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Determination of a Poverty Line for Haiti

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Determination of a Poverty line for Haiti

Summary

This document describes the poverty line developed for Haiti. It also considers some aspects of inequality and poverty in Haiti, but does not aim to be a complete poverty analysis of the country. It is based on data provided by the Institut Haïtien de Statistique et d'Informatique (IHSI) from the household income and expenditure surveys of 1986/1987 (EBCM II) and of 1999/2000 (EBCM III). The poverty line was developed by considering a consumption basket of food reflecting consumption of the poor, and adjusting the cost of this basket to energy needs per person and to the need for non-food necessities.

The main findings of the study are:

- Inequality is high in Haiti compared to other countries, both in the Caribbean and elsewhere.
- The pattern of inequality is changing. While total inequality is constant, the Port-au-Prince area has seen increasing inequality and rural inequality has decreased.
- Poverty appears to have decreased. The percentage below the poverty line was 59 in 1986/1987 and 48 in 1999/2000.
- Poverty in urban areas outside of Port –au-Prince appears to have increased.
- Rural areas account for about three quarters of total poverty. This is true if the focus is on the percentage of poor, or if the focus is on how poor the poor are.

Background

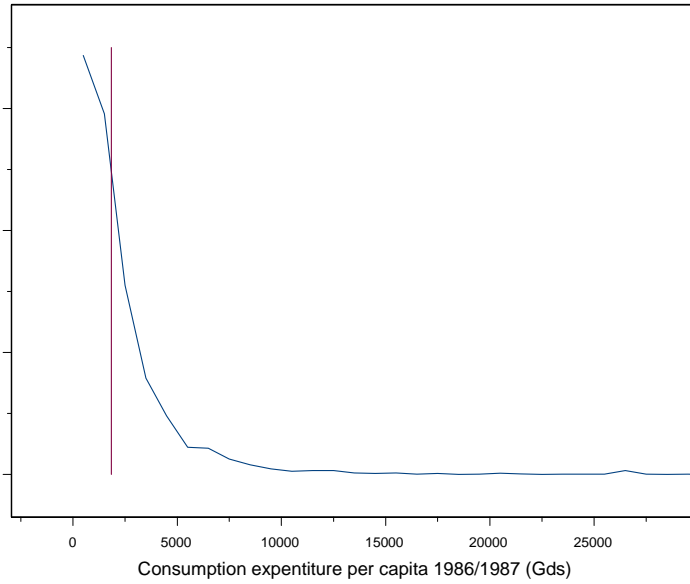
A poverty line serves at least five purposes. It can be used for monitoring poverty through time; it can be used for developing a poverty profile; it can be used for developing a poverty risk analysis; it can be used for defining entitlements; and it can be a focus for public debate.

The poverty line may be arbitrarily defined, for example by setting it to half of the median income; or it may be absolutely defined with reference in some way or another to basic needs. Often absolutely defined poverty lines are based on nutritional requirements. A definition as such has been used in this report. However, how to define needs varies from one person to the next. In the case of nutrition, one has to consider if rural people need more energy than urban because they perform more physical labour, and if one should consider the different nutritional requirements of women, men and children. Moreover, even when people are getting less than the recommended dietary allowance of energy they are able to live and function. Therefore there is even an element of arbitrariness of absolutely defined poverty lines.

In this report conservative poverty lines have been used, in the sense that most assumptions one could make to change the poverty line would tend to increase the estimate of poverty resulting from the line.

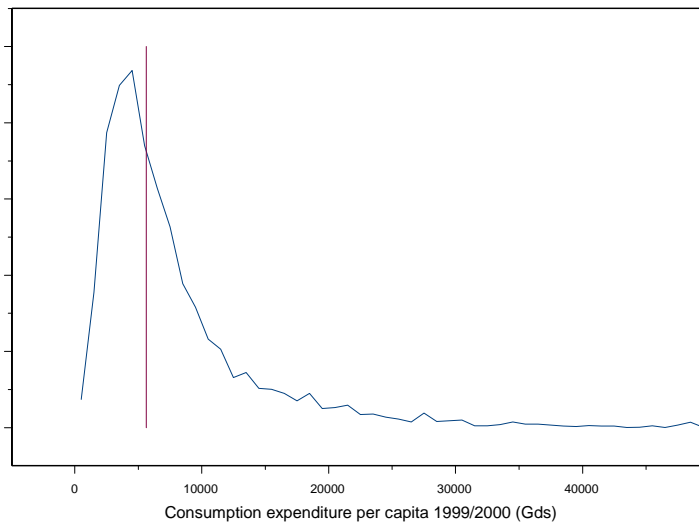
Inequality

The economic inequality in Haiti is comparatively high. Expenditure distributions are highly skewed with the majority of expenditures at the low end.



*Figure 1: Total consumption expenditure per capita 1986/1987.
Vertical line represents poverty line*

The two graphs (Figure 1 and Figure 2) show the densities of the total consumption expenditure per capita for 1986/1987 and 1999/2000 together with the calculated poverty lines for the respective years. Both graphs have been truncated on the far right of the horizontal axis in order to increase clarity.



*Figure 2: Total consumption expenditure per capita 1999/2000.
Vertical line represents poverty line*

The graphs of the consumption expenditure indicate substantial inequality in Haiti. This is also easily seen when considering the

| | | | | | | | | |
|-----------|------|------|------|------|------|------|------|------|
| 1986/1987 | .533 | .454 | .399 | .494 | .515 | .416 | .376 | .489 |
| 1999/2000 | .485 | .574 | .467 | .412 | .509 | .586 | .474 | .449 |

Source: Calculated from raw data files of EBCM II and EBCM III.

Inequality as measured by the Gini coefficient changed little between 1986/1987 and 1999/2000. When the basis of its calculation is household expenditure income per capita inequality scarcely changes between 1986/1987 and 1999/2000. Nevertheless, the data indicate a redistribution of poverty between rural and urban areas. Rural inequality appears to decrease, while urban inequality increases.

Inequality in “other urban” communities, i.e. small towns outside of the Port-Au-Prince metropolitan area, appears to have increased. Although a caveat should be added because of the small number of cases, especially in the first survey, this is probably a trend that should be studied in more depth than is possible here.

The definition of the Port-Au-Prince metropolitan area has in principle not changed between the surveys and the same census enumeration areas were included in the sample frame. Nevertheless, because of the population growth and migration that took place between the two surveys, the Port-Au-Prince metropolitan area make out a larger percentage of the population in 1999/2000 than in 1986/1987.

Table 3: Percentage of population by area 1986/1987 and 1999/2000:

| | 1986/1987 | 1999/2000 |
|----------------|-----------|-----------|
| Port Au Prince | 13.4 | 20.7 |
| Other Urban | 14.7 | 14.2 |
| Rural | 71.9 | 65.1 |
| Total | 100 | 100 |

While the Gini coefficient is a very commonly used measure of inequality, it has the major drawback that one cannot easily use it to show how different parts of the population contribute to total inequality. Although the Gini can be decomposed into contributions from different groups, the resulting measures are not easy to interpret.

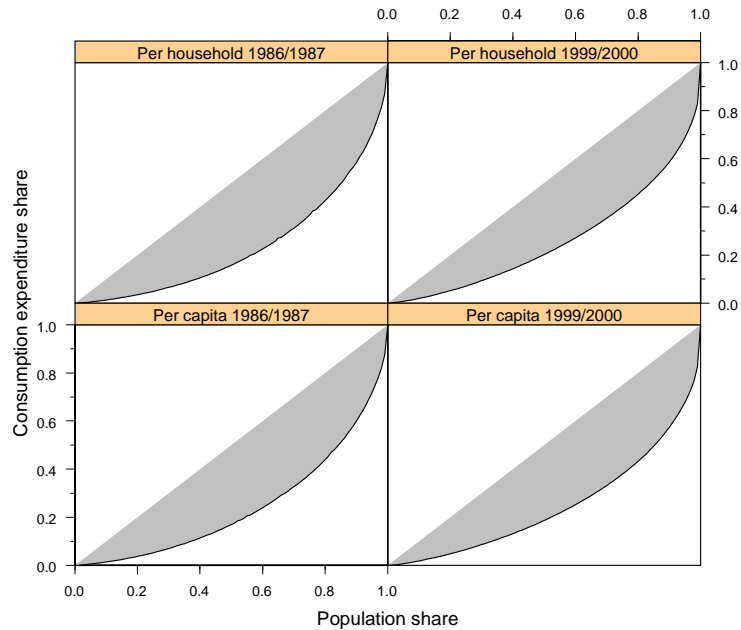


Figure 3: Lorenz curves of total household expenditure and total household expenditure per capita for 1986/1987 and 1999/2000

One should be clear, however, that the overall change in inequality is not very large. The Lorenz curves, shown in Figure 3, do not show great changes in form.

