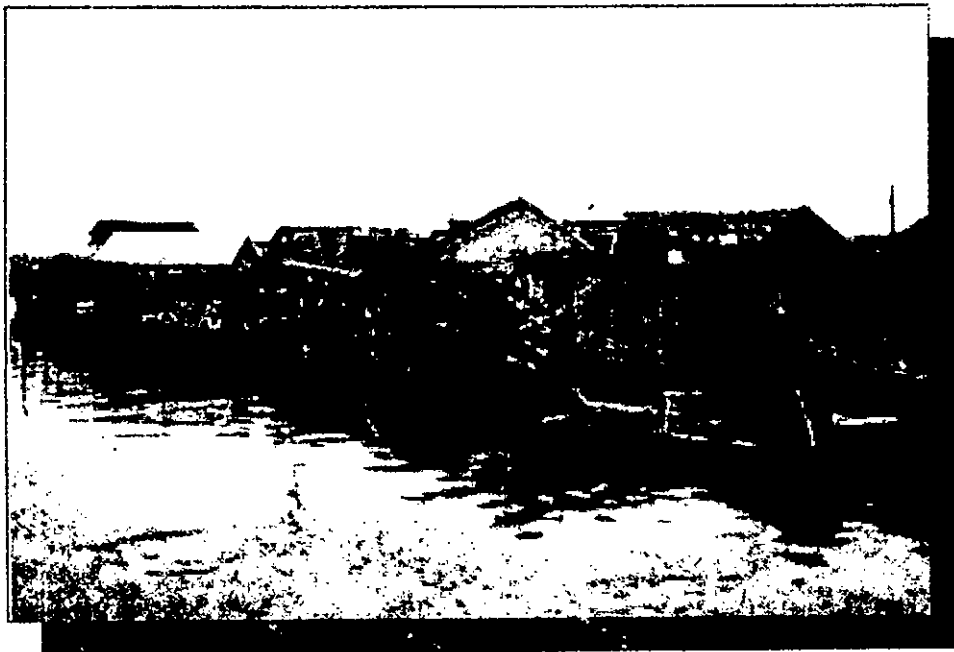


# **ANALYSIS OF FNRI 1993 FCS AND NSO 2000 FIES DATA FOR FOOD POVERTY ESTIMATION**



**ADBTA 3656 PHI: Improving Poverty Monitoring Surveys**



**NATIONAL STATISTICS OFFICE  
Philippines  
2003**

## **Analysis of FNRI 1993 FCS and NSO 2000 FIES Data for Food Poverty Estimation**

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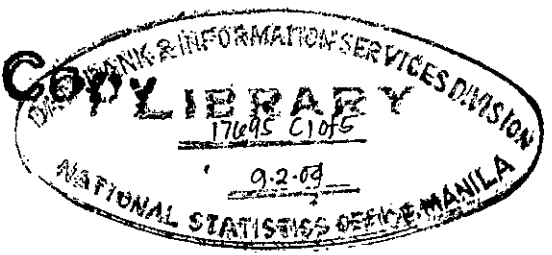
Manila, October 2003

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# **ANALYSIS OF FNRI 1993 FCS AND NSO 2000 FIES DATA FOR FOOD POVERTY ESTIMATION**

by

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Corazon V.C. Barba**

A research study funded by  
ADBTA 3656 PHI: Improving Poverty Monitoring Surveys

**NATIONAL STATISTICS OFFICE  
Philippines  
2003**



## FOREWORD

“Analysis of FNRI 1993 FCS and NSO 2000 FIES Data for Food Poverty Estimation” is one of the ten studies conducted under the Technical Assistance (TA) on Improving Poverty Monitoring Surveys granted to the National Statistics Office (NSO) by the Asian Development Bank (ADB) and the Government of New Zealand.

The study was subcontracted with Food and Nutrition Research Foundation (FNRF) and was conducted by a group of experts from the Food and Nutrition Research Institute - Department of Science and Technology (FNRI-DOST). Wilma L. Molano, Supervising Science Research Specialist spearheaded this research study and was assisted by Ruby D. Lana and Jocelyn A. Juguan, Senior Science Research Specialists, while Dr. Corazon V.C. Barba, Director of FNRI, provided overall supervision. The study was reviewed by Dr. Dalisay S. Maligalig, Statistician, ADB. The preliminary results of this study were presented to major stakeholders from concerned government agencies and the academe at the Traders Hotel, Roxas Boulevard, Pasay City on 12 September 2003.

This study examined the actual food consumption of households from two nationwide surveys – the Family Income and Expenditure Survey (FIES), conducted by the NSO, and the Food Consumption Survey (FCS), conducted by the FNRI. The results of this study are important inputs for improving the measurement of the official poverty line.

All conclusions/recommendations reached in this study are to be attributed to the authors and do not necessarily reflect the views of the NSO, the ADB or the Government of New Zealand.



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Manila, Philippines  
October 2003

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The following information was obtained from the records of the [redacted] Office of the Attorney General, State of New York:

[Redacted]

## ABSTRACT

This study looked into the cumulative distribution function (cdf) of the mean one-day per capita energy and protein intake of the households, both weighted and unweighted. Moreover, it examined the prevalence of food poor and estimated the food threshold using the different cut-off points, both for energy and protein. The data sets utilized were the 1993 Food Consumption Survey (FCS) of the Food and Nutrition Research Institute, Department of Science and Technology (FNRI-DOST) and the 2000 Family Income and Expenditure Survey (FIES) of the National Statistics Office (NSO). The FCS covered 4,050 households selected using the stratified two-stage sampling design. The FIES, on the other hand, had about 40,000 households selected using the multi-stage sampling design. The FCS used the one-day food weighing technique while the FIES employed the food recall method. The FNRI-Household Dietary Evaluation System (HDES) was used in processing the two food consumption data sets.

The 1993 FCS revealed that almost 80% of the sampled households were dietary energy deficient (DED) while half of the sampled households were dietary protein deficient (DPD). In the case of the 2000 FIES, 100% energy adequacy was reached at the 70<sup>th</sup> percentile but 100% protein adequacy was attained at the 60<sup>th</sup> percentile as compared to the 1993 FCS. The mean one-day per capita energy and protein intake and adequacy by income quartile for the 2 data sets showed an increasing pattern. However, there were fluctuations on the mean one-day per capita energy and protein intake and adequacy by income decile for the two data sets. As expected, the incidence of food poor increased as the cut-off values for energy and protein intake increased. The unweighted estimates were consistently higher than their design-based counterparts.

The sampled households ate more calories on weekdays than weekends but no difference at all as far as protein intake was concern. Comparing the differences in per capita food consumption and nutrient intake between weekdays and weekends, the study showed negligible differences.

Considering the results of the study, two recommendations are forwarded. These are 1) to review the nutrient requirements criteria in coming up with the food threshold and 2) to further elevate the research study on variability of food consumption by imputing the effect of seasonality.

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## I. Introduction

### Background Information

In the Philippines, the official poverty statistics and poverty estimation work started in 1987 through the initiative of the Inter-Agency Task Force for Poverty Determination, coordinated by the National Statistical Board (NSCB) of the National Economic and Development Authority (NEDA). The committee defined poverty line as the expenditure level needed by a family to satisfy the minimum basic needs of food and non-food or the peso value of the subsistence (food) line, augmented by a modest allowance for non-food needs (1). Furthermore, the Committee's estimation of the food line was based on the low-cost menus that meet the 100% Recommended Dietary Allowance (RDA) for energy and protein and at least 80% RDA for the other nutrients. The Food and Nutrition Research Institute (FNRI) of the Department of Science and Technology (DOST) formulated the menus based on the ones developed by the provincial nutritionists.

However, some sectors questioned these menus as a method in estimating the food poverty line (*fpl*). The most important issues raised were: 1) accuracy of the method in estimating *fpl*; and, 2) the comparability or consistency of the method to measure the standard of living across domains (region, urban/rural) (2).

In the recently concluded workshop presentation entitled "Analysis of Food Consumption in the Philippines for Poverty Estimation," the FNRI presented the results of two research studies that looked into different methodologies in estimating *fpl*. Results revealed that the present methodology, i.e., using the menus, is "too strict" as no household surveyed in the 1993 Food Consumption Survey (FCS) and the 2000 Family Income and Expenditure Survey (FIES) met the set criteria (3). Furthermore, the resulting *fpl* and the incidence derived using the food basket (foods commonly consumed) of households from all income groups resulted to higher value as compared to the food basket derived from the bottom 30% income group (4). More importantly, the estimated poverty lines from the different methods examined by the Institute when compared with the official figure were not the same.

Realizing the importance of determining the *fpl* accurately in the estimation of poverty line in the country, a further analysis of the 1993 FCS and 2000 FIES was proposed for financial assistance under the Improving Poverty Monitoring Research Grant of the National Statistics Office (NSO). This study initially looked into the cumulative distribution function (cdf) of the per capita caloric and protein consumption, both weighted and unweighted and examined the prevalence of *fpl* using the different cut-off points (e.g., 2000, 1800, 1500 calories, etc.).

## **Significance of the Study**

This study offers empirical basis in the evaluation of the food poverty estimates using different cut-off points for energy and protein intakes. The results of this study give insights on whether the 2000 kcalories as the set goal for nutritional adequacy is realistic and whether the set criteria of 100% adequacy for energy and protein and at least 80% of the rest of the nutrients are attainable. The outcome of this study will become the input for survey statisticians in the Philippine Statistical System in providing directions in future surveys to be implemented by the FNRI-DOST and the NSO in general and for poverty estimation in particular.

## **Objectives of the Study**

1. To estimate the cumulative distributions of the mean one-day per capita energy and protein intake and adequacy;
2. To determine the mean one-day per capita nutrient intake and adequacy by income decile and quartile;
3. To estimate the prevalence of food poverty or food poor using the different cut-off points for per capita calorie and protein intake; and
4. To determine the variability on eating patterns between regular days and weekends to better improve the estimate of the per capita food consumption that is an input in food poverty estimation.

## **II. Scope And Methodology**

This study made use of the FNRI 1993 FCS and the NSO 2000 FIES data sets. The sampling design for each data set is briefly described below.

### **1993 Food Consumption Survey**

#### **Sampling Design**

One of the two sets of data used in this study was from the 4<sup>th</sup> NNS conducted by the FNRI-DOST in 1993, involving 4,050 randomly selected households (5). A stratified two-stage sampling design as adopted from the past FNRI surveys was employed in the Fourth National Nutrition Survey of 1993. All the 76 provinces in all regions of the country including eight (8) clusters of cities and municipalities in Metro Manila were covered with a total of 160 strata. Stratification was done by region, province and urban/rural classification. The barangay and household served as the primary and secondary units, respectively.

In each province, two (2) urban and two (2) rural barangays were sampled. The sampling frame of urban/rural barangays of National Statistics Office (NSO) was used in drawing out sample barangays. From each barangay, a systematic random sampling of 12 households was selected. The updated listing of households in target barangays was obtained through the assistance of local officials. The total sample size for the survey consisted of 4,050 households involving more than 24,000 members. These were the households covered in the Food Consumption Survey. **Appendix 1** presents the table on sample size per region by urbanization.

