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Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

Estimation of the Food Poverty Line

Jose Ramon Albert and Wilma Molano

DISCUSSION PAPER SERIES NO. 2009-14

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ESTIMATION OF THE FOOD POVERTY LINE*

by

Jose Ramon Albert and Wilma Molano**

ABSTRACT

To monitor changes in absolute poverty across time, it is crucial to ensure that the established poverty line is a fixed standard of living that represents the minimum standard required by an individual to fulfill his or her basic food and non-food needs. Typically, the food (component of the) poverty line is set with the cost of basic needs method, which entails determining the price of some nutritional benchmark through an artifice. In the Philippines, the official food poverty line is estimated at urban and rural areas of each province by using a one-day food menu as the artifice. These menus satisfy energy, and other nutrient requirements. We review the issues raised on this methodology, including the nutritional benchmarks, and propose an alternative approach for estimating the food poverty line using a representative food basket (and some spatial price indices to adjust for differences in cost of living). The proposed methodology addresses issues on consistency raised against the current official approach for setting food poverty lines.

KEY WORDS: absolute poverty line, food poverty line, menu, basket, spatial price index, consistency

1. Introduction

Poverty reduction is recognized as the overarching and ultimate goal of development policy, particularly in the development framework of the Philippines. Efforts in reducing poverty involve defining and measuring the extent of poverty, providing a profile of the poor, as well as tracking changes in poverty through time (Pedro, 2002; Reyes, 2002). There are, however, a number of challenges regarding the measurement and monitoring poverty. Coupled with the multi-dimensional nature of and different manifestations of poverty, there are statistical issues that complicate the measurement of poverty, and such issues may affect policy solutions and interventions for reducing poverty.

The measurement of poverty essentially hinges on choosing a welfare indicator, and setting a poverty line, i.e. a minimum value of the welfare indicator that households (or persons) must have to fulfill their basic needs. In developing countries, the poverty lines used for measuring monetary poverty are absolute poverty lines, which are based on a fixed welfare standard that is merely updated across time by price changes, and whose differing nominal values across regions merely reflect cost of living differences. The theory underlying absolute poverty lines is grounded in welfare economics and constrained utility maximization; in this context, the fixed standard of living represented by the poverty line is a level of utility associated with the minimally acceptable standard of living (Ravallion, 1992; 1998).

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In the Philippines, the official poverty statistics and poverty estimation work started in 1987 through the initiative of a Technical Working Group (TWG) on Poverty Determination set up in 1986 under the National Economic and Development Authority (NEDA). Although the academe, researchers, and non-governmental organizations undertook similar studies earlier, the government only released official poverty figures starting on the year 1985. By definition, the (absolute) poverty line is the income needed to satisfy the minimum basic needs of food and non-food. The food component of the poverty line, referred to as the food poverty line (FPL), is augmented by an allowance for non-food needs to yield the (total) poverty line. The FPL may be thought of as the amount in pesos needed for food to sustain normal physical activity and good health, while the non-food component of the poverty line consists of the cost of essential non-food requirements such as clothing, shelter, primary schooling, basic health care, and the like.

There are two fundamental problems in coming up with an absolute poverty line: (a) the referencing problem, i.e. what do we mean as minimum basic needs, and, (b) the identification problem, i.e., how to estimate the amount necessary to achieve this minimum basic needs? At present, official poverty statistics in the country uses the cost of basic needs (CBN) approach for estimating the poverty line. In general, the CBN approach entails stipulating a food consumption bundle anchored to calorie requirements, as an artifice to determining the cost of the minimum food nutritional (calorie) requirements of everyone, and adding a nonfood allowance based on the nonfood budget shares of poor households, to obtain a total poverty line which represents an acceptable standard of living in society.

Unlike in many countries that use the CBN approach, the Philippines differs in the adoption and use of “low-cost” one-day-menus for breakfast, lunch, supper and snack (rather than food baskets) for rural and urban areas of most regions in the country. Some regions adopt the menus of other regions. These regional food menus are valued with provincial prices to come up with provincial urban/rural FPLs. The menus meet 100% Recommended Dietary Allowance (RDA) adequacies for energy and protein as well as 80% RDA adequacies for other nutrients and vitamins. The Food and Nutrition Research Institute (FNRI) of the Department of Science and Technology (DOST) prepared these low-cost menus, which were validated through regional consultations. According to Arboleda (2003), these menus were initially prepared for estimating the peso value of rice equivalents. The menus take into account the availability of food commodities that are cheap and nutritious, but some costly food items, such as milk and pork liver, were also included in the menus, in particular, when these food items were the only source of the nutrient requirements, say for iron adequacy.

As pointed out by David and Maligalig (2002) two major criticisms have been raised against the use of the menu-based approach for determining the FPLs: the level or accuracy of the resulting FPLs, and the comparability or consistency of the FPLs. As far as accuracy, David and Maligalig (2002) point out that “*the main issue is whether the cost of the one day menu multiplied by 365 will come close to the total annual food budget of the poor Filipino family or individual.*” They also report results of some studies, e.g., Balisacan (1999; 2001) and Kakwani (2000; 2001) that circumvented the menus and yet yielded significantly smaller FPLs. Regarding consistency, Ravallion (1998) states that “when that purpose is to monitor progress in

reducing poverty in terms of a given measure of welfare, or to target limited public resources to better reduce aggregate poverty, then the poverty lines used should have constant value in terms of that welfare measure.” In other words, poverty lines must be consistently set. The varying nominal poverty lines from the menu-based approach should reflect the same standard of living across the areas of comparison. However, criticisms have precisely been raised against the lack of assurance that the menus reflect the same yardstick or standard of living across the country. The food menus are also exogenously determined and derived in a manner does not guarantee that people throughout the country with per capita food expenditure level equal to the derived food poverty line (from the menu) are actually consuming the required minimum nutritional intake because of diverse food preferences and cultural patterns. For the poverty lines to be consistent, this means that two persons with the same level of welfare are treated the same way according to the poverty measurement system. Many poverty experts have pointed out that the Philippine official methodology, particularly the use of menus, do not yield consistent FPLs and consequently total poverty lines.

There is an argument posed that the use of a single nutrient benchmark of 2000 kilocalories per person per day in the regional urban/rural menus still results in having one standard of welfare across the country. However, that the menus are not standard across the regions is hardly merely an issue of the lack of one item in one region, but may also reflect tastes and preferences, culture, and norms of the region that include issues of qualitative differences.

One could argue that poverty measures from the use of a single national artifice, whether a menu or a food basket, can also be inconsistent if consumption patterns of the poor vary over space or time because of different relative prices or preferences. The current set of regional food menus is certainly flexible to accommodate changes in consumption patterns and substitution effects within the regions, but there are difficulties in ensuring that the same level of utility (quality of the artifice) to make the artifice comparable and consistent across the regions even if a single nutrient benchmark of 2000 calories per person is used across the country. People in richer areas tend to get their energy and protein from higher quality and higher priced sources, and the use of menus will capture such quality differences. (Balisacan, 2001). Such differences cannot be merely eliminated by deflation, not even with spatial price indices, even if these spatial price indices are somehow built into the menus.

The menus are attractive to the extent that they can be formulated to satisfy other nutrient requirements besides calories. However, practically all countries that employ a CBN approach for setting their poverty lines use food baskets rather than menus to arrive at FPLs. It is not defensible to argue that only the Philippines is doing the FPL estimation right and all other countries are not doing it right (Virola, 2004). Using a single national menu priced at regional or provincial prices may not reflect consumption patterns of the poor as Virola and Encarnacion (2003) rightly point out since some items in a national menu may neither be locally available nor low cost in a locality. The latter argument is premised on the use of a menu-based approach for arriving at the FPL, rather than the more commonly used approach across countries that use the CBN method, i.e. using a food basket consumed by a reference population nationally chosen.

Studies by Molano *et al.* (2002) and Pedro *et al.* (2002) show that having a reference population matters: the food thresholds they developed for all income groups (and the associated food poverty rates) were much higher than those derived using the bottom 30 percent of the income distribution, when they proposed alternatives to the current approach for estimating poverty. Note that the menus were not constructed with respect to a particular reference population, although most of the food items in the menus are of low cost.

A study by Marquez (2003) looks into the use of the Direct Calorie Intake (DCI) approach as an alternative to the official poverty estimation methodology. The DCI method entails converting quantities of food consumed directly converted into calories and dividing this by the number of household members to give the per capita calorie intake, with a household is classified as poor if its per capita calorie intake is less than some standard per capita calorie requirement. The DCI approach is simple and attractive especially as it does not use money-metrics. It also seems consistent in the sense of reflecting the same nutrient intake, but the DCI approach measures undernourishment, not poverty (which certainly entails more aspects of welfare than caloric intake). In addition, it actually faces serious consistency problems as two households consuming the same number of per capita calories may have different (monetary) standards of living, with one household having a much higher per capita income or expenditure than the other. Hence, identifying the poor based on the per capita calorie intake will be misleading, resulting in rich households being classified as poor and vice versa. The paper of Marquez (2003) also had a severe data limitation: it was based only 1997 Family Income and Expenditure Survey (FIES) and 2000 FIES data from four regions.

A number of other studies have looked into either revising the menus (e.g. Florentino, 2006), or revising the weights used in the menus (e.g. Castro *et al.*, 2007). In a personal communication, Ravallion (2003) mentioned that his cursory look at the menus suggests they yield inconsistent FPLs. Ravallion (2003) mentioned that he suggested to the NSCB to consider using a test of revealed preferences to investigate the consistency of the poverty lines from the menus. The test for revealed preferences was applied in Papua New Guinea (Gibson & Rozelle, 1999) and in Russia (Ravallion & Lokshin, 2003). Gibson & Rozelle (1999) aggregate regions until revealed preference conditions are satisfied. Ravallion & Lokshin (2003) suggest the possibility of a scalar adjustment, but find that such an adjustment is not possible for Russia; they conclude that the internal composition of the bundles would need to change. Castro *et al.*, (2007) apply the test for revealed preferences to the poverty lines of the official poverty measurement system in the Philippines; they also find that most, but not all, of the provinces in the Philippines pass the test of revealed preferences. Following the same line of thinking of Ravallion & Lokshin (2003), the results of Castro *et al.*, (2007) actually suggest that the current menus used in the Philippine official methodology do not yield consistent FPLs, and there results show that there is also no way of adjusting the weights for the menus to yield consistent FPLs, just like in the Russian application. The literature, however, is not helpful for such cases as Russia and Philippines which do not fully pass the test of revealed preferences. Nor have there been studies so far in the Philippines that have tested for utility consistency over time. It has been reported that some revisions to Castro *et al.* (2007) have yielded new sets of scalar adjustments that allow all provinces to pass the test of revealed preferences. Even if that would be the case, it has not yet been

determined whether these new adjustments would yield all the additional nutritional requirements in vitamins and proteins. In addition, if such empirical results can withstand scientific scrutiny from poverty experts, then there should be haste in presenting these results and institutionalizing the results of this research. That this has not been done may suggest some weaknesses in this work.

