15.2	31.2
Ouest (w/o PAP)	7.5	8.7	5.6	14.1	0.9	6.0	2.2	9.2	14.3	31.5
South	6.4	4.7	5.2	12.2	7.8	6.1	4.1	5.9	13.8	33.9
Port-au-Prince	6.7	8.0	1.4	17.2	0.8	3.5	1.5	8.6	16.3	36.1

Table 21. Mean percentage contribution of major food items to available per capita protein by region

Region	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
North	6.7	5.3	1.2	14.9	3.1	8.6	18.5	3.1	1.2	37.6
Transversale	6.4	4.1	7.1	13.9	2.5	6.6	21.4	2.4	2.6	33.0
Ouest (w/o PAP)	6.8	10.8	5.8	11.9	2.5	5.8	22.7	1.2	4.3	28.2
South	5.8	6.1	5.5	10.5	2.7	10.2	15.3	1.8	2.1	39.9
Port-au-Prince	5.7	9.8	1.4	12.9	1.2	3.8	20.3	4.1	1.8	39.1

Table 22. Mean percentage contribution of major food items to available per capita food energy by area

Area	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
Other Urban	5.3	5.8	1.7	19.0	2.4	5.4	2.6	8.8	15.8	33.3
Port-au-Prince	6.7	8.0	1.4	17.2	0.8	3.5	1.5	8.6	16.3	36.1
Rural	7.2	5.2	5.7	14.3	3.4	6.1	2.9	7.8	14.2	33.2

Table 23. Mean percentage contribution of major food items to available per capita protein by area

Area	Crushed Corn	Bread	Millet	Rice	Yams	Green Banana	Green Peas	Dry Peas	Oils	Other Foods
Other Urban	4.6	7.0	1.7	15.3	2.0	6.6	21.5	3.2	3.4	34.5
Port-au-Prince	5.7	9.8	1.4	12.9	1.2	3.8	20.3	4.1	1.8	39.1
Rural	6.8	6.7	6.1	12.3	2.8	7.5	19.8	1.8	2.6	33.5

Table 24. Distribution of per capita available food energy and protein as percentage of the recommended levels in all households

	Less than 50%	50 - 75%	75 - < 100%	At least 100%
Food energy	28.6	20.6	19.6	31.1
Protein	22.3	14.3	12.9	50.5

Table 25. Distribution of per capita available food energy as percentage of the recommended levels by household size

Household Size	Less than 50%	50 - 75%	75 - < 100%	At least 100%
One	21.8	14.9	13.2	50.1
Two	19.4	16.5	16.0	48.1
Three	21.7	22.7	17.6	38.0
Four	27.3	20.0	20.3	32.5
Five	26.4	23.6	22.5	27.6
Six	33.0	20.8	24.2	22.0
Seven	37.3	20.1	14.8	27.8
Eight or more	40.4	22.5	22.4	14.7

Table 26. Distribution of per capita available protein as percentage of the recommended levels by household size

Household Size	Less than 50%	50 - 75%	75 - < 100%	At least 100%
One	28.6	9.9	8.5	53.0
Two	22.9	11.3	11.5	54.4
Three	20.6	7.9	13.3	58.2
Four	17.4	16.4	11.8	54.4
Five	19.3	12.7	16.5	51.5
Six	22.8	17.9	11.8	47.5
Seven	23.5	13.9	16.7	46.0
Eight or more	27.3	20.8	12.8	39.1

Table 27. Distribution of per capita available food energy as percentage of the recommended levels by expenditure group

Expenditure Group (gourdes)	Less than 50%	50 - 75%	75 - < 100%	At least 100%
0-2,000	64.5	21.4	6.9	7.2
2,001-4,000	41.7	25.4	15.1	17.7
4,001-6,000	27.7	30.0	19.0	23.3
6,001-8,000	25.4	22.3	26.2	26.1
8,001-10,000	21.2	16.7	30.9	31.2
10,001-12,000	20.1	19.2	12.6	48.2
12,001-14,000	11.4	8.2	25.8	54.6
14,001-16,000	11.3	15.7	17.6	55.4
16,001-18,000	8.5	23.8	11.2	56.6
18,001-20,000	25.5	14.5	14.1	45.8
20,000+	13.5	11.0	26.6	48.9