#### **Field Data Collection Techniques**

Trained dietary researchers using the food weighing method collected basic food intake of the households. All foods to be prepared by the household for one whole day's consumption from breakfast to supper including snacks taken in between meals, as well as the late night snacks taken before retiring for the day were weighed and recorded. Food items weighed included the following: a) raw "as purchased" foods to be cooked for each meal, b) foods served and eaten raw, c) cooked or processed foodstuffs served directly on the dining table, and d) non-perishable food items, condiments and all types of beverage and drinks. For non-perishable food items, a household inventory was done which consists of weighing the food items at the start of the day (for beginning inventory) and later repeated at the end of the day, which is after supper (for ending inventory). These non-perishable foods were items such as cooking oil, salt, coffee, sugar, soy sauce, vinegar and the like which are ordinarily kept in stock by the household. Meals and snacks eaten outside the home by the household members are recalled and recorded as part of the intake of the household for the day. Household food wastage for each meal

and leftovers for the day are also weighed and deducted later from the day's gross consumption.

Other than the food consumption data, other related information such as composition and characteristics of the households of each member, annual income, food cost, household food production, meal pattern, milk feeding and dietary practices and household participation in nutrition programs are likewise recorded.

During the actual field data collection, each researcher brought two kinds of dietetic scale, the 4 kg. and 1 kg. capacity scales. A load of 2 sample households per day was assigned to a dietary researcher. The usual schedule followed in the field consisted of 2 consecutive days of weighing activities, then a day's break either for travel or rest or editing work, before resuming another 2-day weighing activities. It may be mentioned that weighing activities entailed waking up very early in the morning to catch the cooking of breakfast and for inventory of foods, then making repeated return visits for each meal and snack of the household for the day. Data collection ended in the evening after weighing of platewastes and leftovers of supper or dinner. The dietary researcher usually stayed in the survey area or village close to the sample households during food weighing activities.

### **Data Processing**

Simultaneous with the field data collection, preliminary editing of the forms was done by the data collectors, team leaders and coordinators. Upon return to the office, a thorough rechecking of information gathered and corresponding coding was undertaken.

The survey data and information from the edited and coded survey questionnaires were encoded to several database files, each survey form corresponding to one or more database files. Aside from proofreading the entered information against the raw data, validation programs were created and applied to the data to check for incorrect inputs, double entries and unmatched food item codes. Several runs of prooflist of corrections were produced until validation yielded absolutely no errors and the master data files were considered completely cleaned.

The information from the master data files specifically those from the Household Intake Form were subjected to the Household Dietary Evaluation System (HDES), a computer system which computes for the As Purchased (AP) and Edible Portion (EP) weights and nutrient contents of food consumed to produce three (3) Summary Files (AP/EP Intake, Nutrient Intake and Wastage).

The per capita food intake is computed by dividing the household food intake by the household consumption unit (CU). Similarly, the per capita nutrient intake and the per capita RDA are ratios of the household nutrient intake and the household RDA, respectively and the household CU. On the other hand, the household consumption unit is derived by considering the meal pattern of the household as well as the number of meals eaten by each of the household members on the said weighing day. The per capita



nutrient adequacy is the ratio of the per capita nutrient intake and the per capita RDA. The food item cost refers to either the actual cost of the food item weighed or price of the food item in a specific measure. If it is the latter and not the whole amount of food is consumed, then proper computation of the cost of food consumed is derived. The income data derived in the 1993 FCS refers to the peso or its equivalent realized or received by each household member during the past 12 months.

Within HDES is the updated Food Composition Table (FCT) Library, which was used to produce the equivalent nutrient values of all food items found in the survey data. A separate module for the computations of the household per capita nutrient requirement using the revised 1989 Recommended Dietary Allowances (RDA) for Filipinos was also developed in order to come up with evaluation of adequacies.

These intermediate files and the master data files of the various forms for all survey components were then used as inputs to generate the necessary tables through the Statistical Package for Social Sciences (SPSS) for Windows Release 5.1 which created around 1,500 variables.

As far as the 1993 NNS is concerned, all the summary files and SPSS system files were available for further analysis. In 1995, the FNRI-DOST published the results of the 1993 4<sup>th</sup> NNS.

## **2000 Family Income and Expenditure Survey**

### **Sampling Design**

The sampling design of the 2000 FIES adopted that of the Integrated Survey of Households of the NSO that used a multi-stage sampling design. It consisted of 3,416 PSU's in the expanded sample for provincial level estimates with a sub-sample of 2,247 PSU's designated as the core master sample for regional level estimates.

The domain for the new master sample was similar to that of the previous ISH design with an addition of 23 newly created domains. The urban and rural areas of cities and municipalities with a population of 150,000 or more were considered as separate domains. The other urban and rural areas in each of the 77 provinces were likewise treated as separate domains. In view of the creation of ARMM and the separation of Marawi City and Cotabato City from Lanao del Sur and Maguindanao, respectively, the urban and rural areas of the two cities also formed separate domains.

The frame for the first and second stages of sample selection was based mainly on the results of the 1995 POPCEN. The 1995 POPCEN list of barangays with the household population counts was used in the first stage of sample selection. The stratification of barangays included in the frame, however, was based on the 1990 CPH and other administrative reports from the field offices of NSO.

The enumeration areas which constituted the secondary stage sampling units were those that were formed during the 1995 POPCEN. Isolated barangays and/or barangays that were difficult and expensive to reach were excluded from the sampling frame. However, critical areas or barangays with peace and order problem, which was generally temporary in nature, were included in the frame. The frame for the third stage of sample selection was the list of households from the 1995 POPCEN.

Barangays in each domain were explicitly stratified by urbanity. Within the urban/rural barangay stratum in each of the provincial domains, the barangays were implicitly stratified by municipal district, serpentine ordering of the municipalities, and grouping of the barangay based on accessibility and more or less similarly in socio-economic characteristics and religious background of the population. The implicit stratification ensured geographic coverage.

The new master sample consisted of expanded sample of 3,416 sample barangays (2,045 urban and 1,371 rural) to improve the precision of provincial-level estimates from the household surveys. A subsample of 2,247 sample barangays that had about 27,000 households was defined as the core master sample that provided reliable survey estimates at the regional level as well as for the larger provinces.

### **Data Processing**

In the case of the 2000 FIES, FNRI extracted the food consumption data from the FIES 2000 database. Since the FIES consumption data were in terms of food groups and not specific food items, a special Food Composition Table had to be constructed to be able to translate the intake into nutrients. To do this, the food items found in the FNRI Food Composition Table were classified in the list of food groups found on the 2000 FIES questionnaire. In order to find out which of the food items classified into the 2000 FIES food groups were most likely to be actually consumed, the results of the 1993 FCS and the 2000 SNS conducted by FNRI for the ECD Project were utilized. Hence, a list of commonly consumed food items was derived. For each food group included in the 2000 FIES, nutrient content was computed by taking the average nutrient content of the different food items found in each food group. This resulted into a Food Composition Table specifically applicable to the 2000 FIES food consumption dataset called FIES-FCT. The FIES-FCT was the input into a dietary evaluation system developed by the FNRI to produce the equivalent nutrient values of all food groups found in the survey data. A separate module for the computations of the household per capita nutrient requirement using the revised 1989 Recommended Dietary Allowances (RDA) for Filipinos was also developed in order to come up with evaluation of adequacies. The Labor Force Survey was used in identifying the members included in the 2000 FIES together with the household members age and sex.

These intermediate files and the master data files were then used as inputs to generate the necessary tables through the Statistical Package for Social Sciences (SPSS) for Windows Release 5.1 which created around 1,500 variables.

Around twenty households from the 39,615 households were deleted in the data set inasmuch as they did not have data. For the remaining 39,595 households, around 7,000 of them have extreme values for nutrient adequacy, that is, nutrient adequacies below 10% or above 300% of the RDA. In the FNRI experience on Food Consumption Survey, values found outside the range of 10-300% nutrient adequacy are considered extreme values. However, for purposes of this study, all the 39,595 households were included in the analysis. **Appendix 2** presents the table on sample size per region by urbanization.

### Estimation

Input required: energy consumption (x); protein consumption (y) of each sample household (hh); total energy RDA ( $RDA_x$ ); and protein RDA ( $RDA_y$ ) of the same hhs. The latter vary according to the age x sex composition of the hhs. Convert into per capita, with the proposed analysis below carried out on the per capita values. Unweighted and weighted estimation were done for the two data sets.

$$\text{Let } \Delta(a_i) = \begin{cases} 1 & \text{if } a_i \geq 0 \\ 0 & \text{if } a_i < 0 \end{cases}$$

In a finite population  $U$  the cumulative distribution of a random variable, say  $x$ , is

$$F(t) = N^{-1} \sum_{i \in U} \Delta(t - x_i) \quad [1]$$

#### 1. Unweighted estimation

For a region-stratum (e.g. Ilocos-rural) with sample size  $n_h$ ,

$$\hat{F}_h(t) = n_h^{-1} \sum_{i \in n_h} \Delta(t - x_i) \quad [2]$$

The same formula is applied to higher disaggregations, e.g. urban, rural, national, with the summation adjusted accordingly. For example,

$$F(t) = n^{-1} \sum_{i \in n} \Delta(t - x_i)$$

is the unweighted estimate of cumulative distribution at the national level, where the summation is through all 4,000+ sample households.

To be able to draw the  $F(t)$ 's, compute  $t$  for

$$\hat{F}(t) = 0.10, 0.25, 0.35, 0.50, 0.75$$

In the case of  $x$  = per capita kcalorie consumption, compute  $F(t)$  for  $t = 1500, 1800, 2000, 2100$  kcal. These different cut-off values were arbitrarily set. Based on the study of David and Maligalig (6), the 2000 per capita kilocalories is the cut-off point commonly used by some Asian countries. Moreover, the paper of David and Maligalig showed that the range of the calorie threshold in East Asian developing countries was between 1980 to 2100 kilocalories.

For protein, choose  $t$  around 50 grams. Hence, this paper used a range between 40 to 55 grams.

## 2. Weighted (design-unbiased) estimation

Suppose  $\pi_i$  is the selection probability or weight of the sample  $hh$   $i$  in the sample.

To check that the  $\pi_i$  are the correct weights

$$\sum_{i \in n_h} \pi_i^{-1}$$

should represent the number of households in the stratum or domain where the sample  $n_h$  was drawn.

In particular,

$$\sum_{i \in n} \pi_i^{-1}$$

should give the total number of hhs nationwide.

$$F_h(t) = \sum_{i \in n_h} \pi_i^{-1} \Delta(t - x_i) / \sum_{i \in n_h} \pi_i^{-1} \quad [2]$$

is an estimate of the c.d.f. in stratum  $h$ .

$$\hat{F}(t) = \sum_{i \in n} \pi_i^{-1} \Delta(t - x_i) / \sum_{i \in n} \pi_i^{-1} \quad [3]$$

is the national c.d.f. estimate.

Compute  $\hat{F}(t)$  for the same probabilities and values of  $t$  as in part 1.

The analysis so far will provide a comparison of weighted and unweighted estimates, as well as estimates of prevalence of dietary energy deficiency (DED) and protein deficiency (DPD) for different cut-offs.

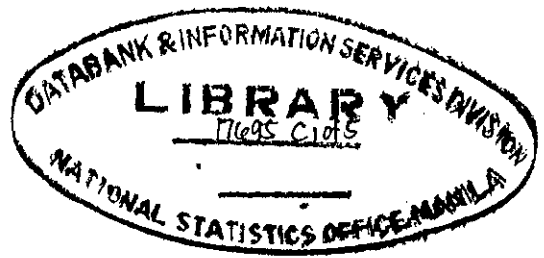
### **Derivation of the Food Poverty Line and the Prevalence of Food Poor**

The food poverty line (*fpl*) was estimated by getting the mean per capita peso value of food consumed by the households meeting the set cut-off points for energy and protein. The prevalence of food poor was derived through the ratio of households not meeting the *fpl* and the total number of households.