A measure that gives us more insight into the partitioning of inequality into its urban and rural components is Theil's entropy index. While the absolute value of Theil's index of inequality is somewhat difficult to interpret because it lacks an upper bound, the relative shares of inequality accounted for by different groups is easily stated. In the case of the 1999/2000 survey, the total (per capita) inequality as measured by Theil's index was 0.77 and the urban metropolitan area accounted for 21 percent, the other urban areas for 14 percent and the rural areas for 65 percent of the inequality.

Food and poverty lines

Absolute poverty lines are very often constructed with reference to food consumption. The argument is that if households do not have enough food to meet the nutritional requirements of the members, then they must be considered poor.

The dietary requirements per person may be defined in many ways with various degrees of sophistication. Probably the most common,

and also the simplest, is to take into account only the energy requirements per person. One may modify this by including requirements on the proportions of energy from fat, carbohydrates and proteins. In principle one may go even further and also consider requirements of micro-nutrients. However, since diets are often less than ideal even for the rich, and intake of some nutrients depend more on knowledge than on cost, such constraints easily lead to situations where all must be considered nutritionally poor.

Normative food basket based poverty line

The food basket derived poverty line derives from constructing a basket of food that is culturally appropriate and that just satisfies the requirements of a person. Thus, it should be a basket that people with expenditures around the poverty line could buy. While conceptually simple, in that it reflects the need for food, the definition of need is not simple. A nutritionist may construct a cheap and nutritious diet of the common foods available that do not reflect very well what people buy.

Actual food consumption based poverty line

An empirical food based poverty line is a poverty line that corresponds to an expenditure that just satisfies dietary requirements. There are at least two ways of estimating such a line.

The first is calculating the energy (and possibly other nutritional factors) from the consumption reported in a household budget survey. Then one estimates the expenditure that corresponds to the nutritional requirements of the households. When only a selection of the food consumed is used, this becomes a food basket that is in between an empirical and normative one.

Energy expenditure per household has been calculated by the University of Iowa for the 1986/1987 survey. It was not possible to do so for the second, because the prices for some of the food consumed were not available. Therefore, a food basket was constructed to serve as the basis for the poverty line.

Strengths and weaknesses of the approaches

The actual food consumption based poverty line has as its main problem that households purchase more expensive food as they grow richer and less expensive food as they grow poorer. This is not necessarily a problem when estimating the line to begin with, but it may well be when using the poverty line to compare trends over time. If, for example, the household income decreases due to difficult times, the energy requirements may still be satisfied by less expensive foods. Thus, even with an income drop, poverty may

appear to remain constant. The argument depends on the poverty line being recalculated for each point in time. If the original poverty line is kept, and only adjusted for price increases, then an income drop will lead to an increase in poverty. And an actual food consumption poverty line in effect becomes a food basket poverty line, since it no longer reflects the actual consumption pattern. With time the deviation between actual consumption patterns and those used in the poverty line may become quite large.

Construction of the food basket

The food basket is representative of the consumption patterns of poorer persons in Haiti. Ideally it consists of 50 items, consistent with the number of items found in food baskets of many other countries. Having approximately 50 items allows the basket to better represent consumption patterns by including more than just staple items, yet keeps extremely variable items, for instance regional cuisine, from having any emphasis on the basket. The basket created for Haiti consists of 50 for the EBCM II and 53 for the EBCM III, which are essentially the same (see Annex). The difference in numbers results from coding issues in the two data sets.

To construct the food basket, frequencies for food expenditures of the second lowest quintile of the population were calculated for both the EBCM II and EBCM III, and expenditure quantity per food item for the second lowest quintile of the population was calculated for the EBCM III (data was not available to make this calculation for the EBCM II at the time of the food basket construction).

Most items appearing within the top half of the most frequently purchased items and items with the greatest expenditure share are in the food basket. Items left out of the basket from these generated lists include:

- unspecified items – other artisanal condiments, other industrial condiments, industrial non-alcoholic beverages;
- items with similar characteristics as other foods in the basket – leeks resemble onions and garlic, coffee beans are the raw form of ground coffee;
- items with little nutritional value and low expenditure – pepper and dried chili (piment);

- items that did not appear consistently in the three lists – tomato, rapadou, eggs, dried corn, mantegue, malanga, corrossol, eggplant, green leaves, ice cream, candy, girofle;
- items with missing expenditure and/or price data in one of the surveys – green leaves;
- and items for which nutritional data could not be calculated – coconut.

The two-pronged procedure of focussing initially on food use frequencies and then on expenditures was chosen in order to be sure to include items that are not costly, but that is frequently used. However, the weights attached to each item in the final food basket is proportional to expenditure, not frequency.

The second lowest quintile is chosen as the consumption patterns here represent those of the poor population, as the extreme poverty line (i.e. considering the food basket only) is located in the second quintile of the expenditure distribution. Considering the population in the higher expenditure quintiles would make the basket more expensive for the poor population and inflate the poverty line. One could make the argument that the third quintile in fact should be used, as the final non-food adjusted poverty line is located in the third quintile. It is also important to remember that this measure of poverty produces a figure that represents the number of poor persons unable to meet basic nutritional requirements when purchasing food from this basket.

Other considerations noted when creating the food basket include its nutritional balance, representation and consumption pattern changes between 1986/1987 and 1999/2000. The distribution of the items in the expenditure calculations, explained above, actually created a fairly balanced food basket. The items in the basket consumed most frequently include the grains, starches, oils and pulses that provide energy and protein, in addition there are meats and fish providing additional protein and fruits and vegetables supplying vitamins and minerals. Items with poor nutritional values are also included when they represent consumption patterns. For example coffee, cola, salt and Maggi are consumed frequently by the population yet are not nutritionally necessary.

Consumption patterns in 1986/1987 and 1999/2000 do not appear to have significantly changed. For instance locally produced chicken was less expensive in 1986/1987 than in 1999/2000 hence it was consumed more then than it is now. Yet the fact that chicken in general continued to be consumed in 1999/2000, the consumption

pattern did not change, chicken remains in the basket and both frozen, imported chicken and local chicken are used to represent the consumption of chicken. Some imported items such as hot dogs and cornflakes appear to be consumed more by the population, but not in quantities large enough to effect overall consumption patterns (availability of such items is localized to more urban areas).

Because of the apparent small changes between 1986/1987 and 1999/2000 the expenditure weights from 1999/2000 was also used for the 1986/1987 food basket. This solution was also chosen because of data considerations, principally that it was much easier to start with expenditures and then use the prices to arrive at quantities than the other way around for the 1986/1987 survey data.

Calculating food basket expenditure

After the food basket was constructed nutritional values were attached to each item from both surveys for energy (kilocalories), protein, fat and percent refuse. These values were taken from four different food composition tables (see references). Prices were also assigned to the items in the food basket. For the EBCM III prices were based on information from the Bureau des Prix/IHSI and the market survey carried out in conjunction with the EBCM III. For the EBCM II prices were obtained from the survey itself with some prices taken from the Bureau des Prix/ IHSI. All prices were converted to per 100g figures to correspond with nutritional data which was calculated for 100g quantities.

To calculate the food basket expenditure total household expenditures per capita were taken for each food item in the basket and divided by price per 100g to obtain consumption per 100g. The figure was then multiplied by kilocalories per 100g for each food item and corrected for refuse (non-edible parts). The sum of the corrected kilocalories for the items in the food basket were then divided by the adult male equivalent 2900 kcal daily energy need. This figure was then divided by the total food basket expenditure figure and the daily food basket expenditure figure per adult male equivalent resulted. The figure was also calculated using an average energy intake of 2240 kilocalories, a figure used by the World Bank to calculate food basket expenditure. For this calculation the 2900 kcal figure would be replaced and a new value would result.

The food basket accounts for 78 percent of the total food expenditure in 1999/2000.