In this paper, we look into an alternative approach of estimation of the FPLs directly from a basket of food items using a reference population, and then putting a cost to this basket. Poverty lines derived with this menu approach have a desirable property that two persons with the same living standards are both deemed poor or non poor regardless of their places of living, that is, consistency of the poverty line is achieved here as a result of consistency in utility levels. In addition, this exercise addresses comparability issues across countries since a food basket is the more standard procedure employed in countries that use the CBN approach for estimating the FPL (Ravallion, 1992). Lastly, the paper discusses issues to be dealt with in the future arising from the results of the exercises here, ranging from (a) the need to standardize quantity of units in the FIES, (b) the need to have the quantity data released together with the total values in the FIES, to investigate the quality of unit price data (that can be derived from the total values of expenditures and quantity data per item) as well as to generate a spatial price index useful for adjusting the food poverty line that can be derived in one area to the food poverty line in other areas of the country, and (c) the issue of defining nutritional adequacy that will withstand cross-country comparability.

2. Standards of Nutritional Adequacy

The Evolution of Dietary Standards

The evolution of nutrient-based dietary standards may be summarized as: 1) a broadening of the goal from prevention of nutritional deficiency states to promotion of optimum health and improved quality of life which includes reduction of the risk of chronic degenerative diseases and avoidance of excessive intakes of certain nutrients; 2) a shift from single to multiple reference standards; 3) expansion of nutrients covered; and 4) changes in terminology.

The scarcity of data on nutrient requirements of Filipinos was the major problem encountered by the Philippines Recommended Energy and Nutrient Intake (RENI) Committee in revising the latest edition of the Recommended Dietary Allowance (RDA). Thus, as in the past, foreign data were used to derive the RENIs for Filipinos. The arguments of the US Food and Nutrition Board (FNB) for global harmonization of nutrient-based dietary guidelines, namely “physiological requirements are expected to be similar across healthy population groups” was made as basis for doing such. The Committee, however, recognizes the need to validate the appropriateness of foreign data-based recommendations for Filipinos since nutrient requirements are known to be affected by other factors such as genetics, usual diet composition, lifestyle, etc.

The revised edition of the dietary standards is changed from RDA to RENI to emphasize that the standards are in terms of nutrients, and not foods or diets. RENIs are defined as levels of intakes of energy and nutrients which, on the basis of current scientific knowledge, are considered adequate for the maintenance of health and well-being of nearly all healthy persons in the population. For most nutrients, they are

equal to the average physiological requirement (AR), corrected for incomplete utilization or dietary nutrient bioavailability, plus two standard deviations (SD), or twice an assumed coefficient of variation (CV), to cover the needs of almost all individuals in the population. In the case of nutrient for which data on AR are insufficient, the RENI is an “adequate intake” (AI) which is based on the experimentally observed average intake of healthy individuals. For energy, the recommended intake level is set at the estimated average requirement of individuals in a group (no SD), since intake consistently above the individual’s requirement lead to overweight or obesity (RENI 2002).

The first step in establishing recommended intakes is to determine the average physiologic or absorbed nutrient requirement based on currently available studies. Requirement is defined as the lowest nutrient intake of an individual that, for a specified criterion, will prevent a deficit. The chosen criterion may be different across life stage or gender groups or both. The average requirement of a group of individuals with specified characteristics (age, gender, physiologic status) is the lowest mean intake that, for a chosen criterion, will prevent deficit in the group.

For most nutrients, the reference nutrient intake (RNI) is set at a level that will meet the needs of most individuals in the population group. The addition of 2SD to the AR yields an RNI that will cover the needs of 97.5% of the individuals in the population. If the SD is not known, a CV is assumed based on the known physiology of the nutrient. Thus:

$$\text{RNI} = \text{AR} + 2\text{SD} \text{ or } \text{AR} + 2\text{CV}$$

The above procedure is not applicable to recommended energy intake. The RNIs for nutrients are set at the top of the distribution of requirements to meet the needs of nearly all individuals in a group. While nutrient intakes between the AR and the RNI or even more than the RNI are not expected to have adverse effects, the same is not true for energy intake. Intakes consistently above the individual’s requirements lead to overweight or obesity. The recommended energy intake for a group is thus set at the computed average requirement of individuals in that group.

RENIs are meant to serve the purposes and applications such as:

1. Setting of goal for energy and nutrient intakes of population groups and nutrient intakes of individuals.
2. Reference standard for the assessment of the habitual energy and nutrient intakes of the population or population sub-groups.
3. Goal-setting for agricultural production. Targets should be set at levels higher than the RENIs to allow for unequal distribution of the food supply.
4. References standard for assessment of the adequacy of food supplies.
5. Tool for nutrition education and advocacy.
6. Basis for public health and food and nutrition policies, e.g., on food importation, food fortification, food and nutrition labeling, supplementation programs, etc.

Food Component in Poverty Measure Estimation Methodology

1985 up to pre- NSCB-supported FNRI Project

In 1987, the National Statistical Coordination Board (NSCB) first released the poverty statistics based on the 1985 FIES, conducted by the National Statistics Office (NSO). Sometime in 1989, they released preliminary estimates for 1988 by updating the 1985 line with the inflation rates derived from the Consumer Price Index (CPI) (1978=100). The Technical Working Group (TWG) on Poverty Determination continued its task of measuring the 1988 poverty line/incidence using the methodology started by the 1987 Task Force but with some changes. Finally, on December 8, 1992, the NSCB acted on the issues and approved the release of a new set of poverty statistics covering the years 1985, 1988 and 1991 based on the revised methodology.

Some issues and revision on the methodology were related to the food component of the poverty threshold and incidence. The food threshold was and still is defined as the minimum food requirements (valued in peso per month/year) just enough to satisfy the nutritional requirements for economically necessary and socially desirable physical activities.

The NSCB Technical Report Series No. 01-93 provided description on the methodology as well as definition of basic terminologies. Based on the monograph, low-cost diets were determined by region by urban-rural classification. Low cost diets on a per capita basis are constructed for the regions of the country, subdivided into rural and urban. (Note that menus are not distinct for all regions of the country). One-day sample menus for each urban/rural area of a region are provided by the FNRI-DOST taking into consideration the nutrient requirements, food commonly eaten in the area, and the generally cheap foods. These menus, however, are for purposes of estimating the food threshold and not to be seen as prescribed menus. It is further stressed that these menus, being based on per capita RDA, are generally applicable to the average healthy Filipino performing moderate activities. Further, as current consumption patterns are taken into account menus/food components in 1988 varied from 1985. In 1991, the menus were the same as those in 1988.

The dietary goal of the menu plans is to meet 100% of the per capita RDA for energy and protein and 80% of the per capita RDA for vitamins, minerals and other nutrients. The RDA for energy is 2,000 kilocalories.

The menus are typical of a Filipino diet and representative of the region. The typical Filipino pattern is composed of three meals and one snack and usual food combinations are followed, like having rice and viand. Variation of food preference across regions has been reflected in the menus. The consumption patterns are based on the results of the latest Food Consumption Survey (FCS) of FNRI.

The term “low cost” implies the utilization of cheap foods for the construction of the sample menus. Thus, nutritionally economical foods are considered to compromise the menu. This means that an additional quantity of such food items entails comparatively lower cost but has the same nutritional contribution as the other more costly foods. On the other hand, some foods, although a little more costly, are included in the menu because they are the only source of nutrient required. Further, to

determine the low cost commodities, data from the Bureau of Agricultural Statistics and the Food Management Section of the FNRI is used. The ingredients of the respective menus are listed in weights (grams) based on an individual's intake. The nutrient content is calculated and compared to the requirement. In cases where the 100% and 80% adequacy for specific nutrients are not met, the quantity of the foods to be served is increased in order that the nutrient requirements are realized. A process of validation with regional specialists as well as members of the TWG was done before the menu was finalized.

The per capita per day food cost is multiplied by 30.4 (approximate number of days per month) to get the monthly food threshold or by 365 days (30.4 days/month x 12 months) to get the annual food threshold.

The monthly/annual food threshold or food line derived is thus interpreted as the *subsistence line*- the monthly/annual income necessary to meet the nutritional requirements.

NSCB-supported FNRI Project

The NSCB-supported FNRI Project, "Development of a Methodology on the Formulation of Provincial Low Cost Nutritionally Adequate Menus" was piloted in 1996 in the four provinces of Region I (i.e., Pangasinan, La Union, Ilocos Norte and Ilocos Sur). As in the pilot study, in this Project, the Provincial Nutritionists (PNs) were tapped to provide provincial low-cost menus.

This Project was designed to develop nutritionally adequate menus that meet selected % RDA targets to achieve reduced cost. The basis for the menu development methodology is the FNRI's 1993 4th National Nutrition Survey-Food Consumption Component, involving 4,050 households and 24,000 household members.

The Project consisted of seven (7) phases, namely: 1) Consensus-building/Social Preparation; 2) Training of Provincial Nutritionists (PNs)/City Nutritionist (CN) on the Formulation of Provincial/Metro Manila Low-Cost Nutritionally Adequate Menus; 3) Selection of "Candidate" Provincial/Metro Manila Menus and Nutritional Assessment by FNRI; 4) Validation of "Candidate" Provincial/Metro Manila Low-Cost Menus; 5) Finalization of Low-Cost Provincial/Metro Manila Menus by the FNRI; 6) Formulation, Validation and Finalization of National Menus; and 7) Improvement of the Menu Development Methodology.

As part of Consensus-building/Social Preparation Phase, the NSCB-TWG on Poverty Determination, the FNRI Project Team and the NSCB Project Team pre-determined the criteria for the development of the provincial menus and national menus. The following should be considered: 1) typical dishes to province (provincial menus), Metro Manila (Manila menu), and the country (national menus) based on frequently consumed foods/food ingredients from the 4th National Nutrition Survey specifically the Food Consumption Survey of FNRI-DOST in 1993; 2) nutritional adequacy relative to the per capita RDAs with two (2) versions of menu (i.e., with 100% of energy and protein and 80% of the rest of the nutrients; and 100% of energy and protein and no consideration for the rest of the nutrients); 3) sensory acceptability by

visualization without tasting; and 4) low-cost for provincial/Metro Manila menus based on the perception of PNs/CN.

Training of PNs/CN on the Formulation of Provincial/Metro Manila Low-Cost Nutritionally Adequate Menus was divided into three (3) workshop activities, namely the pre-, actual and post-workshop activities. The post-workshop activities were the formulation of five (5) one-day provincial/Metro Manila low-cost menus by the PNs/CN which were later submitted to the FNRI from which one (1) “candidate” menu was selected which subsequently became the basic working menu in the development of the low-cost nutritionally adequate menus, later to be renamed nutritionally improved menus because of limited RDA adequacy

During Phase 3 which is the Selection of “Candidate” Provincial/Metro Manila Menus and Nutritional Assessment by FNRI, the activities undertaken were the adoption of NSCB/TWG’s RDA Adequacy Levels/Cut-off. It was at that time that the group clarified the two (2) versions of menu, as follows:

- Menu Version A- not less than 100% for energy and protein RDAs and not less than 80% for vitamin and mineral RDAs
- Menu Version B- not less than 100% for energy and protein RDAs only, without consideration for vitamin and mineral RDAs

Moreover, it was during this phase that the team determined the per capita RDAs per province; selected “Candidate” Provincial/Metro Manila Low-Cost Menus; evaluated the selected “Candidate” Provincial/Metro Manila Low-Cost Menus by the FNRI Project team using a Menu Evaluation Software; improved on the selected “Candidate” Provincial/Metro Manila Low-Cost Menus.