### **III. Limitations**

The following are some of the limitations of this Study that should be taken into consideration:

1. The 1993 FCS sampling design was primarily designed to draw national estimates, and in a strict sense therefore, it does not allow extensive analysis of estimates at a lower level of disaggregation.
2. The two (2) data sets used for this Study were the 1993 FCS and the 2000 FIES. However, there is no basis for comparing these data sets inasmuch as the survey periods were seven (7) years apart, the objectives and methodologies used were entirely different.
3. This Study did not attempt to compare the prevalence of food poor with the Official Poverty Statistics since the prices used in the 1993 FCS were different from the prices in the Official Poverty Statistics, therefore, may confound any comparison that will be made.
4. In the 1993 FCS, the sampling errors for mean one-day per capita energy and protein intakes by income quartile and decile were not estimated since there were some strata that had only one primary sampling unit (i.e., barangay). The same thing was true with the weekday and weekend comparison.



#### IV. Results And Discussion

##### FNRI 1993 Food Consumption Survey

##### Cumulative Distributions of Energy and Protein

Using the 1993 Food Consumption Survey data, Table 1 presents the percentile values of mean one-day per capita nutrient intake and adequacy. The mean one-day per capita energy intake of the 10<sup>th</sup> percentile was 1109 kcal that was just 59.7% adequate compared to the Recommended Dietary Allowance (RDA). In the next percentile, there was an increase in the energy intake and adequacy by 161 kcal and 7.3%, respectively. In the succeeding percentiles, the increase in energy intake and adequacy were more or less constant up to the 70<sup>th</sup> percentile. But on the 80<sup>th</sup> up to the 100<sup>th</sup> percentiles, the increase in energy intake and adequacy were larger than before with the last two percentiles (i.e., 90<sup>th</sup> and 100<sup>th</sup>) registering an increase of 4789 kcal for the energy intake and 249.1% for the adequacy.

In the case of the mean one-day per capita protein intake and adequacy, the 10<sup>th</sup> percentile was reported to have 30.6 g of protein which was 67.2% adequate compared to the RDA. The 20<sup>th</sup> percentile revealed an increase of 4.9 g for protein that was an increase of 10.5% adequacy. Just like the energy intake and adequacy, the pattern of increase in the succeeding percentiles was almost constant up to the 60<sup>th</sup> percentile. But on the 70<sup>th</sup> up to the 100<sup>th</sup> percentiles, the increase in protein intake and adequacy were larger than before with the last two percentiles (i.e., 90<sup>th</sup> and 100<sup>th</sup>) registering an increase of 280.8 g for the protein intake and 670.7% for the adequacy.

Comparing these results with the official definition of food threshold, that is, the expenditure level needed to satisfy the individual's basic food needs (3), the study revealed that a high 80% of the sampled households fell below the 100% energy adequacy and 50% of the sampled households fell below the 100% protein adequacy and 80% of niacin adequacy (**Appendix 3**). In the case of the other essential nutrients, 80% of the sampled households fell below the 80% adequacy for iron and calcium, and a little above 60% of the sampled households fell below the 80% adequacy of vitamin A and ascorbic acid. Above 70% of the sampled households fell below the 80% adequacy of thiamin and above 80% of the sampled households fell below the 80% adequacy of riboflavin.

The unweighted estimates of the cumulative distributions of the different nutrients were presented on **Appendix 4**. The results were relative higher as compared to the weighted estimates discussed earlier.

### **Mean One-day Per Capita Nutrient Intake and Adequacy by Income Quartile**

**Table 2** shows the mean one-day per capita energy intake of the lowest income quartile was 1611 kcal, which was short of 73 kcal from the national estimate of 1684 kcal in the 1993 FCS (5). Its equivalent adequacy was 85.3% as against the national figure of 87.8% (5). Both the mean one-day per capita energy intake and adequacy increased steadily from the lowest to the highest income quartiles. Notably, in all the income quartiles the energy adequacy never reached the 100% adequacy.

In the case of the mean one-day per capita protein intake, the first income quartile had it at 45.4 g that was equivalent to 98.6% adequacy. Similar to the energy, both the mean one-day protein intake and adequacy increase as the income quartile increased. This nutrient intake revealed a positive picture as far as meeting the RDA. This was noted inasmuch as even the lowest income quartile almost met the protein RDA. Furthermore, just in the second income quartile, the protein adequacy was already 102.6%.

The weighted and unweighted estimates of the mean one-day per capita nutrient intake and adequacy by income quartile for the 1993 FCS were presented in **Appendices 5 and 6**. The unweighted figures were relatively higher than the weighted estimates.

### **Mean One-day Per Capita Nutrient Intake and Adequacy by Income Decile**

Using the FNRI 1993 FCS, the mean one-day per capita energy intake of the lowest income decile was 1645 kcal and the mean one-day per capita energy adequacy was 86.0% (**Table 3**). The highest income decile had mean one-day per capita energy intake and adequacy of 1820 kcal and 94.0%, respectively. The range of energy intake was between 1563 and 1820 kcal while the range of energy adequacy was between 83.9% and 94.0%. There was a fluctuation in the mean one-day per capita energy intake and adequacy from one income decile to another. The results showed that in some higher income deciles, the mean one-day per capita energy intake and adequacy were even lower than those from the lower income deciles. These findings meant that there was some households who had lower income and yet be able to take higher mean one-day per capita energy intake.

In the case of the mean one-day per capita protein intake, the first income decile had it at 46.3 g that was equivalent to 98.7%. The last income decile had a mean one-day per capita protein intake and adequacy of 57.0 g and 118.0%, respectively. The lowest mean one-day per capita protein intake was found in the 2<sup>nd</sup> income decile at 44.1 g while the highest mean one-day per capita protein intake was found in the last income decile at 57.0 g. With regards to protein adequacy, the ranged was between 97.7% and 118.0% that were found in the 2<sup>nd</sup> and last income deciles, respectively. Similar to the energy, the results showed that in some higher income deciles, the mean one-day per capita protein



intake and adequacy were even lower than those from the lower income deciles both the mean one-day protein intake and adequacy increased as the income deciles increased.

**Appendices 7 and 8** present the weighted and unweighted estimates of mean one-day per capita nutrient intake and adequacy by income decile. The results of the unweighted estimates were relative higher as compared to the weighted estimates discussed earlier.

### **Prevalence of Food Poor**

#### **Energy**

**Table 4a** shows the percentage of households meeting the different cut-off points for energy intake (i.e., 1500 kcal, 1800 kcal, 2000 kcal, and 2100 kcal). The results revealed that 60.2% of households met the 1500 kcal of energy. In complementary terms, this means that only 39.8% fell below the cut-off point. Increasing the cut-off point by 300 kcal dropped the percentage of households meeting the set criterion to 35.6% and further decreased this value to 17.2% if the cut-off point was set to 2100 kcal. Conversely, this means that there was a tremendous increase in the percentage of households that fell below the 1800 kcal cut-off value (64.4%) and ultimately, 82.8% for the 2100 kcal criterion.

The mean one-day per capita food poverty line was PhP 19.34 (or PhP 30.55 in year 2000 prices) if the cut-off point for energy was 1500 kcal (**Table 4b**). This peso value increased to PhP 21.92 (or PhP 34.63 in year 2000 prices) for the 1800 kcal cut-off value. The 2000 kcal had a food poverty line amounting to PhP 24.30 (or PhP 38.39 in year 2000 prices) while the 2100 kcal had its food poverty line at PhP 25.64 (or PhP 40.51 in year 2000 prices). The incidence of food poor for the different cut-off points revealed to be very high with 54.7% for the 1500 kcal and 66.5% for the 2100 kcal.

#### **Protein**

**Table 5a** shows the percentage of households meeting the different cut-off points for protein intake (i.e., 40g, 45g, 50g, and 55g), the estimates of food poverty line as well as the incidence of food poor for the 1993 FCS. The results revealed that 69.0% of households met the 40g of protein intake or 31.0% fell below the criterion. Increasing the cut-off point by 5g dropped the percentage of households meeting the set criterion to 56.3% and further decreased this value to 31.5% if the cut-off point was set to 55g. Taking the complement, the results showed that 48.7% of the households fell below the criterion of 45g and further increased to 68.5% for the 55g cut-off value for protein.

The mean one-day per capita food poverty line was PhP 18.96 (or PhP 29.95 in year 2000 prices) if the cut-off point for protein was 40g (**Table 5b**). This peso value increased to PhP 20.15 (or PhP 31.83 in year 2000 prices) for the 45g cut-off value. The

50g had a food poverty line amounting to PhP 21.93 (or PhP 34.64 in year 2000 prices) while the 55g had its food poverty line at PhP 23.50 (or PhP 37.13 in year 2000 prices).

The incidence of food poor for the different cut-off points revealed to be very high with 54.0% for the 40g and 62.7% for the 55g.

### ***Variability of Eating Patterns***

**Table 6** presents the comparison between the mean one-day per capita food consumption during weekdays and weekends using the 1993 FCS. These findings revealed that consumption of Cereals and Cereal Products, Fats and Oils, Green Leafy and Yellow Vegetables and Other Fruits and Vegetables were higher during weekdays than weekends. On the other hand, consumption of Sugars and Syrups, Fish, Meat and Poultry, Milk and Milk Products, Vitamin C-Rich Foods and Miscellaneous foods were higher during weekends than weekdays. In the case of Starchy Roots and Tubers and Eggs, no differences in consumption were registered. These study showed that certain food groups were consumed more during weekdays than weekends. It is interesting to note that Fish, Meat and Poultry were consumed more on weekends than weekdays as opposed to Green Leafy and Yellow Vegetables. The consumption of Starchy Roots and Tubers and Eggs were practically the same any day of the week.

**Table 7** presents the comparison between the mean one-day per capita nutrient intake of the households during weekdays and weekend using the FNRI 1993 FCS. The results showed that there were no substantial differences in the mean one-day per capita nutrient intake of the households between the two reference periods (i.e., weekdays and weekend). The biggest difference was found in energy (21 kcal), followed by vitamin A (8.6 RE) and ascorbic acid (2.0g). No difference was seen on protein, iron and calcium.

### **NSO 2000 Family Income and Expenditure Survey**

#### **Cumulative Distributions of Energy and Protein**

**Table 8** presents the 2000 FIES percentile values of mean one-day per capita nutrient intake and adequacy. The mean one-day per capita energy intake of the 10<sup>th</sup> percentile was 1200 kcal that was just 60.9% adequate compared to the Recommended Dietary Allowance (RDA). In the 20<sup>th</sup> percentile, there was an increase in the energy intake and adequacy by 180 kcal and 9.0%, respectively. In the succeeding percentiles, the increase in energy intake and adequacy were more or less constant up to the 60<sup>th</sup> percentile. But on the 70<sup>th</sup> up to the 100<sup>th</sup> percentiles, the increase in energy intake and adequacy were larger than before with the last two percentiles (i.e., 90<sup>th</sup> and 100<sup>th</sup>) registering an increase of 16,759 kcal for the energy intake and 770.3% for the adequacy.