Quality of data used in food basket calculations

Both the surveys have issues regarding the quality of the data collected. In the EBCM II the price data is not correct for some of the items in the basket. For instance millet has a 25 gde per 100g price when calculated from the survey data and a 0.21 gde price from the Bureau des Prix/IHSI data. Clearly the latter data is more correct, however the price generated from the survey was used to calculate the food basket expenditure as the price error was consistent with the expenditure data for millet and substituting the correct price would have resulted in an inflated consumption figure. Prices from the Bureau des Prix/IHSI were used for cooking oil, evaporated milk and cola because the unit measure information was not available and prices per 100g could not be accurately estimated without this data.

Constraints due to different surveys

The major constraint in comparing the data between the EBCM II and EBCM III are the differences between the food item lists. There were items on both lists that were not classified as well as they could have been for this exercise. Due to the lack of specificity in explanation of food items in both lists each basket varies somewhat and the prices for these items are not exact. For instance rice has only one definition in the EBCM II while in the EBCM III rice has six definitions. As the cost of imported rice varies from local rice it would have been better to have the specific amounts of both rice and the recorded prices for each. The EBCM III lacks definition between fresh and dried coconut which could not be included in the food basket, because the prices and energy values vary significantly for both items.

Non food necessities and their relation to the poverty line

Basic needs include more than just food. Households also require shelter, clothing, health care, etc. However, while food needs may be estimated with respect to dietary requirements as we have seen above, for other needs it may be more difficult to define acceptable levels or find the divide between the poor and the non-poor. Thus, while rusty tin shelters in Cité Solei are clearly an unacceptable standard of housing and the villas in the hills above Petionville are far above the general standard for housing, they are both considered shelter and defining the inequality between the two is not exact.

Several approaches are commonly used to deal with the problem:

1. Simply adjusting the poverty line for non-food expenditure by some arbitrary (but reasonable) amount, for example multiplying by 1.25 or 1.33.
2. Estimating essential non-food expenditure by estimating non-food expenditure for households with total expenditure corresponding to the food poverty line.
3. Putting together a 'necessary basket' consisting of minimum housing, transport, health and education needs and then adding the cost of that basket to the poverty line.

Here the second approach was used. The argument for this is first one of exclusion of the other two, there are no particular arguments for fixing a specific arbitrary amount, and determining acceptable standards for the poor in housing, health, etc. is very difficult. Second, a positive argument for the second approach is that focusing on non food consumption of households at the food poverty line is at least a focus on what households consider necessary. After all, non-food consumption brings food consumption below food energy needs.

Since there are few or no households with consumption expenditure at exactly the poverty line, the estimate of the non-food expenditure comes from the households around the poverty line. In the present case, the average non-food expenditure of households within 10 percent on each side of the poverty line was used. The five percent band was also tested, and gives practically the same result.

Equivalence scales

It is reasonable to consider a large household poorer than a small one if the two households have the same expenditure. A household with four persons consumes more than one with two persons. However, the exact difference reflects both that people of different sex and age in a household have different consumption needs and different economies of scale.

One may correct the poverty line for this fact by adjusting it by an equivalence scale that defines how much each person should account for in terms of consumption.

The simplest equivalence scale is to count each person as similar to any other person, i.e. only taking household size into account. The

benefit of that is simply that it avoids the assumptions needed for more complex equivalence scales.

Common ways of establishing equivalence scales include:

1. Using an established one, for instance that used for comparison between OECD countries.
2. In the context of food expenditure, deriving the equivalence scales from recommended dietary allowances.
3. Various econometric ones, such as assuming that two households have the same welfare if they have the same food expenditure as a proportion of total expenditure or assuming that the consumption per adult equivalent is a function of total consumption expenditure and household composition.

Due to data constraints (principally the very weak correlation between incomes and expenditures in the 1999/2000 survey and the lack of income data in the 1986/1987 survey data files) empirical equivalence scales were not estimated. An equivalence scale using recommended dietary allowances (see annex 4) was used to test the sensitivity of the poverty line to equivalence scales (see below).

The poverty line

The poverty lines for the two periods estimated through the use of per capita energy expenditure are shown in Table 4.

Table 4: Poverty lines estimated from food baskets and non-food expenditures

| Expenditure in Gds | 1986/1987 | 1999/2000 |
|---------------------|--------------|--------------|
| Per capita food | 1,292 | 4,243 |
| Per capita non food | 548 | 1,395 |
| Total | 1,840 | 5,638 |

It is quite possible to create lower and higher poverty lines. At the extreme, a diet consisting of just rice would cost about 3474 gds per year in 1999/2000, and one consisting of a mix of oil and rice could be had for 2311 gds assuming the 1999/2000 prices and the observed relative consumption of rice and oil. As indicated by the examples, the poverty line is very sensitive to the estimated amount of rice and oil in the consumption pattern of the households. The poverty line is also very dependent on the price data for these items. On the

substantive side, it also means that the ability of households to secure adequate nutrition to a large extent depends on the prices of rice and cooking oil.

Poverty lines based on recommended dietary allowances for the various persons in the household were also estimated (see below).

Since the interviewing period for both surveys included parts of two years, the poverty line derived from each survey refers to the two years. The midpoint of the interviewing for the data included in the 1986/1987 survey was March 1987. Therefore the poverty line may be referred to as the 1987 poverty line. The midpoint of the 1999/2000 data collection was November 1999. Therefore 1999 may be used as a reference year for the poverty lines based on the 1999/2000 survey.

Poverty

The poverty lines identified lead to poverty rates in 1986/1987 of 60 percent of the population, or 55 percent of the households. In 1999/2000 the poverty rate decreased to 48 percent of the population, or 38 percent of the households.

Not surprisingly poverty is more common in rural areas, especially in 1986/1987 when poverty was not widespread in urban areas outside of the Port-au-Prince area.

Table 5: Poverty headcount rates by residence and year (percent of population)

| Year | Metropolitan Area | Other urban | Rural | Total |
|-----------|-------------------|-------------|-------|-------|
| 1986/1987 | 43.4 | 14.6 | 72.8 | 59.6 |
| 1999/2000 | 34.3 | 34.7 | 55.5 | 48.0 |

Also indicated when discussing inequality, it appears that the conditions in the small towns of Haiti – the other urban category – were deteriorating between 1986 and 2000.

Table 6: Extreme poverty headcount by residence and year (percent of population)

| Year | Metropolitan Area | Other urban | Rural | Total |
|-----------|-------------------|-------------|-------|-------|
| 1986/1987 | 27 | 5.7 | 56.5 | 44.5 |

| | | | | |
|-----------|------|------|------|------|
| 1999/2000 | 19.9 | 20.5 | 37.6 | 31.4 |
|-----------|------|------|------|------|

Households in extreme poverty – i.e. the households that have expenditures below the required energy intakes – show much the same distribution as those below the poverty line (Table 6).

If the poverty lines are calculated using an equivalence scale based on recommended dietary allowances the estimates of poverty in Haiti are reduced. This is because the per capita measure counts every person in the household as equal, while the recommended dietary allowance based measure gives much less emphasis to large households who have small children who count less than adults. In policy terms this probably means shifting emphasis from households with small children to households with a high proportion of adults.

One may argue that the recommended dietary allowance based poverty rates are more realistic. Nevertheless, it is more common to use the per capita based ones and we have chosen this.

Table 7: Poverty headcount rates based on recommended dietary allowances by residence (percent of population) 1999/2000

| Poverty | Metropolitan Area | Other urban | Rural | Total |
|---------|-------------------|-------------|-------|-------|
| Extreme | 19.9 | 18.9 | 35.5 | 29.7 |
| General | 34.6 | 33.2 | 53.6 | 46.6 |

The poverty rates may also be evaluated in terms of their decomposition, and one may also consider the depth of poverty. This is done in by using the Foster-Greer-Thorbecke indices. These indices make up a set that have as a common feature the emphasis on how far a given poor household is from the poverty line. The formula is given below:

$$P^\alpha = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]^\alpha$$

Here z is the poverty line, y_i is the income of a particular household below the poverty line, and q is the number of households below the poverty line. It should be noted that the summation is only for households below the poverty line. The factor α may be termed a poverty aversion factor. This is because the higher the factor, the

more emphasis the index puts on the depth or severity of poverty. When α is 0, then the index becomes simply the proportion of the population below the poverty line, often called the “headcount”. When α is 1, then the index measures the average gap between the poverty line and the income of poor people. Higher values of α put increasing weight on this gap.