Validation of the “Candidate” Provincial/Metro Manila Low-Cost Menus were done in two ways:

1. Mailed Questionnaires
2. On-site Menu Validation by the FNRI, with or without Visualization by Selected Users

It was the FNRI Project Team who finalized the Low-Cost Provincial/Metro Manila Menus followed by formulation, validation and finalization of National Menus. The last phase was the improvement of the menu development methodology.

Like any other research undertaking, the Project identified some limitations which were grouped into two (2), such as 1) conceptual and 2) technical issues. For the conceptual issues, the limitations are on defining typical low-cost nutritionally “improved” menus; sampling, for the national menus, of “frequently consumed food items” from the FNRI 1993 4th NNS-FCS component; and meal/menu pattern. With regard to technical issue, this was the validation of PN-developed menus.

Current Methodology

At present, the methodology in determining food threshold and subsistence incidence is the same as the one used in 1985. It will take effect until such time that the NSCB releases a new official methodology.

Construction of the Menus

Previous studies which developed low-cost menus made use of the data from the Food Consumption Survey of the FNRI-DOST. Foods commonly eaten in the region which were relatively cheap were determined and used as bases in the development of the menus. Other FNRI materials such as the regional Menu Guides, Regional recipes of the Philippines, and the FNRI Kitchen-Tested Recipes were likewise referred to in the development of the plan.

The food menus were differentiated by region and by location (urban, rural). Each menu provided requirements of 2,000 kilocalories per person per day, and at least 80% of the RDA for vitamins, minerals and other nutrients.

FNRI nutritionists developed the menus. Series of nutrient evaluation and improvements and adjustments were performed manually. The menus were considered final when they had met the requirements set. They were submitted to the NSCB for costing and determination of regional food thresholds, and subsequently in the estimation of regional poverty thresholds and incidence rates.

3. Issues Related to Nutritional Standards

Age-sex disaggregated calorie norms

According to David and Maligalig (2002), attention is also given in the menus to the RDAs of other nutrients. However, energy threshold is given more importance. Kakwani (2001) takes issue with assigning a 2000 daily kilocalories for all Filipinos regardless of age and sex seems. He proposed applying the age-sex disaggregated calorie norms specified by FNRI to every family in the sample to determine whether the family satisfied the 2000 per capita kilocalorie threshold. This was applied in some Asian countries; however, it did not include norms for the under-one year (infants) segment of the population, the effect of which is to increase the average calorie requirement. At present, the RENI has corresponding RDAs for energy and nutrients for infants below one year old.

There is, however, another way of looking at the calorie threshold, *viz.*, as a weighted average of the age-sex disaggregated calorie norms, with the corresponding age-sex distribution of the populations from the census as weights. When viewed as a weighted average, with sampling error-free census counts as weights; assumptions that the Philippine procedure assign the same calories to all individuals regardless of age or sex is actually *not entirely accurate*.

A more recent study of David, *et al.* (2007) proposes a method for comparing total energy consumption of a family against its total recommended requirements. That is, a family is classified as food poor if

$$\sum \text{kcal} < \sum \text{RENI},$$

where the sum is through all members of the household.

This method is free from per capita calculations. The family is considered food poor if its estimated total energy intake is less its total recommended energy requirement (i.e., $\sum \text{kcal} < \sum \text{RENI}$). Here, no money and price inputs are required, and yet the approach yields a consistent metric across time and space. The approach considers energy and other nutrients. Lastly, the estimation of a nutrient gap index is straightforward (similar to a poverty gap index). Table 1 below presents the family FPL based on applying this method to the 2003 Food Consumption Survey data.

Table 1 – Food poverty incidence based on total energy intake versus recommended total energy for family

Family FPL	Prevalence (%)	CV (%)
$\sum \text{RENI}$	56.0	1.9
$0.85 * \sum \text{RENI}$	36.6	2.7
$0.70 * \sum \text{RENI}$	17.3	4.5

More stringent nutrient requirements

Many countries set a minimum food intake expressed solely in terms of calories. It is assumed that if an individual's food intake fulfills his/her calorie requirements, then his/her protein, vitamins and other nutritional requirements are automatically satisfied

as well. The Philippine official methodology differs from this norm as it is also considers, proteins and minerals as well as calorific requirements. The food intake corresponding to the FPL should meet 100% of the RDAs for energy and protein and 80% of the RDAs for vitamins, minerals and other nutrients. These stricter requirements result in higher poverty incidence estimates relative to other countries in similar circumstances that require only 2000 kilocalorie per person per day. Note that calorie benchmark used by many countries especially in the Asia Pacific Region is 2100 kilocalories. No studies have been undertaken to look into the differences of using the international 2100 kilocalorie benchmark and of the Philippine nutritional adequacy 2000 kilocalorie benchmark.

Using the 2003 FCS, Table 2 provides the cumulative distribution of mean one-day per capita nutrient intake and adequacy. As much as 60% of the sampled households fell below the 100% energy and protein adequacies. Almost all sampled households met the 80% adequacy required by the official methodology for niacin. In the case of iron and calcium, 80% of the sampled households fell below the 80% adequacy. For the rest of the nutrients, more than 50% of the sampled households did not meet the 80% adequacy requirement of the official methodology.

Table 2 - Cumulative distribution of mean one-day per capita nutrient intake and adequacy, FCS 2003

Nutrient Intake	P e r c e n t i l e									
	10 th	20 th	30 th	40 th	50 th	60 th	70 th	80 th	90 th	100 th
Energy										
Intake (Kcal)	1164	1380	1534	1677	1834	1984	2150	2387	2735	4908
Adequacy	62.0	72.4	79.8	87.4	95.4	102.8	111.1	121.7	138.9	246.7
Protein										
Intake (g)	31.8	37.5	42.7	47.2	52.5	57.5	63.7	71.3	85.5	208.0
Adequacy	58.2	68.6	76.7	85.0	92.7	101.7	111.8	124.5	146.1	329.5
Iron										
Intake (mg)	5.2	6.4	7.3	8.3	9.2	10.2	11.5	13.1	15.6	63.3
Adequacy	31.2	37.9	44.1	49.9	55.7	61.8	68.9	79.4	97.5	406.1
Calcium										
Intake (mg)	196	240	280	323	365	415	475	552	712	4652
Adequacy	25.6	31.5	37.1	42.2	48.1	54.8	62.7	73.6	94.1	620.3
Vitamin A										
Intake (RE)	77.8	120.8	166.3	210.8	261.6	310.9	386.2	495.5	712.5	18381.0
Adequacy	15.3	25.0	33.4	43.0	52.9	63.0	77.8	100.2	141.2	3501.1
Thiamin										
Intake (mg)	0.41	0.51	0.59	0.68	0.76	0.87	1.00	1.15	1.43	52.04
Adequacy	41.4	50.2	58.6	66.1	75.6	85.6	96.5	111.9	140.0	4565.1
Riboflavin										
Intake (mg)	0.33	0.41	0.48	0.56	0.64	0.72	0.81	0.95	1.19	8.40
Adequacy	31.6	39.0	46.1	52.9	59.4	66.8	76.7	89.8	112.0	813.1
Niacin										
Intake (mg)	10.4	13.2	15.2	17.3	19.1	21.3	23.7	26.7	32.2	100.0
Adequacy	83.1	102.7	119.8	134.9	148.4	161.3	176.5	200.3	235.2	651.8
Ascorbic Acid										
Intake (mg)	3.4	9.7	15.9	23.2	30.7	39.5	51.6	69.0	105.7	694.9
Adequacy	5.5	16.3	26.1	37.8	51.7	65.6	83.9	111.1	167.9	992.6

Current nutrition standards lead to higher food cost

A study on the different possible food threshold methodologies was conducted by Molano *et al.* (2006) using the 2003 FCS. This was similar to an ADB-funded study conducted by Molano *et al.* (2002) wherein the 1993 FCS dataset was utilized. The cost of the meeting the strict nutrient criteria tend to be higher compared to a situation where only the caloric energy criteria is used as the nutrient standard. On the basis of actual one-day mean per capita value of food consumed by households included in the 2003 FCS, those meeting the 100% energy adequacy level spent about P36.48 per day while those meeting the strict nutrition standard of FNRI spent P69.98.

Table 3 – Summary of proposed methods in the estimation of food threshold: FCS, 2003

PARTICULAR	METHOD ¹					
	(1a)	(1b)	(2a)	(2b)	(3)	(4)
FPL (in pesos)						
Daily per capita	36.48	46.93	-	69.98	34.92	21.78
Monthly per capita	1,108.99	1,426.67	-	2,127.39	1,061.57	662.11
Annual per capita	13,315.20	17,129.45	-	25,542.70	12,745.80	7,949.70
INCIDENCE OF FOOD POOR (in percent)						
Using per capita income	29.3	40.8	-	59.2	27.2	9.0
Number of households (unweighted)	405	1,323	0	68	Households with <100% energy adequacy level = 1721 Households with \geq 100% energy adequacy level = 1323	Households with <100% energy adequacy level = 488 Households with \geq 100% energy adequacy level = 243
Total households	3,044	3,044	3,044	3,044	3,044	731

¹ Legend:

- (1a) Obtain the mean one-day per capita peso value of food among households with 100% energy adequacy level (energy adequacy between 95-105%).
- (1b) Obtain the mean one-day per capita peso value of food among households with 100% energy adequacy level (energy adequacy \geq 100%).
- (2a) Obtain the mean one-day per capita peso value of food among households with 100% energy adequacy level, 100% protein adequacy level, 80% adequacy level for the rest of the nutrients (energy and protein adequacy between 95-105% and the rest between 75-85% adequacy level).
- (2b) Obtain the mean one-day per capita peso value of food among households with 100% energy adequacy level, 100% protein adequacy level, 80% adequacy level for the rest of the nutrients (energy and protein adequacy \geq 100% and the rest \geq 80% adequacy level).
- (3) Obtain the intersection of the upper limit of the confidence interval for the mean one-day per capita peso value of food among households with less than 100% energy adequacy level, and the lower limit of the confidence interval for the mean one-day per capita peso value of food among households with 100% and over energy adequacy level. (α =-0.06421).
- (4) Same as method 3 but applied to the bottom 30% income group. (α =0.214296).