Table 28. Distribution of per capita available protein as percentage of recommended levels by expenditure group

Expenditure Group (gourdes)	Less than 50%	50 - 75%	75 - < 100%	At least 100%
0-2,000	68.9	16.1	7.6	7.4
2,001-4,000	37.2	16.5	14.8	31.4
4,001-6,000	18.0	21.5	21.7	38.8
6,001-8,000	13.9	18.5	15.9	51.7
8,001-10,000	12.6	13.4	9.6	64.4
10,001-12,000	10.6	12.6	14.7	62.2
12,001-14,000	7.2	5.3	1.3	86.2
14,001-16,000	3.9	12.9	6.8	76.4
16,001-18,000	4.4	7.0	18.2	70.4
18,001-20,000	9.6	11.2	11.5	67.8
20,000+	8.7	5.0	8.6	77.7

Table 29. Distribution of per capita available food energy as percentage of the recommended levels by region

Region	Less than 50%	50 - 75%	75 - < 100%	At least 100%
North	42.7	21.9	16.5	18.9
Transversale	26.6	21.4	15.3	36.7
Ouest (w/o PAP)	24.9	17.4	31.3	26.4
South	24.7	24.9	18.0	32.3
Port-au-Prince	30.4	18.4	13.6	37.7

Table 30. Distribution of per capita available protein as percentage of the recommended levels by region

Region	Less than 50%	50 - 75%	75 - < 100%	At least 100%
North	35.7	19.9	15.9	28.5
Transversale	21.3	13.2	10.2	55.3
Ouest (w/o PAP)	17.4	12.6	13.9	56.2
South	21.2	14.3	16.4	48.1
Port-au-Prince	20.9	14.3	10.3	54.5

Table 31. Distribution of per capita available food energy as percentage of recommended levels by area

Area	Less than 50%	50 - 75%	75 - < 100%	At least 100%
Other Urban	26.3	22.3	18.4	33.1
Port-au-Prince	30.4	18.4	13.6	37.7
Rural	28.7	20.8	21.1	29.4

Table 32. Distribution of per capita available protein as percentage of recommended levels by area

Area	Less than 50%	50 - 75%	75 - < 100%	At least 100%
Other Urban	17.1	14.6	14.6	53.7
Port-au-Prince	20.9	14.3	10.3	54.5
Rural	23.5	14.2	13.1	49.1

Table 33. Availability of nutrients and other food components in all households

	Per Capita Daily Availability	
	Median	Mean
Food Energy (k-cal)	1764.32	1788.46
Protein (grams)	42.61	45.40
Total Fat (grams)	40.77	44.12
Carbohydrate (grams)	302.37	315.46
Iron (mg)	13.88	16.01
Vitamin A (iu)	2846.16	4203.93
Calcium (mg)	267.96	318.47
Vitamin C (mg)	77.18	94.06
Riboflavin (mg)	0.59	0.66
Thiamin (mg)	1.01	1.11
Niacin (mg)	8.84	9.76

Table 34. Availability of nutrients by household size

Household Size	Per Capita Daily Availability					
	Food Energy (k-cal)		Protein (grams)		Total Fat (grams)	
	Median	Mean	Median	Mean	Median	Mean
One	2098.66	2665.98	45.56	59.38	59.11	80.74
Two	2356.21	2661.85	56.07	62.57	61.53	71.84
Three	2070.09	2255.04	49.42	56.14	52.35	59.97
Four	1876.94	1988.26	47.85	52.01	44.75	47.72
Five	1679.73	1832.35	41.05	45.63	35.82	41.33
Six	1559.77	1639.19	38.60	42.95	35.29	40.27
Seven	1556.02	1672.17	38.86	43.42	32.90	39.56
Eight or more	1375.94	1479.75	36.05	37.58	32.40	36.88