The Foster-Greer-Thorbecke set of indices has as a very convenient feature that the indices may be decomposed, i.e., one may calculate how large share of the contribution to poverty a subgroup of the population make.

Using the Foster-Greer-Thorbecke indices one may make two observations about poverty in Haiti. First, the indices show that (for the general (standard) poverty line) that regardless of how much emphasis is put on the depth of poverty, the contribution of different areas remains stable.

Secondly, if the poverty lines are changed – as for example by using the extreme poverty line, or by using an arbitrary line set at 7,500 gds – then again the contributions do not vary significantly. This means that within reasonable assumptions about how to set the poverty line, policy choices based on area of residence and poverty rates or poverty depth would not vary significantly.

Table 8: Decomposition of poverty 1999/2000 (per capita population based)

| Poverty line | | Head-count (P0) | Contribution | P1 | Contribution | P2 | Contribution | Gap |
|--------------------------|-------------|-----------------|--------------|------|--------------|------|--------------|-----|
| Standard | Metro Area | 0.34 | 15 | 0.12 | 14 | 0.06 | 14 | 34 |
| | Other Urban | 0.35 | 11 | 0.11 | 9 | 0.05 | 9 | 33 |
| | Rural | 0.55 | 74 | 0.21 | 77 | 0.10 | 78 | 38 |
| Extreme | Metro Area | 0.20 | 13 | 0.06 | 13 | 0.03 | 14 | 32 |
| | Other Urban | 0.21 | 10 | 0.06 | 9 | 0.03 | 8 | 29 |
| | Rural | 0.38 | 77 | 0.12 | 78 | 0.06 | 78 | 33 |
| Arbitrarily high (7,500) | Metro Area | 0.51 | 17 | 0.20 | 15 | 0.10 | 14 | 39 |
| | Other | 0.50 | 12 | 0.19 | 10 | 0.10 | 10 | 38 |

| | | | | | | | | |
|-------|-------|------|----|------|----|------|----|----|
| gdes) | Urban | | | | | | | |
| | Rural | 0.70 | 71 | 0.31 | 74 | 0.17 | 76 | 45 |

To illustrate further, poverty indices for male and female headed households are given in Table 9 below.

Table 9: Poverty indices for male and female headed households

| Group | P ₀ | Contri- bution | P ₁ | Contri- bution | P ₂ | Contri- bution |
|---------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|
| Male headed | 0.486 | 59 | 0.1793 | 59.3 | 0.0872 | 58.5 |
| Female headed | 0.471 | 41 | 0.1713 | 40.7 | 0.0862 | 41.5 |

As can be seen, poverty rates for male and female headed households are practically similar, and male households account for the greater share of poverty of the two groups simply because there are more male headed households than female headed ones.

Data

The data used in this report has been taken from the EBCM II from 1986/1987 and the EBCM III from 1999/2000. IHSI provided both datasets for this analysis. The characteristics of the two surveys are summarized in Table 10.

Table 10: Characteristics of the data from the two surveys

| | 1986/1987 | 1999/2000 |
|--|----------------------------|-----------------------------|
| Sample size (households retained in data file) | 2,079 | 4,751 |
| Period of data collection (retained in file) | Nov 1986 – July 1987 | April 1999 – May 2000 |
| Number of visits per household | 4 visits in one week | 4 visits in two weeks |
| Reference period for food items | 1-2 days (7 days total) | 3-4 days (10 days total) |
| Mode of recording | Interview | Interview and diary |
| Mean household income | N/A (in data file) | 44,400 |

| | | |
|--|--------------------|--------|
| Median household income | N/A (in data file) | 19,080 |
| Mean household consumption expenditure | 11,486 | 50,857 |
| Median household expenditure | 6,848 | 32,587 |
| Mean household size | 4.9 | 5.2 |
| Median household size | 5 | 5 |

The data from the 1986/1987 and 1999/2000 have been prepared for analysis differently. In particular rent for owner occupied housing was imputed in the 1986/1987 data, but not in the 1999/2000 data. A rough estimate of imputed rent in the 1999/2000 data indicates that it makes up about 7 percent of the household consumption expenditure. (The imputed rent was approximated by setting the rent for households with no rent expenditure equal to the rent paid by households in the same area of residence, expenditure quintile and age group of household head).

As can be seen from the table, the mean consumption expenditure in the 1999/2000 survey was close to the mean recorded income. However, the survey shows no relation between the two. For example, regression of income against expenditure shows an almost horizontal regression line, and an explained variance that is indistinguishable from 0. One would expect a positive regression line, indicating that expenditure increase with income, and that a substantial amount of the variation in expenditure can be attributed to income. This, however, is not the case in the 1999/2000 survey data, which leads one to doubt the reliability of the income data in the survey. The expenditure data appears more robust than the income data. For example, consumption patterns are highly correlated with total expenditures in expected ways.

Sensitivity to sampling errors

The proportion that each food item in the consumption basket makes up is susceptible to sampling errors. Sampling errors were

estimated for the EBCM 1999/2000 survey¹. These are large, particularly in the rural areas. This is one of the reasons why the poverty line was not calculated separately for urban and rural areas. There is no sampling information available in the EBCM 1986/1987 files, so sampling errors for this survey could not be estimated. Nevertheless, in general terms it does not seem that the sampling errors effected the proportions of food in the food basket since the total of different food groups are estimated with comparatively little error.

¹ The files available for this task identified Primary Sampling Units, but not the complete stratification. Therefore sampling errors are probably overestimated slightly (most likely with less than 10 percent).

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Appendix 1: Names of food used in the food baskets

1986/1987

| ECBM II Code | English Name | French Name | Creole Name |
|--------------|------------------------------|------------------------------|-----------------------------|
| 1005 | Cornmeal | Maïs moulu | Mayi moulin |
| 1008 | Wheat flour | Farine de blé | Farin ble |
| 1010 | Millet, grain | Mil en grain | Piti Mi |
| 1012 | Rice, white | Riz blanc | Diri |
| 1014 | Spaghetti | Spaghetti | Spaghetti |
| 1015 | Vermicelles | Vermicelles | Vermicelles |
| 1016 | Macaroni | Macaroni | Macaroni |
| 1018 | Bread, white | Pain de farine de blé | Pain |
| 2002 | Yam | Igname | Yanm |
| 2008 | Sweet potato | Patate douce | Patat |
| 2009 | Potato | Pomme de terre | Pomdetè |
| 2012 | Cassava | Manioc | Kasav |
| 2014 | Onion | Oignon | Zonyon |
| 2017 | Carrot | Carotte | Kàwot |
| 3001 | Breadfruit | Arbre véritable | Lam veritab |
| 3002 | Avocado | Avocat | Zaboca |
| 3003 | Plantain | Banane verte | Bannan |
| 3004 | Pumpkin (Cushaw) | Giraumont | Jouroumou |
| 3005 | Chayote | Mirliton | Militon |
| 3006 | Peas, fresh | Pois tendre | Pwa tann |
| 3007 | Peas, green | Pois vert | Pwa vèt |
| 3008 | Peas, dried | Pois sec | Pwa sèch |
| 3012 | Okra | Gombo | Calalou |
| 3013 | Cabbage | Chou | Chou |
| 3020 | Tomato paste | Pâte de tomate | Pat tomat |
| 4001 | Orange, sweet | Orange, douce | Zoranj dous |
| 4003 | Orange, sour | Orange, sûre | Lay |
| 4004 | Grapefruit | Pamplemousse | Chadèk |
| 4016 | Banana | Banane | Fig |
| 4021 | Lime | Citron vert | Citron |
| 4035 | Mango | Mangue | Mango |
| 5001 | Oil, cooking | Huile | Lwil |
| 5006 | Butter, kitchen | Beurre de cuisine | Bè |
| 5007 | Cow milk, fresh | Lait frais de vache | Lèt vach |
| 5009 | Evaporated milk, unsweetened | Lait évaporé, non sucré | Lèt evapore |
| 6001 | Beef, with bones | Boeuf, avec os | Bèf |
| 6002 | Pork, with bones | Porc, avec os | Cochon |
| 6003 | Goat, with bones | Chèvre, avec os | Cabrit |
| 6006 | Meat, salted | Viande salée | Vian sale, andwi, soupoudre |
| 6010 | Chicken | Poulet | Poul |
| 7001 | Fish, whole | Poisson, entier | Pwason |
| 7002 | Herring, smoked, kippered | Hareng, fumé | Aransò |
| 7003 | Herring, salted | Hareng, salé | Aransel |
| 8001 | Sugar, crude | Sucre brut | Sik rouj |
| 8002 | Sugar, refined | Sucre raffiné | Sik blan |
| 9004 | Coffee, pounded | Café pilé | Cafe pile |
| 9014 | Salt | Sel | Sel |
| 9016 | Garlic | Aïl | Lay |
| 9024 | Bouillon cube (Maggi, Jumbo) | Bouillon cube (Maggi, Jumbo) | Maggi, Jumbo |

| | | | |
|-------|------|------|------|
| 10001 | Cola | Cola | Kola |
|-------|------|------|------|