In the case of the mean one-day per capita protein intake and adequacy, the 10<sup>th</sup> percentile was reported to have 31.8 g of protein which was 60.9% adequate compared to the RDA. The 20<sup>th</sup> percentile revealed an increase of 5.0 g for protein that was an increase of 9.8% adequacy. Just like the energy intake and adequacy, the pattern of increase in the succeeding percentiles was almost constant up to the 60<sup>th</sup> percentile. But on the 70<sup>th</sup> up to the 100<sup>th</sup> percentiles, the increase in protein intake and adequacy were larger than before with the last two percentiles (i.e., 90<sup>th</sup> and 100<sup>th</sup>) registering an increase of 244.6 g for the protein intake and 492.6% for the adequacy.

Comparing these results with the official definition of food threshold (i.e., the expenditure level needed to satisfy the individual's basic food needs), the study revealed that less than 70% of the sampled households fell below the 100% energy adequacy and approximately a little more than 50% of the sampled households fell below the 100% protein adequacy (**Appendix 9**). In the case of the other essential nutrients, a little less than 50% of the sampled households fell below the 80% adequacy for vitamin A, niacin, riboflavin and ascorbic acid. More than 60% of the sampled households fell below the 80% adequacy for iron and calcium. In the case of thiamin, only less than 20% of the sampled households fell below the criterion of 80% adequacy.

The unweighted estimates of the cumulative distributions of the different nutrients were presented on **Appendix 10**. The results were relative higher as compared to the weighted estimates discussed earlier.

#### **Mean One-day Per Capita Nutrient Intake and Adequacy by Income Quartile**

Using the 2000 FIES, the mean one-day per capita energy intake of the lowest income quartile was 1807 kcal that was short of 112 kcal from the national estimate of 1919 kcal as estimated in the Study 1 of Molano, et al. (**Table 9**). Its equivalent adequacy was 93.4% as against the national figure of 96.5% (3). Both the mean one-day per capita protein intake and adequacy increased steadily from the lowest to the highest income quartiles. Unlike the 1993 FCS, the 2000 FIES had the last income quartile reaching a 100% adequacy (i.e., 105.0%).

In the case of the mean one-day per capita protein intake, the first income quartile had it at 47.3 g that was equivalent to 93.9% adequacy. Similar to the energy, both the mean one-day protein intake and adequacy increase as the income quartile increased. Although this nutrient intake revealed a positive picture as far as meeting the RDA, it was only at income quartile 3 where protein adequacy registered beyond meeting the 100% RDA.

The weighted and unweighted estimates of the mean one-day per capita nutrient intake and adequacy by income quartile for the 1993 FCS were presented in **Appendices 11 and 12**. The unweighted figures were relatively higher than the weighted estimates.

### **Mean One-day Per Capita Nutrient Intake and Adequacy by Income Decile**

Using the NSO 2000 FIES, the mean one-day per capita energy intake of the lowest income decile was 1813 kcal and the mean one-day per capita energy adequacy was 95.4% (**Table 10**). The highest income decile had mean one-day per capita energy intake and adequacy of 2286 kcal and 113.1%, respectively. The range of energy intake was between 1805 and 2286 kcal while the range of energy adequacy was between 91.7% and 113.1%. There was a fluctuation in the mean one-day per capita energy intake and adequacy from one income decile to another. The results showed that in some higher income deciles, the mean one-day per capita energy intake and adequacy were even lower than those from the lower income deciles.

In the case of the mean one-day per capita protein intake, the first income decile had it at 47.6 g that was equivalent to 92.7%. The last income decile had a mean one-day per capita protein intake and adequacy of 69.0 g and 132.1%, respectively. The lowest mean one-day per capita protein intake was found in the second income decile at 47.3 g while the highest mean one-day per capita protein intake was found in the last income decile at 69.0 g. With regards to protein adequacy, the ranged was between 92.7% and 132.1% that were found in the first and last income deciles, respectively. Similar to the energy, the results showed that in some higher income deciles, the mean one-day per capita protein intake and adequacy were even lower than those from the lower income deciles.

**Appendices 13 and 14** present the weighted and unweighted estimates of mean one-day per capita nutrient intake and adequacy by income decile. The results of the unweighted estimates were relative higher as compared to the weighted estimates discussed earlier.

### **Prevalence of Food Poor**

#### **Energy**

Using the 2000 FIES, **Table 11a** shows the percentage of households meeting the different cut-off points for energy intake (i.e., 1500 kcal, 1800 kcal, 2000 kcal, and 2100 kcal), the estimates of food poverty line as well as the incidence of food poor. The study showed that 71.7% of households met the 1500 kcal of energy or 28.3% falling below this criterion. Increasing the cut-off point by 300 kcal dropped the percentage of households meeting the set criterion to 49.5% and further decreased this value to 31.4% if the cut-off point was set to 2100 kcal. The complimentary of these percentages showed that the ratios of households falling the different cut-off values increased abruptly.

The mean one-day per capita food poverty line was PhP 34.76 if the cut-off point for energy was 1500 kcal (**Table 11b**). This peso value increased to PhP 39.21 for the 1800 kcal cut-off value. The 2000 kcal had a food poverty line amounting to PhP 42.58 while the 2100 kcal had its food poverty line at PhP 44.40. The incidence of food poor was estimated using both the total expenditure and income. As expected, there was an

increasing trend in the incidence of food poor as the cut-off point for energy increased. This was true for both the total expenditure and income.

### Protein

Using the 2000 FIES, **Table 12a** shows the percentage of households meeting the different cut-off points for energy intake (i.e., 40g, 45g, 50g, and 55g), the estimates of food poverty line as well as the incidence of food poor. The study showed that 72.2% of households met the 40g of protein while 27.8% did not meet the cut-off value. Increasing the cut-off point by 5g dropped the percentage of households meeting the set criterion to 59.5% and further decreased this value to 37.3% if the cut-off point was set to 55g. In terms of the percentage falling below the cut-off points, the study showed that 40.5% of the households did not meet the 45g cut-off value, 62.7% of the households did not meet the highest cut-off value set at 55g.

The mean one-day per capita food poverty line was PhP 35.57 if the cut-off point for energy was 40g (**Table 12b**). This peso value increased to PhP 38.41 for the 45g cut-off value. The 50g had a food poverty line amounting to PhP 41.56 while the 55g had its food poverty line at PhP 45.13. The incidence of food poor was estimated using both the total expenditure and income. As expected, there was an increasing trend in the incidence of food poor as the cut-off point for energy increased. This was true for both the total expenditure and income.

## V. Summary And Recommendations

The study made it possible to process and evaluate deeper the food consumption data collected by the FNRI in 1993 and the NSO in 2000.

In detail, this research undertaking estimated the cumulative distributions of the mean one-day per capita energy and protein intake and adequacy using both the 1993 FCS and the 2000 FIES. It was shown that as far as the 1993 FCS is concern, there were dietary energy deficiency (DED) up to the 80<sup>th</sup> percentile and dietary protein deficiency (DPD) at 50<sup>th</sup> percentile. In the case of the 2000 FIES, DED was registered at 70<sup>th</sup> percentile and DPD was found at 60<sup>th</sup> percentile.

The mean one-day per capita energy and protein intake and adequacy by income quartile for the two data sets showed an increasing pattern. However, the mean one-day per capita energy adequacy in the FNRI data set never reached 100% level unlike in the data set of NSO where the highest quartile reached 105%. In the case of protein, both data sets had income quartile that met the 100% adequacy.

There were fluctuations on the mean one-day per capita energy and protein intake and adequacy by income decile for the two data sets. These findings proved that there were some households who had lower income and yet able to consume foods with high energy and protein content. In contrast, there were households with higher income and yet the food they consumed had more or less the same energy and protein content as those in the lower income deciles.

As expected, the incidence of food poor increased as the cut-off values for energy and protein increased.

Food groups like Cereals and cereal Products, Fats and Oils, Dried Beans, Nuts and Seeds, Green Leafy and Yellow Vegetables and Other Fruits and vegetables were consumed more during weekdays than weekends. The remaining food groups were consumed more on weekends than weekdays except Starchy Roots and Tubers and Eggs that did not have any difference at all. These findings showed that some foods preferred taken on weekdays than weekends and vice versa. Worth noting was the consumption of Fish, Meat and Poultry where it was higher on weekends than on weekdays. In general, no substantial difference on mean one-day per capita food consumption was found between weekdays and weekends.

Based on the above observations, the following recommendations are forwarded:

1. Considering the official definition of food threshold, that is, the amount of money needed to meet 100% per capita RDA for energy and protein and 80% of the per capita RDA for vitamins, minerals and other nutrients, it was found out that it was on the upper 50<sup>th</sup> percentile where the set criteria on nutrient adequacy were met. Furthermore, the mean one-day per capita nutrient intake and adequacy by income decile showed small difference on a per decile basis. These findings made the official definition of food threshold stringent. It is therefore important to review the nutrient requirements set in coming up with the food threshold. Questions like, should the 11 essential nutrients be included in determining poverty threshold or just energy or both energy and protein only?
2. Since no substantial difference was found between the weekday and weekend mean one-day per capita food consumption and nutrient intake, there is a need to conduct a research study on variability of food consumption by considering the seasonality factor.
3. Hand in hand with the issue on seasonality is the concern on the one-day food weighing methodology. Such methodology in gathering food intake data requires a big amount of budget that makes the Food Consumption Survey uncertain to be conducted on a regular basis. Therefore, it is suggested that possible alternative methods have to be identified and decision have to be made based on some empirical evidence.

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**Table 1 – Cumulative distribution of mean one-day per capita energy and protein intake and adequacy: FCS 1993**

Percentile	Nutrient			
	Energy		Protein	
	Intake (Kcal)	Adequacy (%)	Intake (g)	Adequacy (%)
10	1109	59.7	30.6	67.2
20	1270	67.0	35.5	77.7
30	1386	73.4	39.7	86.1
40	1502	79.0	43.5	93.7
50	1621	85.1	47.0	101.0
60	1737	90.6	50.9	109.1
70	1867	96.6	56.0	118.2
80	2039	105.7	62.3	130.3
90	2324	118.9	71.7	150.2
100	7113	368.0	352.5	820.9

**Table 2 – Mean one-day per capita energy and protein intake and adequacy by income quartile: FCS 1993**

Income Quartile	Nutrient			
	Energy		Protein	
	Intake (Kcal)	Adequacy (%)	Intake (g)	Adequacy (%)
1 (1012)	1611	85.3	45.4	98.7
2 (1014)	1643	85.9	48.4	104.2
3 (1012)	1700	88.4	50.3	107.0
4 (1012)	1761	90.7	54.3	112.4

( ) – sample size

**Table 3 – Mean one-day per capita energy and protein intake and adequacy by income decile: FCS 1993**

Income Decile	Nutrient			
	Energy		Protein	
	Intake (Kcal)	Adequacy (%)	Intake (g)	Adequacy (%)
1 (405)	1645	86.0	46.3	98.7
2 (408)	1563	83.9	44.1	97.7
3 (402)	1660	87.6	47.0	102.5
4 (405)	1641	85.2	49.9	106.1
5 (406)	1635	85.4	47.3	102.0
6 (404)	1654	86.5	48.6	104.4
7 (405)	1743	90.4	51.3	108.9
8 (405)	1680	87.0	50.7	107.0
9 (405)	1736	88.6	52.9	108.6
10 (405)	1820	94.0	57.0	118.0