Table 4 – Summary of estimates of FPL in per capita and per household : FCS, 2003

PARTICULAR	METHOD					
	(1a)	(1b)	(2a)	(2b)	(3)	(4)
PER CAPITA (in pesos)						
Daily	36.48	46.93	-	69.98	34.92	21.78
Monthly	1,108.99	1,426.67	-	2,127.39	1,061.57	662.11
Annual	13,315.20	17,129.45	-	25,542.70	12,745.80	7,949.70
PER HOUSEHOLD (in pesos)						
Per day	187.14	240.75	-	359.00	179.14	111.73
Annual	68,306.98	87,874.08	-	131,034.05	65,385.95	40,781.96

Mean household size = 5.13

Table 5 – Summary of estimates of total poverty line and incidence of poverty: FCS, 2003

PARTICULAR	METHOD					
	(1a)	(1b)	(2a)	(2b)	(3)	(4)
PER CAPITA (in pesos)						
Daily	52.11	67.04	-	99.97	49.89	31.11
Monthly	1,584.27	2,038.10	-	3,039.13	1,516.53	945.87
Annual	19,021.71	24,470.64	-	36,489.57	18,208.29	11,356.71
Incidence of Poverty (%) Using per capita income	46.5	57.5	-	74.6	44.2	21.4

Table 6 – Summary of estimates of total poverty line and incidence of poverty vis-à-vis official estimates, 2003

PARTICULAR	METHOD						NSCB
	(1a)	(1b)	(2a)	(2b)	(3)	(4)	
FPL (in pesos)							
Daily per capita	36.48	46.93	-	69.98	34.92	21.78	22.28
Monthly per capita	1,108.99	1,426.67	-	2,127.39	1,061.57	662.11	677.46
Annual per capita	13,315.20	17,129.45	-	25,542.70	12,745.80	7,949.70	8,134.00
TOTAL POVERTY LINE (in pesos)							
Daily per capita	52.11	67.04	-	99.97	49.89	31.11	33.61
Monthly per capita	1,584.27	2,038.10	-	3,039.13	1,516.53	945.87	1,021.69
Annual per capita	19,021.71	24,470.64	-	36,489.57	18,208.29	11,356.71	12,267.00
Using per capita income							
Incidence of Food Poor (%)	29.3	40.8	-	59.2	27.2	9.0	10.4
Poverty Incidence (%)	46.5	57.5	-	74.6	44.2	21.4	24.7

Meeting the nutrient standard

Filipinos, on the average, have difficulty in meeting the strict nutrient standard set by the government. This is supported by the fact that in 1993 FCS, only protein intake met the 100% adequacy. The rest did not meet the recommended dietary allowances. In the case of the latest Food Consumption Survey conducted in 2003, it was only niacin which met the recommended dietary intake at 156.4%. Protein which was met in 1993 even fell short of the 100% adequacy. These results suggest, among other things, the need to re-examine the recommended benchmark nutrient intakes.

Table 7 – Mean one-day per capita nutrient intake and adequacy: NNS, 1993 and 2003

Nutrient	1993		2003	
	Intake	Adequacy (%)	Intake	Adequacy (%)
Energy	1,684	87.8	1905	98.3
Protein	49.9	106.2	56.2	99.2
Iron	10.1	64.7	10.1	60.6
Calcium	390	67.0	440	57.1
Vitamin A	391.1	88.1	455.2	91.4
Thiamin	0.67	68.4	0.88	86.3
Niacin	16.1	68.0	20.6	156.4
Riboflavin	0.56	57.1	0.73	68.0
Ascorbic Acid	46.7	73.2	46.5	75.0
Fats*	28		38	
Carbohydrates*	302		333	

* - No recommended requirement

Changes in the consumption pattern of Filipinos that may warrant a review of the standard

The food consumption pattern in 1993 consists basically of Cereals and Cereal Products (i.e., rice), Fish, Meat and Poultry and Other Fruits and Vegetables. The same pattern was revealed in 2003. Although the percent contribution of the different food groups to the total food intake are almost the same for both survey periods, the actual food intake of each food group differ. Most of the food groups had increased intake except for Vitamin C-rich foods and Other fruits and vegetables.

Table 8 – Mean one-day per capita food consumption and contribution to total intake: FCS, 1993 and 2003

Food Group/Subgroup	1993		2003	
	Intake (grams)	% contribution	Intake (grams)	% contribution
Total food intake	803	100.0	886	100.0
Energy Foods				
Cereal and cereal products	340	42.3	364	41.1
Starchy roots and tubers	17	2.1	19	2.2
Sugars and syrups	19	2.4	24	2.7
Fats and oils	13	1.5	18	2.0
Body-building Foods				
Fish, meat and poultry	147	18.3	185	20.9
Eggs	12	1.5	13	1.5
Milk and milk products	44	5.5	49	5.6
Dried beans, nuts and seeds	10	1.2	10	1.1
Regulating Foods				
Green leafy and yellow vegg.	30	3.7	31	3.5
Vitamin C-rich foods	21	2.6	12	1.4
Other fruits and vegetables	132	13.8	122	13.7
Miscellaneous	19	2.5	39	4.4

4. Food Basket-Based Approach for Estimating FPL

A commonly adopted approach in countries that use the CBN approach for setting the poverty line is to select a single food basket for all the population groups based on actual consumption patterns, to ensure consistency in terms of welfare standards. There is, however, diversity in practices¹ for selecting the number of items used in the single food basket. In the Asia Pacific Region, some countries use as low as less than a dozen items (Myanmar, 10; Bangladesh, 11) but others may use a hundred or more food items (Republic of Korea, 100; Cambodia, 150). To address the referencing problem, the average food composition of a certain “reference” group is typically taken (for example, the second quintile, or those around what is thought of the poverty line, *etc.*). The choice of the reference group is interpretable as a first guess in which the poverty line is located. Selecting a reference population ensures that expensive, luxury food items are not represented in the basket. By basing the composition of the basket on actual consumption patterns rather than some normative artifice, the food items included in the basket reflects actual tastes, culture, and norms. Use of a food basket as the artifice for obtaining the FPL, however, requires detailed consumption data including the total food expenditure levels and the quantities of the food items actually consumed, which was not available for FIES rounds before the 2000 FIES.

When concerns are raised about the use of a single basket owing to differences in relative prices and consumption patterns of the poor across regions in a country, Ravallion (1998) suggests an allowance of substitution by selecting instead a bundle of goods for each region, but ensuring that the reference group is fixed nationally, say in terms of the average income or expenditure. For instance, Ravallion (1998) suggests that those people in the third poorest decile nationally may be used as the reference population, when ranked in terms of (unadjusted) expenditure per person, and then the average consumption bundle is of that reference group in each region is obtained (but with the implicit assumption of a large enough sample in each region).

We consider in this paper an exercise to estimate the FPLs with the use of a nationally representative food basket sourced from the 2000 FIES, with price updates from the subsequent 2003 round of the FIES. Although the 2000 FIES collected data on 149 different food items eaten at home, data was available in standard quantity units² for only 124 of these 149 items. For 90 food items, calories intake data could be generated, in conjunction with the FNRI’s Food Composition Table.³ Not all the 90 goods with calorie equivalent data were, however, commonly consumed items by households belonging to the 2nd to the 4th deciles of the income per capita distribution, which was chosen as the reference population for the exercise. The choice of this reference population was based on the observation that poverty estimates across the past two decades have been within this range. The food bundle adopted here was

¹ In 2004-2005 the UN Statistics Division conducted a global survey of country practices on official poverty measurement. Of the 93 countries surveyed, 62 completed a “longer” questionnaire. Results of the survey indicated much diversity in practices, even among those that use the CBN approach.

² Some food items without standard units, such as chicken eggs, were converted into gram equivalents based on conversion factors taken from data sources, such as www.calorie-count.com

³ Calories for the standard units were taken from FNRI’s 1994 Food Composition Tables; some assumptions were made in the use of calorie equivalents, say, for converting general items such as fresh meat items and chips, from specific items in the Food Composition Table.

based on 62 commonly consumed food items⁴, which accounted for nearly 80 percent of the food per capita expenses of the reference population.

The quantities of each item in the reference food basket were established by considering the consumption pattern of the reference population. For each of the 62 food items, the average quantities consumed per person were scaled up⁵ in such a way that the resulting basket provided a total of 2,100 kcal per person per day.⁶ The cost of the basket was calculated using the median unit prices⁷ for each item paid by the reference population. Specific summary measures required for arriving at the FPLs across urban and rural areas in the country for 2000 and 2003 are provided in Annex Tables A-2 up to A-4.

Table 9 provides the resulting food poverty lines for urban and rural areas in 2000 based on the food basket approach described above. Results are also given for 2003 using updated median unit prices paid by the corresponding 2003 reference population. Estimates of subsistence poverty incidence, i.e. the proportion of poor persons when the poverty line used is the FPL, for urban and rural areas are likewise shown for both 2000 and 2003, together with the official menu-based (weighted national and urban/rural) food poverty lines and official subsistence poverty rates. Total poverty lines are also calculated using the current official approach of estimating non-food requirements indirectly⁸. These poverty lines are used to determine the poverty incidence that is shown also in Table 9. All the results are also shown relative to the results using the official methodology.

⁴ Edible shares of the food items in the bundle were based from FNRI's 1994 Food Composition Table.

⁵ Average calorie consumption for the reference population from the 62 items was only 1500 kcal per person per day. Some studies, e.g., David et al, 2007 that use a bigger bundle of items would still yield average calorie consumption less than 2000 calories for the entire population.

⁶ A calorie benchmark of 2100 calories was used based on the practice of a number of countries (although benchmarks across countries differ). The use of 2100 calories was to take into account that the current official methodology uses 2000 calories, with protein and vitamin requirements as the nutritional benchmark.

⁷ Unit prices were obtained by obtaining values divided by quantities consumed. The quantities of food consumed per person were subjected to a "data cleaning" process: (a) For some observations, we have a positive total value spent on some item, but the corresponding quantity is missing or zero, and for some other households, a positive quantity of some item is consumed, but the total paid for that quantity is missing or zero. In such cases we use the median prices (paid by urban households if the household resides in an urban area, and median prices paid by rural households if the household resides in a rural area) to correct the missing or zero values. (b) If the price of a food item divided by the median price of that item (in the particular area) is larger than or smaller than one fifth, and if the quantity of that food item lies outside the 95% confidence interval, the quantity is considered to be an outlier. In this case, we use the median price also to repair the outlier by redefining the quantity as the total amount paid for that quantity divided by the median price (paid by households of the area where the household resides).

⁸ There is much more diversity across countries in estimating the non-food component of the poverty line (than in estimating the FPL). The official approach in the Philippines for estimating the non-food component of the poverty line involves estimating the average food share of household expenditure of households within a plus or minus ten percentile band around the food poverty line within the income distribution, and subsequently taking the ratio of the food poverty line to this food share (of households in these band) to obtain the total poverty line.

Table 9 – 2000 and 2003 Poverty Statistics from Food Bundle and Food Menu Approaches to Estimate FPLs

Approach for FPL Estimation	Selected Poverty Statistics	2000			2003		
		Urban	Rural	National	Urban	Rural	National
Food Bundle (using 2100 Kcal bench mark)	FPL	6,574	6,474		8,308	8,326	
	Subsistence Poverty Incidence	3.09%	17.13%	10.47%	4.09%	23.81%	14.15%
	Total Poverty Line	9,896	9,537		12,786	12,735	
	Poverty Incidence	10.30%	38.99%	25.28%	13.27%	48.53%	31.24%
Menus	FPL	8,684	7,716		9,265	8,109	
	Subsistence Poverty Incidence	6.11%	25.29%	15.82%	5.13%	21.64%	13.54%
	Total Poverty Line	13,541	11,102		14,689	11,761	
	Poverty Incidence	17.84%	47.71%	32.96%	16.38%	43.21%	30.06%

The results in Table 9 for 2003 were rather surprising since resulting FPLs in rural areas were higher (although only slightly) than those in urban areas. Such results arose from having most of the median unit prices in the 2003 FIES that were either similar or lower in urban than in rural areas. In addition, the FPL in urban (rural) areas rose by 26.3% (28.6%, respectively) from 2000 to 2003, which is much higher than the rise in the official FPLs of 6.7% (and 5.1%) from 2000 to 2003 in urban (rural) areas.