1999/2000

| ECBM III Code | English Name | French Name | Creole Name |
|---------------|------------------------------|--------------------------------|-----------------------------|
| 004 | Cornmeal - local | Maïs moulu - local | Mayi moulin |
| 006 | Millet, grain | Mil en grain | Piti Mi |
| 007 | Millet, pounded | Mil pilé | Piti Mi |
| 010 | Rice, white - local | Riz blanc - local | Diri payi |
| 013 | Rice, white - imported | Riz blanc - importé | Diri impote |
| 015 | Wheat flour - in bulk | Farine de blé - en vrac | Farin ble |
| 030 | Pasta - local | Pâtes alimentaires - locales | Spaghetti/vermicelles |
| 031 | Pasta - imported | Pâtes alimentaires - importées | Spaghetti/vermicelles |
| 034 | Bread, white | Pain de farine de blé | Pain |
| 048 | Beef, with bones | Boeuf, avec os | Bèf |
| 052 | Goat, with bones | Chèvre, avec os | Cabrit |
| 054 | Pork, with bones | Porc, avec os | Cochon |
| 061 | Chicken, live | Poulet, vivant | Poul vivan |
| 062 | Chicken, frozen | Poulet, congelé | Poul impote |
| 075 | Meat, salted | Viande salée | Vian sale, andwi, soupoudre |
| 082 | Fish, whole | Poisson, entier | Pwason |
| 089 | Herring, smoked, kippered | Hareng, fumé | Aransò |
| 090 | Herring, salted | Hareng, salé | Aransel |
| 101 | Cow milk, fresh | Lait frais de vache | Lèt vach |
| 106 | Evaporated milk, unsweetened | Lait évaporé, non sucré | Lèt evapore |
| 120 | Butter, kitchen | Beurre de cuisine | Bè |
| 125 | Oil, cooking | Huile | Lwil |
| 132 | Avocado | Avocat | Zaboca |
| 137 | Grapefruit | Pamplemousse | Chadèk |
| 138 | Lime | Citron vert | Citron |
| 141 | Banana | Banane | Fig |
| 148 | Mango | Mangue | Mango |
| 150 | Orange, sweet | Orange, douce | Zoranj dous |
| 833 | Orange, sour | Orange, sùre | Zoranj si |
| 165 | Garlic | Aïl | Lay |
| 169 | Carrot | Carotte | Kàwot |
| 172 | Cabbage | Chou | Chou |
| 178 | Pumpkin (Cushaw) | Giraumont | Jouroumou |
| 179 | Okra | Gombo | Calalou |
| 180 | Beans, green | Haricots verts | Pwa vèt |
| 181 | Beans, dry | Haricots secs | Pwa sèch |
| 184 | Chayote | Mirliton | Militon |
| 186 | Onion | Oignon | Zonyon |
| 191 | Peas, dried | Pois sec | Pwa sèch |
| 192 | Peas, fresh | Pois tendre | Pwa tann |
| 209 | Breadfruit | Arbre véritable | Lam veritab |
| 210 | Plantain | Banane verte | Bannan |
| 211 | Yam | Igname | Yanm |
| 213 | Cassava | Manioc | Kasav |
| 214 | Sweet potato | Patate douce | Patat |
| 215 | Potato | Pomme de terre | Pomdetè |

| | | |
|----------------------------------|------------------------------|--------------|
| 233 Sugar, crude | Sucre brut | Sik rouj |
| 234 Sugar, refined | Sucre raffiné | Sik blan |
| 249 Bouillon cube (Maggi, Jumbo) | Bouillon cube (Maggi, Jumbo) | Maggi, Jumbo |
| 259 Tomato paste | Pâte de tomate | Pat tomat |
| 265 Salt | Sel | Sel |
| 270 Coffee, pounded | Café pilé | Cafe pile |
| 287 Cola | Cola | Kola |

Appendix 2: Food basket calculations

1999/2000

| Food item | Consumption | | Energy | | Protein | Fat | Refuse | Price | Consumption | | Total Energy adjusted for refuse | Protein adjusted for refuse | Fat adjusted for refuse | Protein adjusted for refuse | Fat adjusted for refuse |
|-------------------------------------|-------------|-------|--------|------|---------|------|------------|---------|-------------|-------|----------------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|
| | Proportion | gde | kcal | kJ | g | g | proportion | gde | (100g) | Kcal | kcal | g | g | kcal | Kcal |
| Cornmeal,degermed-local | 0.0329 | 0.292 | 366 | 1533 | 8.5 | 1.7 | 0 | 0.85 | 0.343 | 125.6 | 125.6 | 2.9 | 0.6 | 11.7 | 5.2 |
| Millet,dry,grain | 0.0048 | 0.043 | 315 | 1320 | 7.4 | 1.3 | 0.03 | 0.71 | 0.061 | 19.2 | 18.6 | 0.4 | 0.1 | 1.7 | 0.7 |
| Millet,dry,pounded | 0.0126 | 0.112 | 320 | 1320 | 5.6 | 1.4 | 0 | 0.71 | 0.159 | 50.8 | 50.8 | 0.9 | 0.2 | 3.6 | 2.0 |
| Rice,white-local | 0.0459 | 0.407 | 365 | 1529 | 7.1 | 0.7 | 0 | 1.55 | 0.262 | 95.6 | 95.6 | 1.9 | 0.2 | 7.4 | 1.7 |
| Rice,white-imported | 0.1105 | 0.981 | 365 | 1529 | 7.1 | 0.7 | 0 | 1.55 | 0.631 | 230.5 | 230.5 | 4.5 | 0.4 | 17.9 | 4.0 |
| Wheatflour,enriched-inbulk | 0.0122 | 0.108 | 364 | 1525 | 10.3 | 1 | 0 | 1.03 | 0.105 | 38.3 | 38.3 | 1.1 | 0.1 | 4.3 | 0.9 |
| Pasta,uncooked-local | 0.0097 | 0.086 | 371 | 1553 | 12.8 | 1.6 | 0 | 2.27 | 0.038 | 14.1 | 14.1 | 0.5 | 0.1 | 1.9 | 0.5 |
| Pasta,uncooked-imported | 0.0060 | 0.053 | 371 | 1553 | 12.8 | 1.6 | 0 | 2.27 | 0.023 | 8.7 | 8.7 | 0.3 | 0.0 | 1.2 | 0.3 |
| Frenchbread | 0.0382 | 0.339 | 290 | 1213 | 9.1 | 3 | 0 | 1.27 | 0.268 | 77.7 | 77.7 | 2.4 | 0.8 | 9.7 | 7.2 |
| Beef,withbones,raw | 0.0252 | 0.224 | 291 | 1218 | 17.3 | 24 | 0.19 | 4.53 | 0.049 | 14.4 | 11.6 | 0.7 | 1.0 | 2.8 | 8.6 |
| Goat,withbones,raw | 0.0219 | 0.194 | 109 | 455 | 20.6 | 2.3 | 0.23 | 4.98 | 0.039 | 4.2 | 3.3 | 0.6 | 0.1 | 2.5 | 0.6 |
| Pork,withbones,raw | 0.0150 | 0.133 | 275 | 1150 | 16.74 | 22.6 | 0 | 4.80 | 0.028 | 7.6 | 7.6 | 0.5 | 0.6 | 1.9 | 5.6 |
| Chicken,broiler | 0.0103 | 0.091 | 213 | 889 | 18.3 | 14.8 | 0.31 | 5.32 | 0.017 | 3.6 | 2.5 | 0.2 | 0.2 | 0.9 | 1.6 |
| Chicken,broiler,frozen | 0.0172 | 0.153 | 213 | 889 | 18.3 | 14.8 | 0.31 | 5.32 | 0.029 | 6.1 | 4.2 | 0.4 | 0.3 | 1.5 | 2.6 |
| Meat,salted | 0.0157 | 0.139 | 290 | - | 48.1 | 9.4 | 0 | 3.5 | 0.040 | 11.5 | 11.5 | 1.9 | 0.4 | 7.6 | 3.4 |
| Fish,fromsea,raw | 0.0400 | 0.355 | 100 | - | 20.5 | 1.4 | 0.3 | 5.74 | 0.062 | 6.2 | 4.3 | 0.9 | 0.1 | 3.5 | 0.5 |
| Herring,smoked,kippered(Clupeaspp.) | 0.0158 | 0.140 | 211 | 883 | 22.2 | 12.9 | 0 | 4.99 | 0.028 | 5.9 | 5.9 | 0.6 | 0.4 | 2.5 | 3.3 |
| Herring,salted(Clupeaspp.) | 0.0059 | 0.052 | 196 | 819 | 19.6 | 12.4 | 0 | 4.99 | 0.010 | 2.0 | 2.0 | 0.2 | 0.1 | 0.8 | 1.2 |
| Milk,whole,33%fat | 0.0077 | 0.068 | 61 | 257 | 3.3 | 3.3 | 0 | 1.51 | 0.045 | 2.7 | 2.7 | 0.1 | 0.1 | 0.6 | 1.3 |
| Condensedmilk,unsweetened | 0.0171 | 0.152 | 134 | 562 | 6.8 | 7.6 | 0 | 3.97 | 0.038 | 5.1 | 5.1 | 0.3 | 0.3 | 1.0 | 2.6 |
| Butter,salted | 0.0066 | 0.059 | 717 | 3000 | 0.9 | 81.1 | 0 | 3.50 | 0.017 | 12.1 | 12.1 | 0.0 | 1.4 | 0.1 | 12.3 |
| Soyaoil | 0.0954 | 0.847 | 899 | 3696 | 0 | 99.9 | 0 | 1.83 | 0.462 | 415.7 | 415.7 | - | 46.2 | - | 415.7 |
| Avocado(Perseaamericana) | 0.0064 | 0.057 | 161 | 674 | 2 | 15.3 | 0.26 | 0.63 | 0.091 | 14.7 | 10.9 | 0.1 | 1.0 | 0.5 | 9.3 |
| Grapefruit,raw(Citrusparadisi) | 0.0047 | 0.042 | 30 | 126 | 0.6 | 0.1 | 0.49 | 0.31 | 0.134 | 4.0 | 2.1 | 0.0 | 0.0 | 0.2 | 0.1 |
| Limes(C,aurantifolia) | 0.0077 | 0.068 | 30 | 126 | 0.7 | 0.2 | 0.16 | 1.51 | 0.045 | 1.4 | 1.1 | 0.0 | 0.0 | 0.1 | 0.1 |
| Banana,ripe | 0.0089 | 0.079 | 92 | 384 | 1 | 0.5 | 0.35 | 0.41569 | 0.190 | 17.5 | 11.4 | 0.1 | 0.1 | 0.5 | 0.6 |
| Mango,ripe(mangiferaindica) | 0.0135 | 0.120 | 65 | 273 | 0.5 | 0.3 | 0.31 | 0.57 | 0.209 | 13.6 | 9.4 | 0.1 | 0.0 | 0.3 | 0.4 |