Household Size	Carbohydrates (grams)		Iron (mg)		Vitamin A (iu)	
	Median	Mean	Median	Mean	Median	Mean
One	354.34	444.68	17.79	25.65	2351.90	5614.64
Two	397.56	460.43	20.32	24.15	4459.64	6364.46
Three	344.22	391.10	16.32	20.65	2731.44	4936.62
Four	327.52	351.49	15.73	17.78	3285.51	4583.13
Five	299.60	335.47	13.92	17.54	2885.39	3994.00
Six	270.28	287.02	12.59	14.46	2422.38	3513.78
Seven	269.16	298.18	13.13	15.88	2895.52	4505.10
Eight or more	237.23	259.08	11.35	12.13	2384.46	3791.15

Table 34. (continued)

Household Size	Per Capita Daily Availability					
	Calcium (mg)		Vitamin C (mg)		Riboflavin (mg)	
	Median	Mean	Median	Mean	Median	Mean
One	300.62	429.69	72.97	134.94	0.75	0.89
Two	329.94	443.96	111.67	142.76	0.76	0.91
Three	296.17	380.17	93.10	123.42	0.69	0.81
Four	289.28	341.19	87.59	105.81	0.65	0.74
Five	267.99	318.55	74.52	98.25	0.59	0.67
Six	238.30	291.63	63.95	80.27	0.52	0.60
Seven	250.11	280.41	74.47	90.24	0.54	0.61
Eight or more	233.37	295.28	77.34	118.28	0.49	0.58

Household Size	Thiamin (mg)		Niacin (mg)	
	Median	Mean	Median	Mean
One	1.03	1.47	9.83	12.99
Two	1.31	1.55	11.98	13.89
Three	1.13	1.40	10.38	12.07
Four	1.10	1.25	10.15	11.03
Five	0.99	1.17	8.59	10.21
Six	0.92	1.03	8.32	9.11
Seven	0.98	1.12	7.96	9.07
Eight or more	0.81	0.89	7.56	8.07

Table 35. Availability of nutrients by expenditure group

Expenditure Group	Per Capita Daily Availability					
	Food Energy (k-cal)		Protein (grams)		Total Fat (grams)	
	Median	Mean	Median	Mean	Median	Mean
0-2,000	839.75	765.25	16.74	15.28	19.46	21.14
2,001-4,000	1125.93	1238.55	25.31	27.98	26.26	30.63
4,001-6,000	1460.73	1489.62	32.61	35.02	31.07	32.29
6,001-8,000	1699.28	1692.56	41.00	41.30	36.24	38.31
8,001-10,000	1743.53	1821.20	42.40	47.28	39.26	43.12
10,001-12,000	1990.69	2065.97	52.32	52.71	47.91	48.39
12,001-14,000	2481.70	2401.69	66.09	65.17	57.18	56.19
14,001-16,000	2259.72	2380.05	61.79	62.87	58.83	56.90
16,001-18,000	2325.38	2407.31	65.09	62.07	57.46	60.24
18,001-20,000	2138.02	2194.15	55.58	57.97	53.83	50.36
20,000+	2406.04	2348.65	64.56	64.62	63.68	66.92

Expenditure Group	Carbohydrates (grams)		Iron (mg)		Vitamin A (iu)	
	Median	Mean	Median	Mean	Median	Mean
0-2,000	151.57	137.67	8.32	10.22	880.96	1597.05
2,001-4,000	207.64	227.10	10.68	14.19	1471.26	2792.73
4,001-6,000	264.38	277.96	13.29	15.75	2006.31	4023.23
6,001-8,000	300.03	309.18	13.45	15.54	2163.06	3416.32
8,001-10,000	298.84	323.88	11.88	16.15	2661.62	3849.83
10,001-12,000	336.87	368.43	15.73	17.44	3918.56	5442.16
12,001-14,000	422.62	422.28	20.41	19.54	3536.61	4586.80
14,001-16,000	403.62	419.45	18.59	19.38	3054.39	4905.77
16,001-18,000	372.40	419.06	16.90	18.21	4022.92	4740.18
18,001-20,000	345.97	393.66	14.95	19.56	3440.90	4625.36
20,000+	399.05	382.82	17.19	16.76	4661.97	6416.83

Table 35. (continued)