As part of our attempt to determine why such empirical results may have arisen, average market prices for items in the food basket, sourced from CPI data for the years 2000 and 2003, were requested from the National Statistics Office. These data were limited to the National Capital Region, and for a selected province of each region. Median unit prices for urban areas from the FIES were compared with the average unit prices in NCR, while median unit prices for rural areas from the FIES were compared with the grand average of the mean unit prices in the selected provinces. The results of the triangulation are shown in Annex Tables A5 and A6.

Owing to concerns on the inherent variability of some items in the menu, viz., rice (other), banana, shrimp, and candies, as well as the huge discrepancies between the 2000 unit prices from the FIES and the average market prices for the following items:

- Bread, pandesal
- Camote
- Ampalaya
- Infant formula
- Bagoong
- Coffee (processed)
- Cocoa (powdered drinks)
- Black pepper
- Garlic
- Vetsin

further calculations were obtained on a basket that excluded these fourteen items. The results are shown in Table 10.

Table 10 – 2000 and 2003 Poverty Statistics from Food Bundle Approach (with 48 food items) to Estimate FPLs

Approach for FPL Estimation	Selected Poverty Statistics	2000			2003		
		Urban	Rural	National	Urban	Rural	National
Food Bundle (using 2100 Kcal bench mark)	FPL	5,483	5,450		6,365	6,387	
	Subsistence Poverty Incidence	1.53%	10.15%	6.08%	1.61%	12.37%	7.09%
	Total Poverty Line	8,173	7,959		9,680	9,537	
	Poverty Incidence	6.15%	28.45%	17.81%	6.72%	31.32%	19.26%

The results of the initial exercise above suggest that while there is a way to come up with a benchmark on quantities that reflect consumption patterns of an appropriately referenced population, and thus yield a consistent set of FPLs, there are data issues regarding using the unit price data from the FIES to cost the food bundles.

The CPI data may be thought of as a more reliable source of price information, and about inflation in food prices than the unit food price data collected in the FIES (and particularly in the 2000 and 2003 FIES). However, the unit price data across the regions in each of the cross-section FIES surveys may still provide a sense of the variation in cost of food items across the country. Consequently, we modified the approach for costing food items in the food bundle, and arriving at FPLs. The revised methodology for coming up with a menu-based FPL entails (a) the generation of FPLs for Metro Manila in 2000 and 2003 using average quantities consumed by the reference population within Metro Manila (in 2000) and unit prices data sourced from the Metro Manila CPI data (in 2000 and 2003); (b) the construction of a spatial price index from the 2000 and 2003 FIES to adjust the generated Metro Manila FPLs to other areas (i.e. urban and rural areas of all regions outside Metro Manila).

Tables 11 and 12 list the average quantities consumed by the reference population (rescaled to fit 2000 kilocalories for the food bundle), the average unit prices in Metro Manila (based on the CPI data) and the corresponding total costs of the Metro Manila food bundle for 2000 and 2003. By multiplying the total cost of the bundle per day to 365 (days), we readily arrive at the following estimated annual FPLs for Metro Manila for the years 2000 and 2003:

Year	:	FPL (for Metro Manila)
2000	:	9103.15 pesos per person per year
2003	:	9519.59 pesos per person per year

Table 11 –Quantities, Prices and Total Cost of Food Bundle for Metro Manila, 2000

Item	Scaled Quantities (g), per day	Scaled Calorie Equivalents (Cal), per day	Unit cost per gram(sourced from CPI data)	Cost per day
1. Rice (1st class)	79.97238568	112.39561	0.02170	1.735400769
2. Rice (ordinary)	281.6618353	974.00116	0.01764	4.968514775
3. Rice (NFA)	22.03025905	334.31887	0.01479	0.325827531
4. Corn on the cob	1.808210368	0.3291922	0.01763	0.031878749
5. Bread, loaf (sliced)	4.843655538	3.6405611	0.05040	0.244120239
6. Bread, pandesal (quantity)	39.29698249	206.96177	0.05000	1.964849124
7. Other cereal prep, noodle soup	6.274735583	49.902244	0.06927	0.434668047
8. Potato	6.255438019	4.1685348	0.03347	0.209369511
9. Cassava	7.527429666	5.470807	0.00875	0.06586501
10. Camote	10.41499693	9.3624517	0.02047	0.213194987
11. Gabi	4.389228913	3.2792711	0.01880	0.082517504
12. Citrus fruits	7.036719658	0.4826573	0.04476	0.314963572
13. Mango	10.49457232	1.544308	0.05682	0.596301599
14. Cabbgae	6.920259098	1.4898637	0.03104	0.214804842
15. Ampalaya	6.810216381	0.9924252	0.04624	0.314904405
16. Eggplant	11.77686774	2.0857386	0.03280	0.386281262
17. Tomato	11.0545833	2.8248687	0.03184	0.351977932
18. Mongo	3.000155103	14.261334	0.03821	0.114635926
19. Onion	7.596051789	4.848405	0.04279	0.325035056
20. Meat (Fresh chicken)	20.89442916	26.123324	0.08032	1.67824055
21. Corned beef	3.033647513	3.8348389	0.12011	0.364384404
22. Luncheon meat	1.26188969	1.4413339	0.09189	0.115953995
23. Longaniza	3.923705913	23.946621	0.11428	0.448401112
24. Hotdog	4.844807741	8.7130822	0.12596	0.610251983
25. Tocino	1.875664876	5.7094733	0.11597	0.217520856
26. Infant formula	2.34936815	3.7342482	0.27122	0.63720085
27. Chicken eggs	11.38481419	17.839337	0.05680	0.646657446
28. Anchovies	4.197383459	2.4631509	0.05835	0.244917325
29. Bangus	11.63925656	8.994792	0.08288	0.964661583
30. Galunggong	15.73598005	9.6391242	0.07171	1.128427129
31. Tilapia	10.81635617	4.4623845	0.06376	0.68965087
32. Shrimp	2.384282834	0.0945476	0.19940	0.475425997
33. Sardines	5.027127339	14.305612	0.04659	0.234204991
34. Bagoong	2.152955349	0.1790344	0.04564	0.098260882
35. Coffee (processed)	0.889482298	3.6825815	0.37460	0.333200069
36. Coffee (beans)	0.121037264	0.1127922	0.10789	0.01305871
37. Cocoa (powdered drinks)	3.089743649	9.2682087	0.21825	0.674336551

38. Brown sugar	9.020273659	9.2413734	0.02097	0.189155139
39. Refined sugar	17.22747002	98.342801	0.02514	0.433098596
40. Cooking oil	13.57691325	94.133269	0.04124	0.559928436
41. Catsup	3.028694509	3.9345039	0.03047	0.092280536
42. Toyo	6.384818664	4.9594524	0.02453	0.156615846
43. Patis	1.823089564	1.55358	0.02502	0.045605287
44. Salt	7.889287429	8.7973656	0.00974	0.07684166
45. Black pepper	0.162436025	0.3208986	0.51700	0.083979425
46. Garlic	1.780583551	0.5972092	0.28181	0.501786251
47. Ginger	2.794289101	0.6287099	0.02959	0.082683015
48. Vetsin	0.582930642	0.1015281	0.12680	0.073915605
49. Vinegar	8.292925391	0.4847507	0.02103	0.174388374
TOTAL (per person per day)		2100		24.94014431

Table 12 –Quantities, Prices and Total Cost of Food Bundle (with 49 food items) for Metro Manila, 2003

Item	Scaled Quantities (g), per day	Scaled Calorie Equivalents (Cal), per day	Unit cost per gram(sourced from CPI data)	Cost per day
1. Rice (1st class)	79.97238568	112.39561	0.02240	1.791381439
2. Rice (ordinary)	281.6618353	974.00116	0.01840	5.18257777
3. Rice (NFA)	22.03025905	334.31887	0.01561	0.343892344
4. Corn on the cob	1.808210368	0.3291922	0.01768	0.031969159
5. Bread, loaf (sliced)	4.843655538	3.6405611	0.06705	0.324767104
6. Bread, pandesal (quantity)	39.29698249	206.96177	0.05450	2.141685545
7. Other cereal prep, noodle soup	6.274735583	49.902244	0.08109	0.508824013
8. Potato	6.255438019	4.1685348	0.02934	0.183534551
9. Cassava	7.527429666	5.470807	0.01164	0.087619281
10. Camote	10.41499693	9.3624517	0.01931	0.201113591
11. Gabi	4.389228913	3.2792711	0.02044	0.089715839
12. Citrus fruits	7.036719658	0.4826573	0.04134	0.290897991
13. Mango	10.49457232	1.544308	0.05716	0.599869754
14. Cabbgae	6.920259098	1.4898637	0.02801	0.193836457
15. Ampalaya	6.810216381	0.9924252	0.04181	0.284735147
16. Eggplant	11.77686774	2.0857386	0.02870	0.337996104
17. Tomato	11.0545833	2.8248687	0.03352	0.370549632
18. Mongo	3.000155103	14.261334	0.03765	0.11295584
19. Onion	7.596051789	4.848405	0.03015	0.229020961
20. Meat (Fresh chicken)	20.89442916	26.123324	0.08650	1.807368122
21. Corned beef	3.033647513	3.8348389	0.12897	0.391253854
22. Luncheon meat	1.26188969	1.4413339	0.09935	0.125362542
23. Longaniza	3.923705913	23.946621	0.12008	0.471158606
24. Hotdog	4.844807741	8.7130822	0.14209	0.688398732
25. Tocino	1.875664876	5.7094733	0.12016	0.225379892

26. Infant formula	2.34936815	3.7342482	0.33844	0.795130598
27. Chicken eggs	11.38481419	17.839337	0.06420	0.730905071
28. Anchovies	4.197383459	2.4631509	0.06131	0.25734158
29. Bangus	11.63925656	8.994792	0.06973	0.81160536
30. Galunggong	15.73598005	9.6391242	0.07300	1.148726543
31. Tilapia	10.81635617	4.4623845	0.06129	0.66293447
32. Shrimp	2.384282834	0.0945476	0.23501	0.560330309
33. Sardines	5.027127339	14.305612	0.04951	0.248872375
34. Bagoong	2.152955349	0.1790344	0.05484	0.118068071
35. Coffee (processed)	0.889482298	3.6825815	0.41960	0.373226772
36. Coffee (beans)	0.121037264	0.1127922	0.16303	0.019732705
37. Cocoa (powdered drinks)	3.089743649	9.2682087	0.26175	0.8087404
38. Brown sugar	9.020273659	9.2413734	0.02320	0.209270349
39. Refined sugar	17.22747002	98.342801	0.02764	0.476167271
40. Cooking oil	13.57691325	94.133269	0.04738	0.64327415
41. Catsup	3.028694509	3.9345039	0.03441	0.10420602
42. Toyo	6.384818664	4.9594524	0.02550	0.162812876
43. Patis	1.823089564	1.55358	0.02803	0.051102603
44. Salt	7.889287429	8.7973656	0.02025	0.15975807
45. Black pepper	0.162436025	0.3208986	0.67150	0.109075791
46. Garlic	1.780583551	0.5972092	0.11670	0.2077941
47. Ginger	2.794289101	0.6287099	0.04971	0.138904111
48. Vetsin	0.582930642	0.1015281	0.14260	0.083125909
49. Vinegar	8.292925391	0.4847507	0.02217	0.183866003
TOTAL		2100		26.08083578