1999/2000

| Food item | Consumption | | Energy | | Protein | Fat | Refuse | Price | Consumption | | Total Energy adjusted for refuse | Protein adjusted for refuse | Fat adjusted for refuse | Protein adjusted for refuse | Fat adjusted for refuse |
|-------------------------------------|-------------|-------|--------|------|---------|-----|------------|----------|-------------|-------|------------------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|
| | Proportion | gde | kcal | kJ | g | g | proportion | gde | (100g) | Kcal | kcal | g | g | kcal | Kcal |
| Orange(Citrus sinensis) | 0.0060 | 0.053 | 47 | 197 | 0.9 | 0.1 | 0.27 | 0.52 | 0.103 | 4.8 | 3.5 | 0.1 | 0.0 | 0.3 | 0.1 |
| Orange(Citrus sinensis) | 0.0034 | 0.030 | 47 | 197 | 0.9 | 0.1 | 0.27 | 0.52 | 0.122 | 5.7 | 4.2 | 0.1 | 0.0 | 0.3 | 0.1 |
| Garlic,raw(Allium sativum) | 0.0071 | 0.063 | 149 | 623 | 6.4 | 0.5 | 0.13 | 5.51 | 0.005 | 0.7 | 0.6 | 0.0 | 0.0 | 0.1 | 0.0 |
| Carrot,raw(Daucus carota) | 0.0029 | 0.026 | 43 | 181 | 1 | 0.2 | 0.11 | 1.25 | 0.012 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| Cabbage,raw(S.oleraceavar.capitata) | 0.0017 | 0.015 | 26 | 109 | 1.7 | 0.4 | 0.23 | 0.378536 | 0.137 | 3.6 | 2.8 | 0.2 | 0.0 | 0.7 | 0.4 |
| Pumpkin,raw(Cucurbita maxima) | 0.0059 | 0.052 | 26 | 109 | 1 | 0.1 | 0.3 | 0.71 | 0.061 | 1.6 | 1.1 | 0.0 | 0.0 | 0.2 | 0.0 |
| Okra,raw(Abelmoschus esculentus) | 0.0048 | 0.043 | 38 | 158 | 2 | 0.1 | 0.14 | 1.072829 | 0.040 | 1.5 | 1.3 | 0.1 | 0.0 | 0.3 | 0.0 |
| Greenbeans,raw(P.vulgaris) | 0.0088 | 0.078 | 31 | 129 | 1.8 | 0.1 | 0.12 | 1.71 | 0.046 | 1.4 | 1.2 | 0.1 | 0.0 | 0.3 | 0.0 |
| Kidneybeans,dry(Phaseolus vulgaris) | 0.0665 | 0.590 | 337 | 1408 | 22.5 | 1.1 | 0 | 2.02 | 0.292 | 98.3 | 98.3 | 6.6 | 0.3 | 26.3 | 2.9 |
| Chayote,raw(Sechium edule) | 0.0066 | 0.059 | 24 | 100 | 0.9 | 0.3 | 0.01 | 0.49 | 0.121 | 2.9 | 2.9 | 0.1 | 0.0 | 0.4 | 0.3 |
| Onions,raw(Allium cepa) | 0.0080 | 0.071 | 34 | 141 | 1.2 | 0.3 | 0.1 | 1.76 | 0.040 | 1.4 | 1.2 | 0.0 | 0.0 | 0.2 | 0.1 |
| Congopeas,dry(Cajanus cajan) | 0.0285 | 0.253 | 343 | 1436 | 21.7 | 1.5 | 0 | 2.02 | 0.125 | 42.9 | 42.9 | 2.7 | 0.2 | 10.9 | 1.7 |
| Congopeas,raw(Cajanus cajan) | 0.0002 | 0.002 | 136 | 569 | 7.2 | 1.6 | 0.52 | 1.71 | 0.001 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Breadfruit,raw(Artocarpus affinis) | 0.0157 | 0.139 | 103 | 432 | 1.1 | 0.2 | 0.09 | 0.21 | 0.662 | 68.2 | 62.0 | 0.7 | 0.1 | 2.6 | 1.1 |
| Plantain,unripe(Musa paradisiaca) | 0.0697 | 0.619 | 132 | 540 | 1.2 | 0.1 | 0.31 | 0.61 | 1.020 | 134.6 | 92.9 | 0.8 | 0.1 | 3.4 | 0.6 |
| Yam,raw(Dioscorea spp.) | 0.0344 | 0.305 | 118 | 494 | 1.5 | 0.2 | 0.14 | 0.84 | 0.365 | 43.0 | 37.0 | 0.5 | 0.1 | 1.9 | 0.6 |
| Cassava,raw(Manihot esculenta) | 0.0033 | 0.029 | 120 | 504 | 3.1 | 0.4 | 0.25 | 0.46 | 0.063 | 7.6 | 5.7 | 0.1 | 0.0 | 0.6 | 0.2 |
| Sweetpotato,raw(Ipomoea batatas) | 0.0154 | 0.137 | 105 | 439 | 1.7 | 0.3 | 0.28 | 0.48 | 0.285 | 30.0 | 21.6 | 0.3 | 0.1 | 1.4 | 0.6 |
| Potato,raw(Solanum tuberosum) | 0.0018 | 0.016 | 79 | 331 | 2.1 | 0.1 | 0.25 | 1.18 | 0.014 | 1.1 | 0.8 | 0.0 | 0.0 | 0.1 | 0.0 |
| Sugar,light brown | 0.0195 | 0.173 | 394 | 1681 | 0.5 | 0 | 0 | 1.14 | 0.151 | 59.5 | 59.5 | 0.1 | - | 0.3 | - |
| Sugar,white,refined,powder | 0.0301 | 0.267 | 385 | 1611 | 0 | 0 | 0 | 1.32 | 0.203 | 78.2 | 78.2 | - | - | - | - |
| Maggi,Jumbo | 0.0234 | 0.208 | 252 | 1054 | 18.2 | 2.3 | 0 | 9.489583 | 0.022 | 5.5 | 5.5 | 0.4 | 0.1 | 1.6 | 0.5 |
| Tomatopaste,canned | 0.0082 | 0.073 | 84 | 351 | 3.8 | 0.9 | 0 | 4.36 | 0.017 | 1.4 | 1.4 | 0.1 | 0.0 | 0.3 | 0.1 |
| Salt,table | 0.0055 | 0.049 | 0 | 0 | 0 | 0 | 0 | 1.07 | 0.046 | - | - | - | - | - | - |
| Coffee,pounded | 0.0053 | 0.047 | 56 | 234 | 8 | 0 | 0 | 5.01 | 0.009 | 0.5 | 0.5 | 0.1 | - | 0.3 | - |
| Cola | 0.0096 | 0.085 | 41 | 170 | 0 | 0 | 0 | 1.43 | 0.059 | 2.4 | 2.4 | - | - | - | - |
| | 1.0000 | 8.88 | | | | | | | | | 1,711.5 | 34.8 | 55.7 | 139.1 | 501.7 |
| Yearly consumption | | 3,242 | | | | | | | | | Adjustment factor to get 2240 kcal | | | | |
| | | | | | | | | | | | Adjusted daily requirement Gds | 11.62 | Percent of energy | 8.1% | 29.3% |
| | | | | | | | | | | | Yearly minimum poverty line | 4,243.13 | | | |