Expenditure Group	Per Capita Daily Availability					
	Calcium (mg)		Vitamin C (mg)		Riboflavin (mg)	
	Median	Mean	Median	Mean	Median	Mean
0-2,000	113.57	127.56	33.17	38.34	0.24	0.25
2,001-4,000	174.16	198.00	55.59	73.23	0.38	0.43
4,001-6,000	217.00	244.72	72.66	90.69	0.47	0.52
6,001-8,000	264.65	279.62	66.62	86.67	0.56	0.60
8,001-10,000	272.17	285.08	68.45	96.04	0.56	0.63
10,001-12,000	311.88	322.68	103.92	111.47	0.72	0.71
12,001-14,000	373.39	417.23	98.77	100.45	0.83	0.89
14,001-16,000	325.75	433.19	100.92	131.66	0.77	0.90
16,001-18,000	345.46	386.76	104.05	101.85	0.84	0.85
18,001-20,000	367.86	391.91	87.56	118.84	0.78	0.81
20,000+	402.64	514.64	115.00	116.56	0.87	0.99

Expenditure Group	Thiamin (mg)		Niacin (mg)	
	Median	Mean	Median	Mean
0-2,000	0.50	0.46	3.85	3.66
2,001-4,000	0.73	0.84	5.53	6.59
4,001-6,000	0.96	1.04	7.36	8.03
6,001-8,000	0.94	1.10	8.33	0.24
8,001-10,000	0.98	1.15	8.60	9.57
10,001-12,000	1.18	1.35	10.45	11.32
12,001-14,000	1.52	1.52	14.00	12.72
14,001-16,000	1.38	1.53	11.97	12.80
16,001-18,000	1.29	1.46	12.20	12.37
18,001-20,000	1.11	1.33	12.03	12.72
20,000+	1.26	1.25	12.71	13.57

Table 36. Availability of nutrients by region

	Per Capita Daily Availability					
	Food Energy (k-cal)		Protein (grams)		Total Fat (grams)	
Region	Median	Mean	Median	Mean	Median	Mean
North	1430.83	1428.06	34.41	31.95	34.47	36.36
Transversale	1782.99	1848.83	45.03	46.88	42.36	45.00
Ouest (w/o PAP)	1935.01	1849.97	48.18	46.88	41.39	43.45
South	1823.60	1823.09	43.04	44.77	42.97	40.77
Port-au-Prince	1760.57	1874.14	46.79	53.42	44.36	54.42

	Carbohydrates (grams)		Iron (mg)		Vitamin A (iu)	
Region	Median	Mean	Median	Mean	Median	Mean
North	246.94	256.49	12.87	16.10	2274.55	2959.75
Transversale	312.82	327.03	15.49	17.49	2785.93	4355.32
Ouest (w/o Pap)	337.67	330.89	15.44	16.03	3045.66	4819.16
South	319.11	337.55	14.73	16.19	3824.90	4639.38
Port au Prince	278.42	300.05	11.95	13.10	2426.58	3592.15

Table 36. (continued)

Region	Per Capita Daily Availability					
	Calcium (mg)		Vitamin C (mg)		Riboflavin (mg)	
	Median	Mean	Median	Mean	Median	Mean
North	251.86	282.99	68.81	86.57	0.49	0.51
Transversale	256.32	296.67	67.62	94.60	0.60	0.66
Ouest (w/o PAP)	286.70	280.49	76.14	82.95	0.65	0.64
South	296.01	319.32	108.90	127.39	0.63	0.68
Port-au-Prince	255.27	452.76	65.69	83.05	0.58	0.82

Region	Thiamin (mg)		Niacin (mg)	
	Median	Mean	Median	Mean
North	0.82	0.81	7.06	7.09
Transversale	1.08	1.21	9.22	10.23
Ouest (w/o PAP)	1.18	1.14	10.12	9.76
South	1.16	1.31	9.42	10.47
Port-au-Prince	0.87	0.97	8.72	10.64