( ) – sample size

**Table 4a – Percentage of households meeting and not meeting the four cut- off values for energy intake: FCS, 1993**

PERCENTAGE OF HOUSEHOLDS	Energy Intake Cut-Off Values			
	1,500 Kcal	1,800 Kcal	2,000 Kcal	2,100 Kcal
Meeting the criteria	60.2 (2677)	35.6 (1706)	21.5 (1116)	17.2 (908)
Not meeting the criteria	39.8 (1373)	64.4 (2344)	78.5 (2934)	82.8 (3142)

( ) – sample size

**Table 4b - Estimates of food poverty line and incidence of food poor using four cut-off values for energy intake: FCS, 1993**

Parameters	Energy Intake Cut-Off Values			
	1,500 Kcal	1,800 Kcal	2,000 Kcal	2,100 Kcal
<b>FOOD POVERTY LINE</b> (in pesos)				
Per capita per day				
Actual Prices	19.34	21.92	24.30	25.64
Inflated to 2000 Prices	30.55	34.63	38.39	40.51
Annual per capita				
Actual Prices	7,064	8,006	8,876	9,365
Inflated to 2000 Prices	11,158	12,649	14,022	14,796
<b>INCIDENCE OF FOOD POOR</b> (in percent)				
Using per capita income	54.7	59.6	64.0	66.5

( ) – sample size

**Table 5a – Percentage of households meeting and not meeting the four cut- off values for protein intake: FCS, 1993**

PERCENTAGE OF HOUSEHOLDS	Protein Intake Cut-Off Values			
	40 Grams	45 Grams	50 Grams	55 Grams
Meeting the criteria	69.0 (2952)	56.3 (2442)	42.4 (1957)	31.5 (1520)
Not meeting the criteria	31.0 (1097)	43.7 (1608)	57.6 (2093)	68.5 (2529)

( ) – sample size

**Table 5b - Estimates of food poverty line and incidence of food poor using four cut-off values for protein intake: FCS, 1993**

Parameters	Protein Intake Cut-Off Values			
	40 Grams	45 Grams	50 Grams	55 Grams
<b>FOOD POVERTY LINE</b> (in pesos)				
Per capita per day				
Actual Prices	18.96	20.15	21.93	23.50
Inflated to 2000 Prices	29.95	31.83	34.64	37.13
Annual per capita				
Actual Prices	6,924	7,359	8,010	8,582
Inflated to 2000 Prices	10,939	11,626	12,652	13,562
<b>INCIDENCE OF FOOD POOR</b> (in percent)				
Using per capita income	54.0	56.3	59.6	62.7

( ) – sample size

**Table 6 - Comparison of per capita food consumption between weekdays and weekend: NNS, 1993**

Nutrient Intake	Weekdays (2893)	Weekend (1157)	Difference
	Mean		
<b>Energy Foods</b>			
Cereals and Cereal Products	342	336	6
Starchy Roots and Tubers	17	17	0
Sugars and Syrups	18	19	-1
Fats and Oils	12	11	1
<b>Body-Building Foods</b>			
Fish, Meat and Poultry	143	156	-13
Eggs	12	12	0
Milk and Milk Products	43	45	-2
Dried Beans, Nuts and Seeds	10	9	1
<b>Regulating Foods</b>			
Green Leafy and Yellow Vegetables	32	25	7
Vitamin C-Rich Foods	19	25	-6
Other Fruits and Vegetables	133	131	2
<b>Miscellaneous</b>	19	21	-2

( ) - sample size

**Table 7 - Comparison of per capita nutrient intake between weekdays and weekend:  
NNS, 1993**

Nutrient Intake	Weekdays (2893)	Weekend (1157)	Difference
	Mean		
Energy (Kcal)	1690	1669	21
Protein (g)	49.9	49.9	0
Iron (mg)	10.1	10.1	0
Calcium (mg)	0.39	0.39	0
Vitamin A (RE)	394.5	385.9	8.6
Thiamin (mg)	0.67	0.68	-0.01
Riboflavin (mg)	0.56	0.55	0.01
Niacin (mg)	16.17	16.09	0.08
Ascorbic Acid (g)	47.3	45.3	2.0
Fats (g)	28	29	-1
Carbohydrates (g)	304	298	6

( ) - sample size

**Table 8 – Cumulative distribution of mean one-day per capita energy and protein intake and adequacy: FIES 2000**

Percentile	Nutrient			
	Energy		Protein	
	Intake (Kcal)	Adequacy (%)	Intake (g)	Adequacy (%)
10	1200	60.9	31.8	64.3
20	1380	69.9	36.8	74.1
30	1521	76.9	40.9	81.9
40	1658	83.3	44.8	89.5
50	1793	90.2	49.0	97.1
60	1942	97.6	53.6	105.5
70	2128	106.3	59.1	115.5
80	2366	118.9	66.4	129.1
90	2764	139.5	78.9	151.6
100	18879	909.8	323.5	644.2

**Table 9 – Mean one-day per capita energy and protein intake and adequacy by income quartile: FIES 2000**

Income Quartile	Nutrient			
	Energy		Protein	
	Intake (Kcal)	Adequacy (%)	Intake (g)	Adequacy (%)
1 (9309)	1807	93.4	47.3	93.9
2 (10085)	1844	92.9	49.1	97.8
3 (10148)	1899	94.4	53.0	103.5
4 (10053)	2125	105.0	62.9	120.8

( ) – sample size

**Table 10 – Mean one-day per capita energy and protein intake and adequacy by income decile: FIES 2000**

Income Decile	Nutrient			
	Energy		Protein	
	Intake (Kcal)	Adequacy (%)	Intake (g)	Adequacy (%)
1 (3494)	1813	95.4	47.6	92.7
2 (3847)	1813	92.8	47.3	95.0
3 (3971)	1805	91.7	47.4	95.5
4 (4027)	1824	92.0	48.4	96.7
5 (4064)	1872	93.9	50.3	99.5
6 (4068)	1879	93.8	51.6	101.6
7 (4053)	1904	94.5	53.4	104.2
8 (4071)	1949	96.4	55.6	107.7
9 (4024)	2042	100.6	59.9	115.1
10 (3976)	2286	113.1	69.0	132.1

( ) – sample size



**Table 11a – Percentage of households meeting and not meeting the four cut- off values for energy intake: FCS, 1993**

PERCENTAGE OF HOUSEHOLDS	Energy Intake Cut-Off Values			
	1,500 Kcal	1,800 Kcal	2,000 Kcal	2,100 Kcal
Meeting the criteria	71.7 (10980)	49.5 (19661)	36.7 (24712)	31.4 (26849)
Not meeting the criteria	28.3 (28615)	50.5 (19934)	63.3 (14883)	68.6 (12746)

( ) – sample size

**Table 11b - Estimates of food poverty line and incidence of food poor using four cut-off values for energy intake: FIES, 2000**

Parameters	Energy Intake Cut-Off Values			
	1,500 Kcal	1,800 Kcal	2,000 Kcal	2,100 Kcal
<b>FOOD POVERTY LINE</b> (in pesos)				
Per capita per day	34.76	39.21	42.58	44.40
Annual per capita	12,687	14,312	15,542	16,206
<b>INCIDENCE OF FOOD POOR</b> (in percent)				
Using per capita total expenditure	36.2	42.0	46.2	48.2
Using per capita income	32.3	37.6	41.3	43.3

**Table 12a – Percentage of households meeting and not meeting the four cut- off values for protein intake: FIES, 2000**

PERCENTAGE OF HOUSEHOLDS	Protein Intake Cut-Off Values			
	40 Grams	45 Grams	50 Grams	55 Grams
Meeting the criteria	72.2 (10874)	59.5 (15860)	47.6 (20544)	37.3 (24668)
Not meeting the criteria	27.8 (28721)	40.5 (23735)	52.4 (19051)	62.7 (14927)

( ) – sample size

**Table 12b - Estimates of food poverty line and incidence of food poor using four cut-off values for protein intake: FIES, 2000**

Parameters	Protein Intake Cut-Off Values			
	40 Grams	45 Grams	50 Grams	55 Grams
<b>FOOD POVERTY LINE</b> (in pesos)				
Per capita per day	35.57	38.41	41.56	45.13
Annual per capita	12,983	14,020	15,169	16,472
<b>INCIDENCE OF FOOD POOR</b> (in percent)				
Using per capita total expenditure	37.4	41.1	44.9	49.0
Using per capita income	33.3	36.6	40.2	44.0

**Distribution of respondents by region and urbanization: FCS, 1993**

REGION	Urbanization		Total
	Urban	Rural	
Ilocos	96	96	192
Cagayan Valley	120	120	240
Central Luzon	144	144	288
Southern Tagalog	144	144	528
Bicol	144	144	288
Western Visayas	144	144	288
Central Visayas	96	96	192
Eastern Visayas	144	144	288
Western Mindanao	72	72	144
Northern Mindanao	168	168	336
Southern Mindanao	144	144	288
Central Mindanao	72	72	144
NCR	384	384	384
CAR	120	120	240
ARMM	96	114	210
<b>Total</b>	<b>2208</b>	<b>1842</b>	<b>4050</b>

**Distribution of respondents by region and urbanization: FIES, 2000**

<b>REGION</b>	<b>Urbanization</b>		<b>Total</b>
	<b>Urban</b>	<b>Rural</b>	
Ilocos	941	945	1,886
Cagayan Valley	569	992	1,561
Central Luzon	2,822	944	3,766
Southern Tagalog	3,996	2,169	6,165
Bicol	979	1,120	2,099
Western Visayas	1,500	1,513	3,013
Central Visayas	1,384	947	2,331
Eastern Visayas	1,167	1,084	2,251
Western Mindanao	694	983	1,677
Northern Mindanao	1,171	834	2,005
Southern Mindanao	1,202	830	2,032
Central Mindanao	812	893	1,705
NCR	4,135		4,135
CAR	739	923	1,662
ARMM	605	1,212	1,817
Caraga	790	700	1,490
<b>Total</b>	<b>23,506</b>	<b>16,089</b>	<b>39,595</b>

## Cumulative distribution of mean one-day per capita nutrient intake: FCS 1993 (Weighted)

Nutrient Intake	Percentile									
	10 <sup>th</sup>	20 <sup>th</sup>	30 <sup>th</sup>	40 <sup>th</sup>	50 <sup>th</sup>	60 <sup>th</sup>	70 <sup>th</sup>	80 <sup>th</sup>	90 <sup>th</sup>	100 <sup>th</sup>
Energy										
Intake (Kcal)	1109	1270	1386	1502	1621	1737	1867	2039	2324	7113
Adequacy	59.7	67.0	73.4	79.0	85.1	90.6	96.6	105.7	118.9	368.0
Protein										
Intake (g)	30.6	35.5	39.7	43.5	47.0	50.9	56.0	62.3	71.7	352.5
Adequacy	67.2	77.7	86.1	93.7	101.0	109.1	118.2	130.3	150.2	820.9
Iron										
Intake (mg)	5.3	6.3	7.2	8.1	8.8	9.9	11.1	12.9	16.1	138.0
Adequacy	34.1	41.1	46.5	51.8	57.7	64.2	71.8	84.1	104.4	1150.2
Calcium										
Intake (mg)	190	230	268	301	337	367	427	492	612	4233
Adequacy	31.9	39.0	45.4	51.8	57.7	65.3	73.8	85.8	108.4	846.7
Vitamin A										
Intake (RE)	89.5	141.2	188.7	235.0	287.6	338.6	402.7	494.1	647.9	34063.7
Adequacy	20.4	31.8	42.0	53.4	64.4	76.1	91.2	111.3	147.2	7569.7
Thiamin										
Intake (mg)	0.35	0.42	0.48	0.54	0.60	0.68	0.76	0.88	1.08	3.09
Adequacy	35.9	43.1	49.6	55.7	61.9	68.9	78.0	89.1	109.7	331.6
Riboflavin										
Intake (mg)	0.29	0.34	0.39	0.44	0.49	0.55	0.62	0.71	0.87	8.03
Adequacy	29.4	34.6	39.7	44.6	50.0	56.1	63.4	72.5	87.6	803.2
Niacin										
Intake (mg)	9.0	10.9	12.5	13.8	15.3	16.8	18.3	20.5	24.6	124.2
Adequacy	50.6	61.0	68.5	75.9	83.8	90.4	99.0	110.2	130.5	689.9
Ascorbic acid										
Intake (g)	4.6	12.3	19.4	26.9	34.8	44.2	56.4	71.1	101.2	855.0
Adequacy	7.1	19.3	30.4	41.3	55.2	69.0	88.6	112.7	159.3	1424.7
Fats*										
Intake (g)	8	12	15	19	23	28	34	42	55	222
Carbohydrates*										
Intake (g)	203	227	250	269	291	312	335	363	418	1378