1986/1987

| Food items | Expenditure | | Energy | | Protein | Fat | Refuse | Price | Consumption | | Energy adjusted for refuse | Protein adjusted for refuse | Fat adjusted for refuse | Protein adjusted for refuse | Fat adjusted for refuse |
|--|-------------|-------|--------|------|---------|------|------------|-------|-------------|------|----------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|
| | Proportion | Gds | kcal | kJ | g | g | proportion | gde | 100g | kcal | kcal | g | g | kcal | kcal |
| Cornmeal, degermed | 0.0329 | 0.073 | 366 | 1533 | 8.5 | 1.7 | 0 | 0.21 | 0.35 | 127 | 127 | 2.96 | 0.59 | 11.83 | 5.33 |
| Wheat flour, enriched | 0.0122 | 0.027 | 364 | 1525 | 10.3 | 1 | 0 | 0.33 | 0.08 | 30 | 30 | 0.85 | 0.08 | 3.41 | 0.75 |
| Millet, dry, grain | 0.132 | 0.293 | 315 | 1320 | 7.4 | 1.3 | 0.03 | 21.70 | 0.01 | 4 | 4 | 0.10 | 0.02 | 0.39 | 0.15 |
| Rice | 0.1564 | 0.347 | 365 | 1529 | 7.1 | 0.7 | 0 | 0.30 | 1.15 | 418 | 418 | 8.13 | 0.80 | 32.53 | 7.22 |
| Spaghetti | 0.0157 | 0.035 | 371 | 1553 | 12.8 | 1.6 | 0 | 0.64 | 0.05 | 20 | 20 | 0.70 | 0.09 | 2.80 | 0.79 |
| Vermicelles | | - | 371 | 1553 | 12.8 | 1.6 | 0 | 0.81 | - | - | - | - | - | - | - |
| Macaroni | | - | 371 | 1553 | 12.8 | 1.6 | 0 | 0.82 | - | - | - | - | - | - | - |
| Bread | 0.0382 | 0.085 | 290 | 1213 | 9.1 | 3 | 0 | 0.41 | 0.21 | 60 | 60 | 1.87 | 0.62 | 7.50 | 5.56 |
| Yam, raw (Dioscorea spp.) | 0.0344 | 0.076 | 118 | 494 | 1.5 | 0.2 | 0.14 | 0.15 | 0.51 | 60 | 52 | 0.66 | 0.09 | 2.63 | 0.79 |
| Sweet potato, raw (Ipomoea batatas) | 0.0154 | 0.034 | 105 | 439 | 1.7 | 0.3 | 0.28 | 0.11 | 0.31 | 33 | 24 | 0.39 | 0.07 | 1.54 | 0.61 |
| Potato, raw (Solanum tuberosum) | 0.0018 | 0.004 | 79 | 331 | 2.1 | 0.1 | 0.25 | 0.32 | 0.01 | 1 | 1 | 0.02 | 0.00 | 0.08 | 0.01 |
| Cassava (Manihot esculenta) | 0.0033 | 0.007 | 120 | 504 | 3.1 | 0.4 | 0.25 | 0.22 | 0.03 | 4 | 3 | 0.08 | 0.01 | 0.31 | 0.09 |
| Onions, raw (Allium cepa) | 0.008 | 0.018 | 34 | 141 | 1.2 | 0.3 | 0.1 | 0.51 | 0.03 | 1 | 1 | 0.04 | 0.01 | 0.15 | 0.08 |
| Carrot, raw (Daucus carota) | 0.0029 | 0.006 | 43 | 181 | 1 | 0.2 | 0.11 | 0.34 | 0.02 | 1 | 1 | 0.02 | 0.00 | 0.07 | 0.03 |
| Breadfruit, raw (Artocarpus affinis) | 0.0157 | 0.035 | 103 | 432 | 1.1 | 0.2 | 0.09 | 0.05 | 0.66 | 68 | 62 | 0.66 | 0.12 | 2.65 | 1.09 |
| Avocado (Persea americana) | 0.0064 | 0.014 | 161 | 674 | 2 | 15.3 | 0.26 | 0.08 | 0.18 | 29 | 21 | 0.27 | 2.04 | 1.07 | 18.39 |
| Plantain, unripe (Musa paradisiaca) | 0.0697 | 0.155 | 132 | 540 | 1.2 | 0.1 | 0.31 | 0.18 | 0.88 | 116 | 80 | 0.73 | 0.06 | 2.92 | 0.55 |
| Pumpkin, raw (Cucurbita maxima) | 0.0059 | 0.013 | 26 | 109 | 1 | 0.1 | 0.3 | 0.14 | 0.09 | 2 | 2 | 0.06 | 0.01 | 0.25 | 0.06 |
| Chayote, raw (Sechium edule) | 0.0066 | 0.015 | 24 | 100 | 0.9 | 0.3 | 0.01 | 0.10 | 0.14 | 3 | 3 | 0.13 | 0.04 | 0.51 | 0.38 |
| Congo peas, raw (Cajanus cajan) | 0.0002 | 0.000 | 136 | 569 | 7.2 | 1.6 | 0.52 | 1.41 | 0.00 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| Peas, raw (Pisum sativum) | 0.01 | 0.022 | 341 | 1425 | 24.6 | 1.2 | 0.52 | 0.25 | 0.09 | 31 | 15 | 1.06 | 0.05 | 4.23 | 0.46 |
| Congo peas, dry (Cajanus cajan) | 0.00285 | 0.006 | 343 | 1436 | 21.7 | 1.5 | 0 | 0.46 | 0.01 | 5 | 5 | 0.30 | 0.02 | 1.19 | 0.18 |
| Okra, raw (Abelmoschus esculentus) | 0.0048 | 0.011 | 38 | 158 | 2 | 0.1 | 0.14 | 0.44 | 0.02 | 1 | 1 | 0.04 | 0.00 | 0.17 | 0.02 |
| Cabbage, raw (S. oleracea var. capitata) | 0.0017 | 0.004 | 26 | 109 | 1.7 | 0.4 | 0.23 | 0.23 | 0.02 | 0 | 0 | 0.02 | 0.01 | 0.09 | 0.05 |
| Tomato paste, canned | 0.0082 | 0.018 | 84 | 351 | 3.8 | 0.9 | 0 | 0.65 | 0.03 | 2 | 2 | 0.11 | 0.03 | 0.42 | 0.23 |
| Orange (Citrus sinensis) | 0.006 | 0.013 | 47 | 197 | 0.9 | 0.1 | 0.27 | 0.09 | 0.14 | 7 | 5 | 0.09 | 0.01 | 0.37 | 0.09 |
| Orange (Citrus sinensis) | 0.0034 | 0.008 | 47 | 197 | 0.9 | 0.1 | 0.27 | 0.18 | 0.04 | 2 | 1 | 0.03 | 0.00 | 0.11 | 0.03 |
| Grapefruit, raw (Citrus paradisi) | 0.0047 | 0.010 | 30 | 126 | 0.6 | 0.1 | 0.49 | 0.05 | 0.20 | 6 | 3 | 0.06 | 0.01 | 0.24 | 0.09 |
| Banana, ripe | 0.0089 | 0.020 | 92 | 384 | 1 | 0.5 | 0.35 | 0.21 | 0.09 | 8 | 6 | 0.06 | 0.03 | 0.24 | 0.27 |
| Limes (C. aurantifolia) | 0.0077 | 0.017 | 30 | 126 | 0.7 | 0.2 | 0.16 | 0.31 | 0.06 | 2 | 1 | 0.03 | 0.01 | 0.13 | 0.08 |