A spatial price index (using Laspeyre's method)⁹ was obtained from the 2000 and 2003 FIES by considering average quantities consumed by households in urban and rural areas across the different regions of the country, and the average unit prices used

⁹ A spatial price index across urban/rural areas in each region is obtained since the survey design of the FIES allows for precise estimation in the regions (rather than provinces). The spatial price index adopted here is Laspeyres, rather than Paasche, (using the expenditure patterns of the entire distribution) since CPI also is based on the Laspeyres approach (and is also based on the average consumption of the entire distribution). The Laspeyres price index for area j is given by

$$L_j = \frac{\sum_i p_{ij} q_{i0}}{\sum_i p_{i0} q_{i0}}$$

where p_{ij} is the (average unit) price of good i in region j , q_{i0} is the (average) quantity consumed of good i in the base region, and p_{i0} is the (average) unit price of good i in the base region. While it is well known that Laspeyres approach generally overstates the true inflation in the cost of living because it does not adjust for the fact that consumers substitute away from goods that become relatively expensive, and thus retains an excessive weight on items that, over time, decline in relative importance. A Paasche index would, on the other hand, understate the true cost of living. A geometric mean of these two indices would be a better measure of the cost of living, but, yet, the Laspeyres index is simple and relatively straightforward to compute.

by the households in these areas.¹⁰ The values of this spatial price index can be used in conjunction with the Metro Manila FPLs to yield the regional urban-rural FPLs. The resulting FPLs for this proposed approach that combines CPI and quantity data for a food basket, together with spatial price indices, are shown in Table 13. These FPLs have a rank correlation of 0.68 and 0.57, respectively for 2000 and 2003, with the FPLs using the current official methodology.

Table 13 –Food Poverty Lines estimated with Modified Approach using Food Basket for Metro Manila and Spatial Prices Indices for Urban and Rural Areas in each Region, 2000 and 2003.

Area	2000		2003	
	Spatial Price Index	FPL	Spatial Price Index	FPL
NCR	1	9,103.15	1	9,519.51
Ilocos Region, Urban	0.916558899	8,343.58	0.916558899	8,725.19
Ilocos Region, Rural	0.906668956	8,253.55	0.906668956	8,631.04
Cagayan Valley, Urban	0.976211295	8,886.60	0.976211295	9,293.05
Cagayan Valley, Rural	0.950539146	8,652.90	0.950539146	9,048.66
Central Luzon, Urban	0.953657288	8,681.29	0.953657288	9,078.35
Central Luzon, Rural	0.939907321	8,556.12	0.939907321	8,947.45
Calabarzon, Urban	0.996131832	9,067.94	0.996131832	9,482.68
Calabarzon, Rural	0.967941884	8,811.32	0.967941884	9,214.33
Mimaropa, Urban	0.907267055	8,258.99	0.907267055	8,636.73
Mimaropa, Rural	0.90236283	8,214.35	0.90236283	8,590.05
Bicol Region, Urban	0.919155014	8,367.21	0.919155014	8,749.90
Bicol Region, Rural	0.902091827	8,211.88	0.902091827	8,587.47
Western Visayas, Urban	0.908919082	8,274.03	0.908919082	8,652.46
Western Visayas, Rural	0.901087852	8,202.74	0.901087852	8,577.91
Central Visayas, Urban	0.898627445	8,180.34	0.898627445	8,554.49
Central Visayas, Rural	0.874597074	7,961.59	0.874597074	8,325.73
Eastern Visayas, Urban	0.942021613	8,575.37	0.942021613	8,967.58
Eastern Visayas, Rural	0.93447345	8,506.65	0.93447345	8,895.72
Western Mindanao, Urban	0.909718215	8,281.30	0.909718215	8,660.07
Western Mindanao, Rural	0.886721532	8,071.96	0.886721532	8,441.15
Northern Mindanao, Urban	0.873779681	7,954.15	0.873779681	8,317.95
Northern Mindanao, Rural	0.859934199	7,828.11	0.859934199	8,186.15
Southern Mindanao, Urban	0.830027366	7,555.87	0.830027366	7,901.45
Southern Mindanao, Rural	0.822472705	7,487.09	0.822472705	7,829.53
Central Mindanao, Urban	0.823328427	7,494.88	0.823328427	7,837.68
Central Mindanao, Rural	0.83008313	7,556.37	0.83008313	7,901.98
CAR, Urban	0.958785969	8,727.98	0.958785969	9,127.17
CAR, Rural	0.953864059	8,683.17	0.953864059	9,080.31
ARMM, Urban	0.951945124	8,665.70	0.951945124	9,062.05

¹⁰ Average quantities and prices underwent the “cleaning” procedure described in footnote number 7.

ARMM, Rural	0.934881187	8,510.37	0.934881187	8,899.61
CARAGA, Urban	0.843116893	7,675.02	0.843116893	8,026.06
CARAGA, Rural	0.845387359	7,695.69	0.845387359	8,047.67
Urban*		8,631.09		9,046.16
Rural*		8,221.36		8,596.70
Philippines*		8,423.72		8,817.07

*=weighted averages

From the FPLs, the total poverty line can be set across urban and rural areas in each region by estimating the non-food component of the poverty line indirectly. We once again adopt the current practice of estimating Engel's coefficient (as the food share of those households within a plus or minus ten percentile band of the FPL), and using the Engel's coefficient to re-scale the FPL to the total poverty line. In Table 14, we list the subsistence poverty incidence, the total poverty lines, and poverty incidence across urban and rural areas in each region for the year 2000. The corresponding set of poverty statistics for the year 2003 are likewise provided in Table 15. Rank correlations of the FPLs with the corresponding FPLs from the official methodology are only 0.65, and 0.55, respectively for 2000 and 2003, the rank correlations of the resulting regional subsistence rates from the proposed methodology with the corresponding ones from the official methodology are quite high, viz., 0.94 for both 2000 and 2003.

Table 14 –Subsistence Poverty Rate, Total Poverty Line and Poverty Incidence for 2000.

Area	Subsistence Poverty Rate	Total Poverty Line	Poverty Incidence
NCR	0.75%	15,721.97	7.75%
Ilocos Region, Urban	7.86%	12,500.53	21.59%
Ilocos Region, Rural	17.26%	12,732.85	41.78%
Cagayan Valley, Urban	9.63%	13,576.73	26.98%
Cagayan Valley, Rural	19.33%	10,549.28	31.35%
Central Luzon, Urban	1.99%	14,795.44	15.94%
Central Luzon, Rural	8.78%	13,054.07	27.84%
Calabarzon, Urban	2.16%	13,947.33	10.33%
Calabarzon, Rural	15.38%	13,518.97	35.40%
Mimaropa, Urban	15.81%	12,319.43	34.83%
Mimaropa, Rural	28.35%	11,931.18	49.20%
Bicol Region, Urban	14.76%	13,670.58	39.75%
Bicol Region, Rural	38.08%	10,787.68	57.35%
Western Visayas, Urban	12.74%	11,286.09	26.31%
Western Visayas, Rural	31.96%	11,322.45	55.59%
Central Visayas, Urban	12.75%	10,773.61	24.12%
Central Visayas, Rural	40.67%	9,169.42	46.34%
Eastern Visayas, Urban	17.27%	9,894.06	23.05%
Eastern Visayas, Rural	44.78%	9,467.37	54.06%

Western Mindanao, Urban	11.89%	10,417.63	21.80%
Western Mindanao, Rural	50.83%	8,896.29	55.34%
Northern Mindanao, Urban	13.72%	11,474.60	28.25%
Northern Mindanao, Rural	39.87%	10,170.52	54.33%
Southern Mindanao, Urban	6.94%	11,538.03	21.47%
Southern Mindanao, Rural	26.43%	9,857.48	40.86%
Central Mindanao, Urban	12.15%	11,398.61	30.49%
Central Mindanao, Rural	33.07%	10,142.19	56.94%
CAR, Urban	2.35%	14,019.93	9.69%
CAR, Rural	27.64%	12,976.67	52.95%
ARMM, Urban	19.19%	12,746.80	51.53%
ARMM, Rural	34.89%	12,036.24	63.07%
CARAGA, Urban	18.03%	12,111.39	37.25%
CARAGA, Rural	39.05%	10,470.05	59.10%
Urban	7.21%	13385.50*	19.31%
Rural	30.45%	12513.58*	55.09%
PHILIPPINES	18.97%	12944.22*	37.42%

*=weighted averages

Table 15 –Subsistence Poverty Rate, Engel’s Coefficient, Total Poverty Line and Poverty Incidence for 2003.

Area	Subsistence Poverty Rate	Total Poverty Line	Poverty Incidence
NCR	0.45%	15,684.97	5.56%
Ilocos Region, Urban	8.06%	13,753.96	26.08%
Ilocos Region, Rural	11.30%	13,491.16	35.63%
Cagayan Valley, Urban	8.42%	14,269.79	27.03%
Cagayan Valley, Rural	14.75%	13,787.64	39.30%
Central Luzon, Urban	2.35%	14,413.68	13.46%
Central Luzon, Rural	5.18%	13,697.54	21.94%
Calabarzon, Urban	1.69%	15,392.70	10.03%
Calabarzon, Rural	12.22%	15,005.79	41.15%
Mimaropa, Urban	15.29%	14,206.82	43.67%
Mimaropa, Rural	26.95%	13,409.42	55.91%
Bicol Region, Urban	12.57%	13,732.30	30.70%
Bicol Region, Rural	35.17%	13,386.18	62.80%
Western Visayas, Urban	4.66%	13,502.34	24.60%
Western Visayas, Rural	25.55%	13,435.66	53.79%
Central Visayas, Urban	7.42%	12,575.78	18.81%
Central Visayas, Rural	34.26%	12,234.05	57.51%
Eastern Visayas, Urban	18.49%	13,571.48	37.29%
Eastern Visayas, Rural	33.77%	13,379.06	61.52%
Western Mindanao, Urban	11.08%	13,545.07	28.10%
Western Mindanao, Rural	48.34%	12,859.96	70.07%