Table 37. Availability of nutrients by area

Per Capita Daily Availability

Area	Food Energy (k-cal)		Protein (grams)		Total Fat (grams)	
	Median	Mean	Median	Mean	Median	Mean
Other Urban	1854.48	1930.37	46.29	50.18	45.73	51.69
Port-au-Prince	1760.57	1874.14	46.79	53.42	44.36	54.42
Rural	1589.41	1741.46	36.74	42.69	32.83	40.35

Area	Carbohydrates (grams)		Iron (mg)		Vitamin A (iu)	
	Median	Mean	Median	Mean	Median	Mean
Other Urban	311.16	327.23	13.99	15.70	3050.42	4181.43
Port-au-Prince	278.42	300.05	11.95	13.10	2426.58	3592.15
Rural	294.75	316.51	15.23	16.72	2651.76	4343.00

Area	Calcium (mg)		Vitamin C (mg)		Riboflavin (mg)	
	Median	Mean	Median	Mean	Median	Mean
Other Urban	291.91	367.15	82.45	107.07	0.62	0.74
Port-au-Prince	255.27	452.76	65.69	83.05	0.58	0.82
Rural	244.46	279.27	74.54	93.90	0.54	0.61

Area	Thiamin (mg)		Niacin (mg)	
	Median	Mean	Median	Mean
Other Urban	1.02	1.13	9.50	10.56
Port-au-Prince	0.89	0.97	8.72	10.64
Rural	1.06	1.14	8.33	9.41

Table 38. Availability of food energy and protein on an adult equivalent basis for all households

	Adult Equivalent Daily Availability			
	Food Energy (k-cal)		Protein (grams)	
	Median	Mean	Median	Mean
All Haiti	2232.64	2333.82	54.25	59.27

Table 39. Availability of food energy and protein on an adult equivalent basis by household size

	Adult Equivalent Daily Availability			
	Food Energy (k-cal)		Protein (grams)	
Household Size	Median	Mean	Median	Mean
One	2323.81	2911.10	49.85	65.04
Two	2823.72	3154.17	63.74	74.38
Three	2476.47	2783.66	59.63	69.53
Four	2477.24	2570.81	61.09	67.27
Five	2170.07	2453.81	52.34	60.89
Six	2049.92	2982.26	51.15	56.99
Seven	2061.24	2257.18	50.83	58.56
Eight or more	1834.20	1982.02	47.44	50.31

Table 40. Availability of food energy and protein on an adult equivalent basis by expenditure group

Expenditure Group (gourdes)	Adult Equivalent Daily Availability			
	Food Energy (k-cal)		Protein (grams)	
	Median	Mean	Median	Mean
0-2,000	1063.54	977.91	20.63	19.49
2,001-4,000	1465.08	1575.37	32.97	35.58
4,001-6,000	1856.68	1939.64	43.25	45.67
6,001-8,000	2037.84	2262.17	50.89	54.86
8,001-10,000	2321.53	2386.60	55.65	62.28
10,001-12,000	2648.63	2636.40	65.19	67.10
12,001-14,000	3205.10	3234.80	86.48	87.76
14,001-16,000	3001.30	3098.82	78.59	82.11
16,001-18,000	2757.59	3088.26	74.68	80.33
18,001-20,000	2901.44	2912.07	72.09	77.01
20,000 +	3115.69	3058.56	83.42	84.05

Table 41. Availability of food energy and protein on an adult equivalent basis by region

	Adult Equivalent Daily Availability			
	Food Energy (k-cal)		Protein (grams)	
Region	Median	Mean	Median	Mean
North	1836.84	1859.00	43.54	41.65
Transversale	2259.86	2386.41	57.60	60.57
Ouest (w/o PAP)	2432.14	2473.12	60.70	62.66
South	2304.78	2380.23	55.04	58.62
Port-au-Prince	2213.23	2396.73	56.80	68.27

Table 42. Availability of food energy and protein on an adult equivalent basis by area

	Adult Equivalent Daily Availability			
	Food Energy (k-cal)		Protein (grams)	
Area	Median	Mean	Median	Mean
Other Urban	2370.15	2531.50	58.96	65.86
Port-au-Prince	2213.23	2396.73	56.80	68.27
Rural	2029.97	2280.76	46.52	55.99

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