\*No recommended amounts

Cumulative distribution of mean one-day per capita nutrient intake: FCS 1993 (Unweighted)

Nutrient Intake	Percentile									
	10 <sup>th</sup>	20 <sup>th</sup>	30 <sup>th</sup>	40 <sup>th</sup>	50 <sup>th</sup>	60 <sup>th</sup>	70 <sup>th</sup>	80 <sup>th</sup>	90 <sup>th</sup>	100 <sup>th</sup>
Energy										
Intake (Kcal)	1158	1325	1450	1576	1694	1822	1959	2158	2500	7113
Adequacy	61.4	70.1	76.8	82.9	89.0	94.6	102.0	111.9	127.8	368.0
Protein										
Intake (g)	31.6	36.8	41.3	45.1	49.2	53.7	59.0	65.4	77.5	352.5
Adequacy	69.0	80.2	89.5	97.3	105.1	113.3	123.6	136.8	158.1	820.9
Iron										
Intake (mg)	5.6	6.6	7.6	8.5	9.4	10.5	11.9	13.9	17.5	138.0
Adequacy	35.8	42.9	48.9	54.7	61.0	68.1	77.0	89.8	115.3	1150.2
Calcium										
Intake (mg)	201	247	287	319	358	402	457	535	678	4233
Adequacy	34.1	42.1	48.9	55.3	62.0	70.2	79.9	93.5	120.3	846.7
Vitamin A										
Intake (RE)	89.3	140.6	186.6	234.4	286.8	341.0	407.2	508.5	689.6	34063.7
Adequacy	20.2	31.5	41.3	52.8	63.8	76.1	91.6	113.4	153.1	7569.7
Thiamin										
Intake (mg)	0.36	0.44	0.50	0.57	0.63	0.71	0.80	0.93	1.16	3.09
Adequacy	37.0	44.8	52.1	58.1	65.2	73.1	81.9	95.0	117.4	331.6
Riboflavin										
Intake (mg)	0.30	0.35	0.40	0.46	0.51	0.58	0.66	0.75	0.94	8.03
Adequacy	30.3	36.2	41.3	46.6	52.2	58.8	66.4	76.9	94.4	803.2
Niacin										
Intake (mg)	9.7	11.5	13.1	14.6	16.0	17.5	19.4	21.8	26.1	124.2
Adequacy	54.1	64.7	72.6	80.5	87.6	94.9	104.7	117.1	139.9	689.9
Ascorbic acid										
Intake (g)	3.9	12.0	20.2	28.1	36.8	46.9	60.3	78.4	112.8	855.0
Adequacy	6.3	18.9	31.1	43.6	57.8	73.4	94.5	123.5	174.5	1424.7
Fats*										
Intake (g)	8	12	16	20	24	29	36	44	58	222
Carbohydrates*										
Intake (g)	208	237	260	283	304	327	351	387	446	1378

\*No recommended amounts

Mean one-day per capita nutrient intake and adequacy by income quartile: FCS, 1993 (Weighted)

Nutrient	Mean	SE	Min.	Max.	Income Quartile			
					1	2	3	4
Sample size					1012	1014	1012	1012
Energy								
Intake (Kcal)	1684	14	434	7113	1611	1643	1700	1761
Adequacy	87.8		24.2	368.0	85.3	85.9	88.4	90.7
Protein								
Intake (g)	49.9	0.4	6.3	352.5	45.4	48.4	50.3	54.3
Adequacy	106.4		15.9	820.9	98.7	104.2	107.0	112.4
Iron								
Intake (mg)	10.1	0.1	1.9	138.0	9.1	9.9	10.4	10.8
Adequacy	65.6		14.5	1150.2	60.2	64.3	66.6	66.8
Calcium								
Intake (mg)	389	7	74	4233	354	391	390	412
Adequacy	67.2		12.4	846.7	60.5	66.4	66.6	71.4
Vitamin A								
Intake (RE)	391.9	12.4	0.0	34063.7	276.7	327.1	418.5	514.5
Adequacy	88.1		0.0	7569.7	62.6	73.6	94.2	115.0
Thiamin								
Intake (mg)	0.67	0.009	0.11	3.09	0.59	0.64	0.69	0.76
Adequacy	68.9		10.4	331.6	60.8	65.3	70.4	76.8
Riboflavin								
Intake (mg)	0.56	0.007	0.11	8.03	0.45	0.50	0.58	0.67
Adequacy	56.6		12.9	803.2	46.4	51.0	58.6	67.7
Niacin								
Intake (mg)	16.14	0.2	2.48	124.19	14.3	15.7	16.4	17.7
Adequacy	88.0		14.9	689.9	79.4	85.8	89.1	95.7
Ascorbic acid								
Intake (g)	46.7	1.3	0.0	855.0				
Adequacy	73.2		0.0	1424.7	46.9	43.0	44.9	51.2
Fats*					74.8	67.8	70.4	78.8
Intake (g)	28	0.5	1	222				
Carbohydrates*					21	24	30	37
Intake (g)	302	2	58	1378				

\*No recommended amounts

Mean one-day per capita nutrient intake and adequacy by income quartile: FCS 1993 (Unweighted)

Nutrient	Mean	SE	Min.	Max.	Income Quartile			
					1	2	3	4
Energy								
Intake (Kcal)	1774	9	434	7113	1705	1730	1786	1875
Adequacy	92.5		24.2	368.0	90.0	90.5	92.7	96.5
Protein								
Intake (g)	52.7	0.3	6.3	352.5	48.8	50.8	53.2	58.2
Adequacy	111.2		15.9	820.9	103.3	108.4	112.2	120.1
Iron								
Intake (mg)	10.9	0.1	1.9	138.0	10.1	10.6	11.0	11.7
Adequacy	70.9		14.5	1150.2	67.0	69.0	69.7	72.4
Calcium								
Intake (mg)	420	4.2	74	4233	387	423	416	456
Adequacy	73.3		12.4	846.7	67.0	72.6	71.5	79.2
Vitamin A								
Intake (RE)	411.6	14.5	0.0	34063.7	290.1	341.4	447.6	567.4
Adequacy	91.8		0.0	7569.7	64.8	76.4	100.1	126.5
Thiamin								
Intake (mg)	0.71	0.006	0.11	3.09	0.65	0.68	0.72	0.81
Adequacy	72.9		10.4	331.6	66.9	69.2	73.1	82.0
Riboflavin								
Intake (mg)	0.59	0.006	0.11	8.03	0.48	0.54	0.61	0.72
Adequacy	59.9		12.9	803.2	49.8	54.6	62.0	72.3
Niacin								
Intake (mg)	17.2	0.1	17.5	124.2	15.9	16.7	17.4	18.9
Adequacy	93.9		14.9	689.9	88.1	91.5	94.3	101.8
Ascorbic acid								
Intake (g)	50.8	0.8	0.0	855.0	48.8	48.2	48.8	57.5
Adequacy	79.0		0.0	1424.7	76.2	75.6	76.0	88.1
Fats*								
Intake (g)	30	0.3	1	222	23	26	31	40
Carbohydrates*								
Intake (g)	318	2	58	1378	323	318	317	315

\*No recommended amounts



Mean one-day per capita nutrient intake and adequacy by income decile: FCS 1993 (Weighted)

Nutrient	Income Decile									
	10 <sup>th</sup>	20 <sup>th</sup>	30 <sup>th</sup>	40 <sup>th</sup>	50 <sup>th</sup>	60 <sup>th</sup>	70 <sup>th</sup>	80 <sup>th</sup>	90 <sup>th</sup>	100 <sup>th</sup>
Number	405	408	402	405	406	404	405	405	405	405
Energy										
Intake (kcal)	1645	1563	1660	1641	1635	1654	1743	1680	1736	1820
Adequacy	86.0	83.9	87.6	85.2	85.4	86.5	90.4	87.0	88.6	94.0
Protein										
Intake (g)	46.3	44.1	47.0	49.9	47.3	48.6	51.3	50.7	52.9	57.0
Adequacy	98.7	97.7	102.5	106.1	102.0	104.4	108.9	107.0	108.6	118.0
Iron										
Intake (mg)	9.3	8.6	9.6	10.0	10.0	10.1	10.7	9.8	11.1	11.1
Adequacy	62.1	57.7	62.9	64.9	64.5	65.8	68.1	62.7	68.5	67.7
Calcium										
Intake (mg)	351	338	375	412	388	389	394	375	400	440
Adequacy	60.0	57.7	63.8	70.1	65.9	66.4	67.1	64.7	69.0	76.5
Vitamin A										
Intake (RE)	281.8	261.9	303.4	339.1	324.8	350.0	507.5	411.4	540.7	516.7
Adequacy	63.2	59.7	68.6	75.6	73.6	79.0	114.2	92.6	120.2	115.7
Thiamin										
Intake (mg)	0.61	0.56	0.64	0.63	0.64	0.65	0.73	0.70	0.73	0.80
Adequacy	62.9	59.0	65.8	63.7	65.7	66.9	73.7	71.0	73.0	80.6
Riboflavin										
Intake (mg)	0.44	0.43	0.48	0.50	0.51	0.53	0.64	0.58	0.65	0.70
Adequacy	45.2	45.1	49.4	50.8	51.9	54.3	64.3	58.8	65.4	70.8
Niacin										
Intake (mg)	14.3	13.8	15.6	15.8	15.6	16.0	16.7	16.5	17.5	18.4
Adequacy	78.1	77.8	86.0	86.2	85.3	87.5	90.4	89.8	93.4	99.7
Ascorbic acid										
Intake (mg)	47.0	45.7	46.4	41.7	43.9	45.0	46.4	43.2	51.7	53.2
Adequacy	73.9	74.1	74.1	65.1	69.5	71.1	72.4	67.6	78.7	81.9
Fats*										
Intake (g)	18	22	22	23	26	28	31	33	36	40
Carbohydrates*										
Intake (g)	322	294	314	305	299	296	309	290	296	303

\*No recommended amounts

Mean one-day per capita nutrient intake and adequacy by income decile: FCS 1993 (Unweighted)