Northern Mindanao, Urban	13.44%	13,015.98	29.10%
Northern Mindanao, Rural	35.08%	12,551.63	60.28%
Southern Mindanao, Urban	5.77%	12,592.72	22.54%
Southern Mindanao, Rural	25.18%	11,648.07	45.64%
Central Mindanao, Urban	8.61%	12,320.48	28.45%
Central Mindanao, Rural	24.11%	11,826.83	47.75%
CAR, Urban	2.80%	14,476.65	8.72%
CAR, Rural	19.35%	14,767.04	48.33%
ARMM, Urban	16.13%	14,012.71	46.12%
ARMM, Rural	29.77%	13,859.33	64.58%
CARAGA, Urban	15.31%	12,507.03	38.01%
CARAGA, Rural	34.09%	12,345.11	64.40%
Urban	5.34%	14,449.49*	17.07%
Rural	25.57%	13,258.68*	50.91%
PHILIPPINES	15.65%	13,842.52*	34.32%

*=weighted averages

We note that the estimates above use the 2000 kilocalorie benchmark, in part because the current official methodology uses a 2000 kilocalorie benchmark (but with requirements for proteins and other nutrients). As was pointed out in the previous section, the average energy intake (and intake for most nutrients) falls short of the required nutritional benchmarks. There is some sense to making sure that the nutritional benchmark to be used is neither purely prescriptive nor purely based on actual consumption. If an energy benchmark less than 2000 kilocalories is used as the energy benchmark above for the food basket calculate, then ultimately, the estimates of poverty thresholds and poverty rates will be lower than those reported in Tables 14 and 15. It may be important to look into the actual differences in FPLs generated by the menus and by the food basket (as shown here) *ceteris paribus* through say, inspection of the composition of the menu and food basket in Metro Manila, and determine if there may be some sense in making adjustments in either the current menu to make it conform to actual consumption, or the food basket to ensure that it satisfies a number of other nutrients. The benefit of measuring poverty with a consistent approach based on a food basket derived from actual consumption patterns of a reference population is that the resulting measures are comparable, and are thus, at sync with the national objective of monitoring absolute poverty across time and space. The current official approach of using the menus which are based on local norms is leaning more toward specificity than consistency, and consequently, only provide a measure of relative poverty as was pointed out by many poverty experts (e.g., Balisacan, 1999; 2001 and Kakwani 2000; 2001). Since for policy purposes in the Philippines, an absolute measure of poverty is more important, it is important that the food poverty (and total) poverty line setting is consistent across time and space.

5. Conclusions and Recommendations

This study discussed various issues regarding setting the FPL, particularly nutritional adequacy, accuracy and consistency. The NSCB Technical Committee on Poverty Statistics (TC-PovStat) will have to think carefully whether it is time to revise the working definition of poverty, and the poverty line. In setting the FPL, it is important

to ask whether or not nutritional benchmarks should merely involve energy requirements. Nourishment is clearly beyond mere calorie intake. While it may be important to consider national needs for poverty monitoring, the country can not, however, ignore issues of comparability of approaches across countries. Most practices in the international community simply involve the use of a calorie benchmark (typically 2100 Kcal per person per day), without attention to other nutrient requirements. In addition, countries are now reexamining caloric requirements used for benchmarking. Malaysia recently opted to bring down its caloric requirements for its FPLs owing to changes in actual food consumption patterns that suggested people are getting more sedentary and requiring less calories than previously. It may likewise be appropriate to revise the Philippine benchmark for energy, in the light of evidence suggesting that a 2100 Kcal or even a 2000 Kcal requirement in the Philippines may be too stringent.

There are a number of reasons for the insistence of 100% adequacy of energy and protein and 80% of the rest of the nutrients in the current approach for setting FPLs, which include: health and nutritional status of individuals; effect on productivity; and implication to wage determination. However, must the notion of poverty necessarily be equated nutrition?

With consistency issues raised against the menus, the availability of quantity and unit prices in the 2000 FIES and subsequent rounds of the FIES, and the need to work toward international comparability of methodologies in arriving at poverty lines, it is recommended that the TC Pov-Stat shift to the use of food bundles (as illustrated in this report) to settle the issue of inconsistency of poverty lines set from the use of menus in the current methodology. It was shown here that a promising and practical approach for yielding a consistent set of FPLs based on a food basket can be obtained that involve mere price updates from CPI data in Metro Manila, and a calculation of spatial price indices based on average quantities and average prices of items (sourced from the FIES).

It may be of benefit for the future to ensure that the NSO work on generating standard units for all items in the FIES, and pay attention not only to analyzing the quality of total values of food items, but also the accuracy of the quantities of food items reportedly consumed given concerns raised in David et al (2007), and the results in the first part of the previous section. It is also recommended that that quantities consumed be released together with total values, rather than the current practice of having the quantities released within a time lag from the release of the FIES public use files (which contains total values of expenditures).

Official poverty measurement since 1985 has undergone only two changes, namely, (a) the exclusion of tobacco and alcohol expenses in determining Engel's coefficient (starting in the mid-90s); (b) the use of provincial prices (starting in 2000) to cost the regional menus, and the estimation of Engel's coefficient at the urban and rural areas of each province. Both these changes have not addressed the major issues of accuracy and consistency raised against FPL setting. The calculation of Engel's coefficient for adjusting FPL to the total poverty line at the provinces rather than at the regions, even added another layer of imprecision given that the FIES is not designed to generate precise estimation at the provincial levels.

While there is more interest in the Philippines for measuring poverty in an absolute sense, and consequently setting absolute poverty lines, however, consumptions and lifestyles change across time especially when a country undergoes development. Thus, it will be important for society, and the TC Pov-Stat, in particular, to reexamine the current sense of the official poverty line, and its measurement every so often (say every 20 years), especially given the numerous studies that have suggested weaknesses in the current official approach, and promising alternatives (including the approaches suggested here) for measuring poverty consistently across time and space.

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Table A-1. National practices in the measurement of poverty in the Asia Pacific Region

Country or area	Year	Which type of poverty line (Absolute or relative) has been estimated?	Was income or expenditure used for measuring poverty?	Level of daily caloric threshold used	Caloric threshold per adult equivalent?	Poverty specific CPI used for costing the basket of goods?	Food basket allowed for regional differences in consumption?	Average number of items in the food basket
Australia	n.a.	n.a.	n.a.	n.a.	n.a.	No	Yes	n.a.
Bangladesh	2000	Absolute	Expenditure	2122	No	No	No	11
Cambodia	1999	Absolute	Expenditure	2100	No	No	No	150
China	2003	Absolute	Both	2100	n.a.	No	n.a.	n.a.
Indonesia	2004	Absolute	Expenditure	2100	No	No	No	52
Iran (Islamic Republic of)	2002	Both	Expenditure	2179 or 2300	Yes	n.a.	n.a.	n.a.
Malaysia	2002	Both	Income	Minimum expenditure on food equal to 9 910 calories for household of 5 persons	Yes	No	Yes	16
Maldives	n.a.	Relative	Expenditure	2 000	No	No	Yes	80
Mongolia	2002	Both	Both	2 100	Yes	No	No	13
Myanmar	n.a.	Relative	Expenditure	2 100	No	No	No	10
Nepal	2003/04	Absolute	Expenditure	2 144	No	No	Yes	37
Niue	2002	Both	Expenditure	3 000	No	No	n.a.	n.a.
Philippines	2003	Absolute	Income	2 000	No	No	Yes	22

Republic of Korea	2000	Absolute	Both	2 500	Yes	n.a.	No	100
Sri Lanka	2002	Absolute	Expenditure	2 030	Yes	Yes	No	n.a.
Thailand	2002	Absolute	Income	2 003	Yes	No	Yes	n.a.
Viet Nam	2002	Absolute	Both	2 100	No	No	No	40

Country or area	Length of recall period(s)	Diaries method used to collect consumption data?	Non-food component of the poverty line obtained by the direct method?	Non-food component of the poverty line obtained by the indirect method (e.g. Engel ratio)?	How often was poverty line re-assessed?	Sources of data used to estimate level of welfare	How often is a household survey undertaken?
Australia	Varies from annual to daily diaries	Yes	n.a.	n.a.	n.a.	Various, but household expenditure survey is main data source	5 yearly
Bangladesh	Food: daily; income: monthly and yearly	None	None	None	3-4 year interval	HIES	3-4 year interval
Cambodia	Food: weekly; non food: monthly, last 6 months, yearly, last school year	Diaries method, recall method	None	Yes	Every 3 years	Socio-economic survey (LSMS, DHS), PPA, time use survey, employment survey	Every 3 years
China	n.a.	Diaries method	None	Yes	Yearly poverty headcounts	National Rural Household Survey, National Rural Poverty Monitoring Survey, regional statistics from administrative reports	n.a.
Indonesia	1 week for food items, 1 month or 1 year for non-food items	Recall method	Yes	None	Yearly	National Socio-Economic Survey, annual panel surveys, LSMS	Every 3 years, for consumption module
Iran (Islamic Republic of)	1 month for food items, 1 month or 1 year for non-food items	Recall method	None	Yes	Yearly	Urban and rural HIES 1991-2001	n.a.

Malaysia	Recall period for information on income was twelve months prior to month of interview	No	Yes	None	Every Household Income Survey year	Census of population and housing; Household Income Survey; Household Expenditure Survey; consumer price index	Frequency of Household Income Survey in Malaysia is twice every 5 years
Maldives	Income: monthly; food: weekly, monthly and 3 months; non-food: monthly, yearly and 3 months	Diaries method, recall method	None	None	Additional poverty line was set in 2003	IES; Vulnerability and Poverty Survey	Every 5 years
Mongolia	Income: monthly and yearly; food: daily; non-food: monthly and yearly	Diaries method, recall method	Yes	Yes, when using LSMS data	Official poverty line has been revised every year since 1991	LSMS, PPA	Every 3 or 5 years
Myanmar	Food: weekly and monthly; non-food: monthly and yearly	No	None	Yes	1	HIES	Every 5 years for HIES
Nepal	Food: 12 months; non-food: 30 days and 12 months	n.a.	Yes	None	First, 1995/96; second, 2003/04	LSMS	Every 5 years
Niue	Food: daily; non-food: weekly and monthly	Diaries method, recall method	None	No	Fixed since 2002	IES	5 years
Philippines	Food: weekly (but twice yearly for food received as gift); non-food: monthly and twice yearly	Recall method	None	None	Yearly	Census of population and housing, Family Income and Expenditure Survey, Metro Manila Urban Transportation Integration Study	Every 3 years, for Family Income and Expenditure Survey

Republic of Korea	Income: yearly; food: monthly	Yes	Yes	None	Every 5 years since 1988	LSMS, IES, PPA, CWIQ	Every 5 years
Sri Lanka	n.a.	n.a.	None	Yes	n.a.	HIES	n.a.
Thailand	Preceding month and past 12 months for averaging to monthly income	n.a.	Yes	None	Every 2 years	Socio-economic survey of households, DHS, population census, IES	n.a.
Viet Nam	Food: monthly and yearly; non-food: yearly	Recall method	None	Yes	Established in 1993; later adjusted by non-food CPI	LSMS, IES	Every 2 years

Source: 2003/2004 United Nations Statistics Division Global Survey

Table A-2. Reference Food Basket for Arriving at 2000 and 2003 Urban and Rural FPLs