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| Food items | Expenditure | | Energy | | Protein | Fat | Refuse | Price | Consumption | | Energy adjusted for refuse | Protein adjusted for refuse | Fat adjusted for refuse | Protein adjusted for refuse | Fat adjusted for refuse | | | |
|---|-------------|-------|--------|------|---------|------|------------|-------|-------------|------|-----------------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|-------|--------|--------|
| | Proportion | Gds | kcal | KJ | g | g | proportion | gde | 100g | kcal | kcal | g | g | kcal | kcal | | | |
| Mango, ripe (mangifera indica) | 0.0135 | 0.030 | 65 | 273 | 0.5 | 0.3 | 0.31 | 0.57 | 0.05 | 3 | 2 | 0.02 | 0.01 | 0.07 | 0.10 | | | |
| Oil, pure, all kinds | 0.0954 | 0.212 | 884 | 3699 | 0 | 100 | 0 | 0.63 | 0.34 | 298 | 298 | - | 33.75 | - | 303.76 | | | |
| Butter, salted | 0.0066 | 0.015 | 717 | 3000 | 0.9 | 81.1 | 0 | 0.81 | 0.02 | 13 | 13 | 0.02 | 1.47 | 0.07 | 13.21 | | | |
| Milk, whole, 3 3% fat | 0.0077 | 0.017 | 61 | 257 | 3.3 | 3.3 | 0 | 0.31 | 0.06 | 3 | 3 | 0.18 | 0.18 | 0.74 | 1.66 | | | |
| Condensed milk, unsweetened | 0.0171 | 0.038 | 134 | 562 | 6.8 | 7.6 | 0 | 1.27 | 0.03 | 4 | 4 | 0.20 | 0.23 | 0.81 | 2.04 | | | |
| Beef, raw | 0.0252 | 0.056 | 291 | 1218 | 17.3 | 24 | 0.19 | 1.32 | 0.04 | 12 | 10 | 0.59 | 0.82 | 2.37 | 7.40 | | | |
| Pork, raw | 0.015 | 0.033 | 275 | 1150 | 16.74 | 22.6 | 0 | 1.40 | 0.02 | 7 | 7 | 0.40 | 0.54 | 1.59 | 4.83 | | | |
| Goat, raw | 0.0219 | 0.049 | 109 | 455 | 20.6 | 2.3 | 0.23 | 1.36 | 0.04 | 4 | 3 | 0.57 | 0.06 | 2.27 | 0.57 | | | |
| Meat, salted | 0.0157 | 0.035 | 290 | - | 48.1 | 9.4 | 0 | 1.32 | 0.03 | 8 | 8 | 1.27 | 0.25 | 5.09 | 2.24 | | | |
| Chicken, broiler | 0.0103 | 0.023 | 213 | 889 | 18.3 | 14.8 | 0.31 | 1.27 | 0.02 | 4 | 3 | 0.23 | 0.18 | 0.91 | 1.66 | | | |
| Fish, from sea, raw | 0.04 | 0.089 | 100 | - | 20.5 | 1.4 | 0.3 | 1.31 | 0.07 | 7 | 5 | 0.97 | 0.07 | 3.89 | 0.60 | | | |
| Herring, smoked, kippered (Clupea spp.) | 0.0158 | 0.035 | 211 | 883 | 22.2 | 12.9 | 0 | 1.41 | 0.02 | 5 | 5 | 0.55 | 0.32 | 2.20 | 2.88 | | | |
| Herring, salted (Clupea spp.) | 0.0059 | 0.013 | 196 | 819 | 19.6 | 12.4 | 0 | 1.16 | 0.01 | 2 | 2 | 0.22 | 0.14 | 0.89 | 1.26 | | | |
| Sugar, light brown | 0.0195 | 0.043 | 394 | 1681 | 0.5 | 0 | 0 | 0.38 | 0.11 | 44 | 44 | 0.06 | - | 0.23 | - | | | |
| Sugar, white, refined, powder | 0.0301 | 0.067 | 385 | 1611 | 0 | 0 | 0 | 0.51 | 0.13 | 50 | 50 | - | - | - | - | | | |
| Coffee, pounded | 0.0053 | 0.012 | 56 | 234 | 8 | 0 | 0 | 1.30 | 0.01 | 1 | 1 | 0.07 | - | 0.29 | - | | | |
| Salt, table | 0.0055 | 0.012 | 0 | 0 | 0 | 0 | 0 | 0.07 | 0.17 | - | - | - | - | - | - | | | |
| Garlic, raw (Allium sativum) | 0.0071 | 0.016 | 149 | 623 | 6.4 | 0.5 | 0.13 | 3.03 | 0.01 | 1 | 1 | 0.03 | 0.00 | 0.12 | 0.02 | | | |
| Maggi, Jumbo | 0.0234 | 0.052 | 252 | 1054 | 018 | 002 | 000 | 3.15 | 0.02 | 4 | 4 | 0.30 | 0.04 | 1.20 | 0.34 | | | |
| Cola | 0.0096 | 0.021 | 41 | 170 | 0 | 0 | 0 | 0.32 | 0.07 | 3 | 3 | - | - | - | - | | | |
| Daily expenditure | | 2.2 | | | | | | | | | | | Total | 1,415 | 25.14 | 42.88 | 100.57 | 385.93 |
| | | | | | | | | | | | Adjustment factor to get 2240kcal | 0.6 | | | | | | |
| | | | | | | | | | | | Adjusted daily requirement Gds | 3.53 | | | | | | |
| | | | | | | | | | | | Yearly minimum poverty line | 1,291.69 | Percent of energy | | 7% | 27% | | |

Appendix 3: Equivalence Scales

The following is the equivalence scale used for poverty line calculations based on Recommended Dietary Allowances for each household member.

| Population Group | Equivalent |
|------------------|------------|
| Infant 0-.5 | 0.22 |
| Infant .5-1 | 0.29 |
| Child 1-3 | 0.45 |
| Child 4-6 | 0.62 |
| Child 7-10 | 0.69 |
| Male 11-14 | 0.83 |
| Male 15-18 | 0.98 |
| Male 19-24 | 1.00 |
| *Male 25-50 | 1.00 |
| Male 51+ | 0.79 |
| Female 11-14 | 0.72 |
| Female 15-18 | 0.74 |
| Female 19-24 | 0.76 |
| Female 25-50 | 0.76 |
| Female 51+ | 0.66 |

Based on information from Recommended Dietary Allowances, revised 1989 - Food & Nutrition Board, National Academy of Sciences and Energy and Protein Requirements, Report of a Joint FAO/WHO/UNU Expert Consultation, Technical Report Series 724, World Health Organisation, Geneva 1985.