Nutrient	Income Decile									
	10 <sup>th</sup>	20 <sup>th</sup>	30 <sup>th</sup>	40 <sup>th</sup>	50 <sup>th</sup>	60 <sup>th</sup>	70 <sup>th</sup>	80 <sup>th</sup>	90 <sup>th</sup>	100 <sup>th</sup>
Energy										
Intake (kcal)	1727	1697	1714	1715	1735	1773	1790	1818	1829	1942
Adequacy	91.0	89.9	90.3	89.2	90.8	92.2	93.0	94.1	93.8	99.8
Protein										
Intake (g)	49.6	48.4	49.7	51.0	50.3	53.0	53.1	55.1	56.3	61.0
Adequacy	103.8	103.4	106.3	108.3	107.5	112.7	112.0	115.1	116.0	124.8
Iron										
Intake (mg)	10.1	10.1	10.4	10.6	10.5	10.7	11.2	11.0	11.6	12.2
Adequacy	67.8	67.5	68.2	68.4	68.2	68.2	71.3	69.9	71.5	74.2
Calcium										
Intake (mg)	394	379	410	435	408	418	420	418	449	475
Adequacy	68.3	65.7	70.3	74.5	70.2	71.8	72.0	72.4	77.7	82.8
Vitamin A										
Intake (RE)	286.0	277.6	323.3	330.4	361.8	389.4	526.4	447.9	516.7	657.0
Adequacy	63.6	62.3	72.3	73.5	81.3	87.0	118.0	100.3	115.1	146.3
Thiamin										
Intake (mg)	0.66	0.64	0.65	0.67	0.68	0.70	0.73	0.77	0.77	0.85
Adequacy	67.8	66.7	67.4	68.1	70.2	71.3	74.6	77.9	77.3	86.3
Riboflavin										
Intake (mg)	0.48	0.48	0.51	0.53	0.55	0.58	0.65	0.64	0.69	0.77
Adequacy	49.7	49.6	52.4	53.2	56.0	58.8	66.2	64.2	68.7	77.7
Niacin										
Intake (mg)	15.7	16.2	16.4	16.6	16.7	17.2	17.3	18.1	18.4	19.6
Adequacy	86.8	89.7	90.7	90.5	91.2	93.9	93.8	98.0	98.7	105.8
Ascorbic acid										
Intake (mg)	48.4	48.1	50.0	46.7	49.1	46.4	49.9	53.6	57.2	58.8
Adequacy	74.9	75.8	78.6	72.9	77.4	72.7	77.6	83.2	87.5	89.3
Fats*										
Intake (g)	21	24	24	25	28	30	33	35	37	44
Carbohydrates*										
Intake (g)	332	318	320	317	315	317	315	316	312	320

\*No recommended amounts

Cumulative distribution of mean one-day per capita nutrient intake: FIES 2000 (Weighted)

Nutrient	Percentile									
	10 <sup>th</sup>	20 <sup>th</sup>	30 <sup>th</sup>	40 <sup>th</sup>	50 <sup>th</sup>	60 <sup>th</sup>	70 <sup>th</sup>	80 <sup>th</sup>	90 <sup>th</sup>	100 <sup>th</sup>
Energy										
Intake (Kcal)	1,200	1,380	1,521	1,658	1,793	1,942	2,128	2,366	2,764	18,879
Percent Adequacy	60.9	69.9	76.9	83.3	90.2	97.6	106.3	118.9	139.5	909.8
Protein										
Intake (g)	31.8	36.8	40.9	44.8	49.0	53.6	59.1	66.4	78.9	323.5
Percent Adequacy	64.3	74.1	81.9	89.5	97.1	105.5	115.5	129.1	151.6	644.2
Iron										
Intake (mg)	6.1	7.3	8.3	9.3	10.4	11.6	13.1	15.2	19.1	256.1
Percent Adequacy	37.8	45.6	51.8	58.5	65.6	74.0	84.7	99.8	128.3	2,227.1
Calcium										
Intake (mg)	217	262	301	341	384	435	496	586	747	13,323
Percent Adequacy	37.6	46.0	53.2	60.6	68.9	78.3	90.2	107.7	139.0	2,664.7
Vitamin A										
Intake (mg)	157.9	217.0	272.4	333.5	402.8	479.9	578.9	716.1	968.0	18,154.8
Percent Adequacy	35.3	48.0	60.3	73.3	88.1	104.8	125.6	155.1	208.7	3,724.1
Thiamin										
Intake (mg)	0.68	0.87	1.02	1.16	1.30	1.46	1.66	1.95	2.49	43.25
Percent Adequacy	68.2	87.3	102.0	115.4	129.7	145.0	164.9	193.9	252.0	4,324.6
Niacin										
Intake (mg)	8.7	11.6	13.4	14.8	16.3	17.9	19.7	22.1	26.1	168.3
Percent Adequacy	46.5	61.1	70.4	78.4	86.0	94.1	103.4	116.0	137.3	863.2
Riboflavin										
Intake (mg)	0.43	0.55	0.66	0.78	0.91	1.08	1.29	1.64	2.31	56.93
Percent Adequacy	42.8	55.0	65.9	77.4	90.4	106.8	128.8	163.6	233.4	5,692.8
Vitamin C										
Intake (g)	17.9	27.0	36.7	48.1	62.9	85.2	121.2	185.6	312.8	20,578.8
Percent Adequacy	26.7	40.0	54.3	71.2	93.2	126.3	179.6	276.6	459.9	28,384.6
Fat Intake* (g)	12	16	19	22	26	30	35	42	53	332
Carbohydrate Intake* (g)	225	260	287	313	339	367	401	447	520	4235

\*No recommended amounts

Cumulative distribution of mean one-day per capita nutrient intake and adequacy: FIES 2000 (Unweighted)

Nutrient	Percentile									
	10 <sup>th</sup>	20 <sup>th</sup>	30 <sup>th</sup>	40 <sup>th</sup>	50 <sup>th</sup>	60 <sup>th</sup>	70 <sup>th</sup>	80 <sup>th</sup>	90 <sup>th</sup>	100 <sup>th</sup>
Energy										
Intake (Kcal)	1,205	1,386	1,530	1,668	1,804	1,958	2,144	2,384	2,792	18,879
Percent Adequacy	61.2	70.2	77.2	83.8	90.7	98.2	107.1	119.8	141.1	909.8
Protein										
Intake (g)	31.8	37.0	41.0	45.0	49.1	53.8	59.4	66.8	79.3	323.5
Percent Adequacy	64.3	74.3	82.3	89.9	97.5	105.9	116.1	129.8	153.1	644.2
Iron										
Intake (mg)	6.2	7.4	8.4	9.5	10.5	11.8	13.3	15.5	19.5	256.1
Percent Adequacy	38.4	46.2	52.6	59.4	66.6	75.1	86.0	101.6	130.3	2,227.1
Calcium										
Intake (mg)	220	266	306	347	391	443	507	600	765	13,323
Percent Adequacy	38.2	46.7	54.1	61.6	70.1	79.8	92.2	110.0	142.3	2,664.7
Vitamin A										
Intake (mg)										18,154.
Percent Adequacy	159.3	220.1	276.3	337.6	407.8	486.0	587.0	726.9	979.8	8
Percent Adequacy	35.5	48.8	61.2	74.2	89.3	106.3	127.4	157.9	212.1	3,724.1
Thiamin										
Intake (mg)	0.69	0.88	1.03	1.17	1.31	1.47	1.67	1.97	2.52	43.25
Percent Adequacy	68.9	87.7	102.7	116.1	130.4	146.1	166.2	196.3	253.7	4,324.6
Niacin										
Intake (mg)	8.9	11.7	13.5	15.0	16.5	18.0	19.9	22.3	26.3	168.3
Percent Adequacy	47.5	62.1	71.3	79.1	86.7	94.9	104.1	117.0	139.0	863.2
Riboflavin										
Intake (mg)	0.44	0.56	0.67	0.79	0.92	1.09	1.31	1.66	2.35	56.93
Percent Adequacy	43.6	55.9	66.8	78.3	91.6	108.4	130.8	166.5	235.9	5,692.8
Vitamin C										
Intake (g)										20,578.
Percent Adequacy	18.4	27.5	37.3	49.4	65.5	89.8	130.2	198.2	329.9	8
Percent Adequacy	27.2	40.9	55.3	73.4	96.9	133.2	193.3	295.1	488.3	28,384.
Percent Adequacy										6
Fat Intake* (g)	12	16	19	23	26	30	35	42	54	332
Carbohydrate Intake* (g)	226	261	289	315	341	370	404	451	526	4,235

\*No recommended amounts

Mean one-day per capita nutrient intake and adequacy by income quartile: FIES 2000 (Weighted)

Nutrient	Mean	SE	Minimum	Maximum	Income Quartile			
					1	2	3	4
Energy								
Intake (Kcal)	1,919	4	2	18,879	1,807 ± 12*	1,844 ± 8	1,899 ± 9	2,125 ± 15
Percent Adequacy	96.5				93.4	92.9	94.4	105.0
Protein								
Intake (g)	53.1	0.1	0.1	323.5	47.3 ± 0.3	49.1 ± 0.3	53.0 ± 0.3	62.9 ± 0.5
Percent Adequacy	104.1				93.9	97.8	103.5	120.8
Iron								
Intake (mg)	11.9	0.03	0.0	256.1	10.9 ± 0.14	11.0 ± 0.09	11.6 ± 0.08	14.0 ± 0.14
Percent Adequacy	75.1				73.7	70.4	71.8	84.1
Calcium								
Intake (mg)	450	1.4	3	13,323	404 ± 5.0	416 ± 3.5	432 ± 3.3	549 ± 7.7
Percent Adequacy	80.5				72.9	73.6	76.9	99.0
Vitamin A								
Intake (mg)	504.7	2.1	0.0	18154.8	340.0 ± 5.0	394.2 ± 4.3	510.3 ± 4.6	774.3 ± 9.7
Percent Adequacy	110.4				74.6	86.9	111.5	167.6
Thiamin								
Intake (mg)	1.53	0.01	0.00	43.25	1.60 ± 0.03	1.54 ± 0.02	1.47 ± 0.01	1.51 ± 0.01
Percent Adequacy	152.2				164.0	153.2	144.5	147.6
Niacin								
Intake (mg)	17.1	0.04	0.0	168.3	14.9 ± 0.15	16.6 ± 0.10	17.5 ± 0.09	19.5 ± 0.13
Percent Adequacy	90.3				81.0	87.5	90.9	101.2
Riboflavin								
Intake (mg)	1.26	0.007	0.00	56.93	1.35 ± 0.04	1.20 ± 0.02	1.15 ± 0.01	1.33 ± 0.01
Percent Adequacy	125.3				139.0	119.7	113.3	129.6
Vitamin C								
Intake (g)	131.7	1.2	0.0	20,578.8	127.1 ± 3.6	126.3 ± 2.9	115.8 ± 2.4	157.7 ± 4.0
Percent Adequacy	194.2				189.7	188.4	170.0	228.0
Fat Intake** (g)	30	0.1	0	332	20 ± 0.2	25 ± 0.2	32 ± 0.2	44 ± 0.5
Carbohydrate Intake** (g)	362	0.7	0	4,235	365 ± 2.4	360 ± 1.7	352 ± 1.6	369 ± 2.3

\*Mean ± SE

\*\*No recommended amounts

Mean one-day per capita nutrient intake and adequacy by income quartile: FIES 2000 (Unweighted)

Nutrient	Mean	SE	Minimum	Maximum	Income Quartile			
					1	2	3	4
Energy								
Intake (Kcal)	1933	4	2	18,879	1,811 ± 7.5*	1,846 ± 6.3	1,917 ± 6.6	2,147 ± 8.0
Percent Adequacy	97.2				93.7	93.0	95.4	106.1
Protein								
Intake (g)	53.3	0.1	0.1	323.5	47.2 ± 0.21	49.0 ± 0.18	53.3 ± 0.19	63.2 ± 0.25
Percent Adequacy	104.6				93.6	97.7	104.3	121.4
Iron								
Intake (mg)	12.1	0.03	0.0	256.1	11.1 ± 0.08	11.2 ± 0.06	11.8 ± 0.06	14.1 ± 0.07
Percent Adequacy	76.4				75.1	71.7	73.3	85.1
Calcium								
Intake (mg)	458	1.4	3	1,3323	408 ± 2.7	425 ± 2.4	442 ± 2.7	553 ± 3.2
Percent Adequacy	82.0				73.8	75.2	78.7	99.7
Vitamin A								
Intake (mg)	511.4	2.1	0.0	18,154.8	343.6 ± 3.1	399.5 ± 3.1	515.5 ± 3.7	771.7 ± 4.9
Percent Adequacy	111.8				75.3	88.1	112.7	167.1
Thiamin								
Intake (mg)	1.55	0.01	0.00	43.25	1.61 ± 0.02	1.54 ± 0.01	1.49 ± 0.01	1.54 ± 0.01
Percent Adequacy	153.9				165.7	153.5	147.1	151.0
Niacin								
Intake (mg)	17.3	0.04	0.0	168.3	15.1 ± 0.09	16.6 ± 0.07	17.6 ± 0.07	19.7 ± 0.08
Percent Adequacy	91.2				81.9	87.6	91.8	102.3
Riboflavin								
Intake (mg)	1.28	0.007	0.00	56.93	1.38 ± 0.02	1.22 ± 0.01	1.19 ± 0.01	1.35 ± 0.01
Percent Adequacy	127.6				141.7	121.9	116.7	132.2
Vitamin C								
Intake (g)	138.4	1.2	0.0	20,578.8	132.3 ± 2.2	134.6 ± 2.3	124.7 ± 2.7	161.5 ± 2.4
Percent Adequacy	204.0				197.1	200.8	183.2	233.5
Fat Intake** (g)	31	0.1	0	332	21 ± 0.1	25 ± 0.1	32 ± 0.2	44 ± 0.2
Carbohydrate Intake** (g)	364	0.7	0	4,235	366 ± 1.5	360 ± 1.3	356 ± 1.3	375 ± 1.4

\*Mean ± SE

\*\*No recommended amounts

Mean one-day per capita nutrient intake and adequacy by income decile: FIES 2000 (Weighted)

Nutrient	Income Decile									
	1	2	3	4	5	6	7	8	9	10
Energy										
Intake (Kcal)	1,813 ± 20*	1,813 ± 16	1,805 ± 13	1,824 ± 12	1,872 ± 12	1,879 ± 13	1,904 ± 12	1,949 ± 12	2,042 ± 14	2,286 ± 30
Percent Adequacy	95.4	92.8	91.7	92.0	93.9	93.8	94.5	96.4	100.6	113.1
Protein										
Intake (g)	47.6 ± 0.6	47.3 ± 0.4	47.4 ± 0.4	48.4 ± 0.3	50.3 ± 0.4	51.6 ± 0.4	53.4 ± 0.4	55.6 ± 0.4	59.9 ± 0.4	69.0 ± 0.9
Percent Adequacy	92.7	95.0	95.5	96.7	99.5	101.6	104.2	107.7	115.1	132.1
Iron										
Intake (mg)	11.1 ± 0.22	10.8 ± 0.16	10.7 ± 0.14	10.9 ± 0.12	11.3 ± 0.13	11.4 ± 0.12	11.6 ± 0.11	12.1 ± 0.10	13.2 ± 0.12	15.7 ± 0.28
Percent Adequacy	78.4	71.6	69.6	69.9	71.2	71.9	71.4	73.9	79.7	92.6
Calcium										
Intake (mg)	407 ± 7.6	403 ± 6.1	403 ± 4.6	409 ± 4.5	426 ± 5.3	425 ± 5.0	431 ± 4.5	454 ± 4.6	503 ± 5.5	638 ± 16.4
Percent Adequacy	75.1	72.1	71.3	72.3	75.5	75.6	76.7	81.2	90.4	115.8
Vitamin A										
Intake (mg)	339.7 ± 7.6	340.9 ± 6.5	345.6 ± 5.1	382.1 ± 5.8	427.0 ± 6.6	472.8 ± 6.7	521.5 ± 6.7	588.9 ± 6.9	698.6 ± 8.6	929.9 ± 18.5
Percent Adequacy	73.7	75.3	76.6	84.4	93.9	103.6	113.8	128.0	151.2	201.0
Thiamin										
Intake (mg)	1.65 ± 0.05	1.57 ± 0.03	1.55 ± 0.03	1.54 ± 0.02	1.53 ± 0.02	1.50 ± 0.02	1.45 ± 0.01	1.45 ± 0.01	1.49 ± 0.02	1.56 ± 0.02
Percent Adequacy	173.1	159.2	156.4	153.4	151.5	148.0	142.7	141.6	145.7	152.1
Niacin										
Intake (mg)	14.4 ± 0.24	15.2 ± 0.18	15.8 ± 0.16	16.4 ± 0.14	17.0 ± 0.14	17.2 ± 0.14	17.6 ± 0.13	17.9 ± 0.12	18.9 ± 0.14	20.9 ± 0.26
Percent Adequacy	79.6	81.6	84.3	86.5	89.2	90.1	91.4	93.0	97.6	108.3
Riboflavin										
Intake (mg)	1.46 ± 0.06	1.30 ± 0.04	1.24 ± 0.04	1.20 ± 0.03	1.19 ± 0.03	1.16 ± 0.02	1.14 ± 0.02	1.17 ± 0.01	1.26 ± 0.02	1.46 ± 0.02
Percent Adequacy	153.2	131.6	125.0	119.7	117.9	114.9	111.9	114.4	123.2	142.9
Vitamin C										
Intake (g)	127.5 ± 5.6	127.8 ± 4.6	123.6 ± 3.5	124.9 ± 3.9	129.9 ± 4.5	119.2 ± 4.1	112.7 ± 3.1	119.8 ± 3.3	137.1 ± 4.2	195.1 ± 7.9
Percent Adequacy	187.5	192.4	186.0	186.8	192.5	176.1	165.1	174.4	198.3	281.1
Fat Intake** (g)	19 ± 0.4	21 ± 0.3	22 ± 0.3	24 ± 0.3	27 ± 0.3	30 ± 0.3	33 ± 0.3	36 ± 0.3	41 ± 0.4	51 ± 1.0
Carbohydrate Intake** (g)	370 ± 3.9	365 ± 3.2	359 ± 2.7	358 ± 2.4	361 ± 2.4	354 ± 2.5	351 ± 2.3	352 ± 2.3	360 ± 2.5	387 ± 4.6

\*Mean ± SE

\*\*No recommended amounts

Mean one-day per capita nutrient intake and percent adequacy by income decile: FIES 2000 (Unweighted)

Nutrient	Income Decile									
	1	2	3	4	5	6	7	8	9	10
<b>Energy</b>										
Intake (Kcal)	1,817 ± 13*	1,810 ± 11	1,809 ± 10	1,826 ± 10	1,882 ± 10	1,893 ± 11	1,923 ± 10	1,973 ± 11	2,068 ± 12	2,305 ± 14
% Adequacy	95.7	92.8	91.9	92.0	94.5	94.4	95.5	97.8	102.1	113.9
<b>Protein</b>										
Intake (g)	47.4 ± 0.4	47.1 ± 0.3	47.3 ± 0.3	48.4 ± 0.3	50.5 ± 0.3	51.8 ± 0.3	53.7 ± 0.3	56.1 ± 0.3	60.4 ± 0.3	69.2 ± 0.4
% Adequacy	92.0	94.5	95.1	96.5	100.1	101.9	105.0	108.8	116.0	132.2
<b>Iron</b>										
Intake (mg)	11.3 ± 0.14	11.0 ± 0.12	10.9 ± 0.10	11.1 ± 0.10	11.5 ± 0.10	11.6 ± 0.11	11.8 ± 0.09	12.3 ± 0.09	13.4 ± 0.10	15.7 ± 0.12
% Adequacy	80.1	72.9	70.7	71.2	72.8	73.0	72.9	75.6	81.0	93.3
<b>Calcium</b>										
Intake (mg)	409 ± 4.6	406 ± 4.1	414 ± 3.7	417 ± 3.5	437 ± 4.3	436 ± 4.8	441 ± 3.7	465 ± 3.9	513 ± 4.3	636 ± 6.0
% Adequacy	75.6	72.7	73.2	73.7	77.5	77.5	78.3	83.4	92.1	115.1
<b>Vitamin A</b>										
Intake (mg)	341.8 ± 5.0	342.5 ± 4.8	354.2 ± 4.2	386.1 ± 4.5	433.2 ± 5.6	478.1 ± 6.5	523.8 ± 5.3	595.7 ± 5.8	700.6 ± 6.6	921.1 ± 9.0
% Adequacy	74.0	75.6	78.5	85.2	95.2	104.8	114.5	129.5	151.8	199.0
<b>Thiamin</b>										
Intake (mg)	1.68 ± 0.03	1.59 ± 0.03	1.54 ± 0.02	1.54 ± 0.02	1.54 ± 0.02	1.51 ± 0.01	1.49 ± 0.01	1.48 ± 0.01	1.52 ± 0.01	1.60 ± 0.01
% Adequacy	176.2	161.2	154.6	153.7	153.2	149.4	146.1	144.6	148.6	156.4
<b>Niacin</b>										
Intake (mg)	14.6 ± 0.15	15.3 ± 0.13	15.9 ± 0.12	16.4 ± 0.11	17.1 ± 0.11	17.4 ± 0.11	17.7 ± 0.10	18.2 ± 0.10	19.1 ± 0.11	21.1 ± 0.13
% Adequacy	80.6	82.3	84.4	86.5	89.8	90.7	92.3	94.3	98.9	109.2
<b>Riboflavin</b>										
Intake (mg)	1.50 ± 0.04	1.33 ± 0.03	1.24 ± 0.03	1.22 ± 0.02	1.22 ± 0.02	1.19 ± 0.02	1.18 ± 0.02	1.20 ± 0.01	1.29 ± 0.01	1.49 ± 0.02
% Adequacy	157.3	135.0	124.8	122.1	121.4	117.1	116.1	117.9	125.8	145.3
<b>Vitamin C</b>										
Intake (g)	130.5 ± 4.0	132.0 ± 3.4	135.5 ± 3.0	131.1 ± 3.0	137.9 ± 4.5	130.7 ± 5.9	119.2 ± 2.7	128.1 ± 2.9	142.0 ± 3.2	196.2 ± 4.6
% Adequacy	191.4	198.6	203.8	195.9	204.6	193.0	174.8	186.8	205.5	282.3
<b>Fat Intake** (g)</b>	20 ± 0.2	21 ± 0.2	22 ± 0.2	24 ± 0.2	27 ± 0.2	30 ± 0.2	33 ± 0.3	36 ± 0.3	41 ± 0.3	50 ± 0.4
<b>Carbohydrate Intake** (g)</b>	370 ± 2.6	364 ± 2.3	360 ± 2.1	358 ± 1.9	363 ± 2.1	358 ± 2.1	355 ± 1.9	358 ± 2.0	366 ± 2.1	393 ± 2.5

\*Mean ± SE

\*\*No recommended amount