Item	Average Quantity (g), per day	Calorie Equivalents (Cal), per day	Scaled Quantities (g)	Scaled Calories (Cal)
Rice (1st class)	23.95376	85.27540	33.51650	119.31873
Rice (ordinary)	222.53655	792.23011	311.37677	1108.50131
Rice (NFA)	25.24250	89.86331	35.31972	125.73822
Rice (other)	3.37089	12.00036	4.71660	16.79110
Corn on the cob	0.56700	0.98091	2.03424	1.37250
Corn, milled, corn grits	48.46395	169.62381	67.81154	237.34040
Bread, loaf (sliced)	0.47913	1.57635	0.67041	2.20565
Bread, pandesal	13.35326	44.06574	18.68409	61.65751
Other cereal prep, noodle soup	2.58077	11.94898	3.61106	16.71920
Potato	1.03650	0.80847	1.70621	1.13122
Cassava	9.29623	13.47953	17.57761	18.86078
Camote	8.47751	10.59688	15.40502	14.82733
Gabi	4.29808	6.06029	7.81031	8.47966
Banana	19.58233	24.67374	39.71003	34.52390
Citrus fruits	0.60852	0.26775	2.24065	0.37464
Mango	1.68307	1.17815	3.51489	1.64848
Papaya	1.36891	0.72552	2.99281	1.01516
Cabbage	1.33094	0.37266	2.29911	0.52144
Ampalaya	2.80176	0.70044	4.78082	0.98007
Eggplant	6.51777	1.89015	10.02173	2.64473
Tomato	5.19360	1.40227	7.34037	1.96208
Habichuelas	0.61131	2.28630	0.85535	3.19902
Mongo	1.78886	6.49356	2.50300	9.08590
Onion	2.90829	1.97763	4.90280	2.76714
Meat (Fresh chicken)	3.71724	7.99207	8.66871	11.18264
Meat (Fresh beef)	1.13867	2.40260	1.89672	3.36175
Meat (Fresh pork)	5.01259	19.59925	8.55330	27.42358
Carabeef	0.28774	0.28774	0.48508	0.40261
Corned beef	0.50556	1.03135	0.70739	1.44308
Luncheon meat	0.14504	0.27557	0.20294	0.38558
Longaniza	0.61814	3.62848	0.89166	5.07703
Hotdog	0.53654	1.09990	0.75073	1.53900
Tocino	0.16856	0.47365	0.23585	0.66274
Infant formula	0.54498	2.11999	0.76255	2.96633
Chicken eggs	3.88247	6.21196	6.24416	8.69187
Ducks eggs	0.32137	0.56882	0.51685	0.79590
Anchovies	3.25958	2.50988	4.56085	3.51186
Bangus	1.66405	2.26311	3.58211	3.16658
Galunggong	4.62685	4.62685	13.21218	6.47397

Tilapia	2.47393	2.64710	7.52513	3.70387
Shrimp	0.39738	0.36162	0.89682	0.50598
Squid	0.87858	0.62379	1.28055	0.87282
Sardines	3.26027	5.11863	4.56183	7.16207
Bagoong	2.34731	1.59617	3.28440	2.23339
Coffee (processed)	0.54476	1.78681	0.76224	2.50014
Coffee (beans)	0.22302	0.90547	0.31206	1.26695
Cocoa (powdered drinks)	0.77256	3.04390	1.08098	4.25907
Soft drinks	12.71233	5.21205	17.78730	7.29279
Orange juice (powder/concentrate)	0.60429	0.27797	0.84553	0.38895
Brown sugar	10.40770	41.42266	14.56263	57.95927
Refined sugar	7.00458	28.01832	9.80092	39.20370
Candies	0.27585	1.10614	0.38597	1.54774
Cooking oil	6.71233	60.07534	9.39200	84.05840
Catsup	0.50182	0.65738	0.70215	0.91982
Toyo	3.17808	2.38356	4.44682	3.33512
Patis	0.50276	0.24635	0.70347	0.34470
Salt	6.05479	7.75014	8.47197	10.84412
Black pepper	0.06453	0.16132	0.09029	0.22572
Garlic	0.74369	0.95936	1.22421	1.34235
Ginger	1.15121	0.52956	2.17675	0.74097
Vetsin	0.32092	0.04172	0.44904	0.05838
Vinegar	4.93151	0.34521	6.90024	0.48302
TOTAL	500.54508	1500.84012	750.31604	2100.00000

Table A-3. Unit Prices and Daily Cost of Items in the Food Bundle (2000)

Item	Price per gram (Urban)	Cost (Urban)	Price per gram (Rural)	Cost (Rural)
Rice (1st class)	0.02000	0.67033	0.02000	0.67033
Rice (ordinary)	0.01800	5.60509	0.01800	5.60478
Rice (NFA)	0.01500	0.52994	0.01550	0.54746
Rice (other)	0.02885	0.13606	0.02654	0.12517
Corn on the cob	0.02797	0.05690	0.02667	0.05425
Corn, milled, corn grits	0.01436	0.97405	0.01400	0.94936
Bread, loaf (sliced)	0.05000	0.03352	0.05000	0.03352
Bread, pandesal	0.02326	0.43451	0.02326	0.43451
Other cereal prep, noodle soup	0.08110	0.29286	0.08330	0.30080
Potato	0.02885	0.04922	0.02596	0.04430
Cassava	0.00962	0.16901	0.00962	0.16901
Camote	0.01003	0.15456	0.01000	0.15405
Gabi	0.01400	0.10934	0.01010	0.07885
Banana	0.01250	0.49638	0.01002	0.39785
Citrus fruits	0.02864	0.06418	0.02502	0.05605
Mango	0.03333	0.11716	0.03154	0.11085
Papaya	0.03615	0.10818	0.04179	0.12508
Cabbgae	0.02339	0.05377	0.02222	0.05109
Ampalaya	0.02208	0.10556	0.02015	0.09631
Eggplant	0.01743	0.17466	0.01505	0.15083
Tomato	0.02011	0.14764	0.02000	0.14681
Habichuelas	0.03000	0.02566	0.02727	0.02333
Mongo	0.04000	0.10012	0.04000	0.10012
Onion	0.03254	0.15953	0.03221	0.15790
Meat (Fresh chicken)	0.08074	0.69995	0.07989	0.69253
Meat (Fresh beef)	0.11000	0.20864	0.10509	0.19933
Meat (Fresh pork)	0.09385	0.80269	0.09000	0.76980
Carabeef	0.10000	0.04851	0.10000	0.04851
Corned beef	0.13700	0.09691	0.14000	0.09903
Luncheon meat	0.09520	0.01932	0.09790	0.01987
Longaniza	0.10000	0.08917	0.10033	0.08946
Hotdog	0.09375	0.07038	0.08846	0.06641
Tocino	0.10513	0.02479	0.10112	0.02385
Infant formula	0.21100	0.16090	0.18500	0.14107
Chicken eggs	0.06000	0.37465	0.06020	0.37590
Ducks eggs	0.04286	0.02215	0.04286	0.02215
Anchovies	0.04000	0.18243	0.04000	0.18243
Bangus	0.07500	0.26866	0.07532	0.26981
Galunggong	0.05000	0.66061	0.04636	0.61257

Tilapia	0.05143	0.38701	0.05000	0.37626
Shrimp	0.10000	0.08968	0.09083	0.08146
Squid	0.06067	0.07769	0.06000	0.07683
Sardines	0.06130	0.27964	0.06290	0.28694
Bagoong	0.03323	0.10913	0.03014	0.09899
Coffee (processed)	0.54000	0.41161	0.56000	0.42685
Coffee (beans)	0.12400	0.03869	0.11000	0.03433
Cocoa (powdered drinks)	0.13000	0.14053	0.14000	0.15134
Soft drinks	0.01620	0.28815	0.01810	0.32195
Orange juice (powder/concentrate)	0.07430	0.06282	0.07560	0.06392
Brown sugar	0.02000	0.29125	0.02000	0.29125
Refined sugar	0.02500	0.24502	0.02500	0.24502
Candies	0.14300	0.05519	0.15000	0.05790
Cooking oil	0.03600	0.33811	0.03690	0.34656
Catsup	0.03030	0.02128	0.03040	0.02135
Toyo	0.02710	0.12051	0.02770	0.12318
Patis	0.02710	0.01906	0.02820	0.01984
Salt	0.01000	0.08472	0.01000	0.08472
Black pepper	0.40000	0.03611	0.45000	0.04063
Garlic	0.12300	0.15058	0.11200	0.13711
Ginger	0.02580	0.05616	0.02480	0.05398
Vetsin	0.18100	0.08128	0.18300	0.08217
Vinegar	0.01870	0.12903	0.01710	0.11799
TOTAL COST		18.01126		17.73590
FPL (TOTAL COST x 365)		6574.11		6473.60

Table A-4. Unit Prices and Daily Cost of Items in the Food Bundle (2003)

Item	Price per gram (Urban)	Cost (Urban)	Price per gram (Rural)	Cost (Rural)
Rice (1st class)	0.02292	0.76803	0.02292	0.76803
Rice (ordinary)	0.01775	5.52694	0.01775	5.52694
Rice (NFA)	0.01611	0.56882	0.01611	0.56882
Rice (other)	0.03677	0.17341	0.03676	0.17338
Corn on the cob	0.05813	0.11826	0.05813	0.11826
Corn, milled, corn grits	0.01633	1.10702	0.01633	1.10702
Bread, loaf (sliced)	0.07500	0.05028	0.07500	0.05028
Bread, pandesal	0.02006	0.80602	0.02006	0.80602
Other cereal prep, noodle soup	0.07000	0.25277	0.07000	0.25277
Potato	0.02896	0.04941	0.02896	0.04940
Cassava	0.01231	0.21642	0.01275	0.22417
Camote	0.01250	0.19256	0.01250	0.19256
Gabi	0.02323	0.18146	0.02323	0.18145
Banana	0.02925	1.16152	0.02925	1.16152
Citrus fruits	0.03458	0.07749	0.03458	0.07748
Mango	0.04905	0.17241	0.04905	0.17241
Papaya	0.08660	0.25918	0.08660	0.25918
Cabbage	0.03024	0.06952	0.03023	0.06950
Ampalaya	0.03785	0.18096	0.03785	0.18095
Eggplant	0.02683	0.26892	0.02780	0.27864
Tomato	0.03822	0.28057	0.03824	0.28070
Habichuelas	0.03835	0.03280	0.03834	0.03280
Mongo	0.07500	0.18773	0.07500	0.18773
Onion	0.04330	0.21227	0.04331	0.21234
Meat (Fresh chicken)	0.10370	0.89894	0.10370	0.89897
Meat (Fresh beef)	0.13225	0.25083	0.13225	0.25083
Meat (Fresh pork)	0.08582	0.73402	0.08582	0.73402
Carabeef	0.09834	0.04770	0.09834	0.04770
Corned beef	0.24500	0.17331	0.24500	0.17331
Luncheon meat	0.23000	0.04668	0.23000	0.04668
Longaniza	0.14793	0.13190	0.14793	0.13190
Hotdog	0.13720	0.10300	0.13721	0.10301
Tocino	0.15001	0.03538	0.15000	0.03538
Infant formula	0.46500	0.35459	0.46500	0.35459
Chicken eggs	0.09130	0.57009	0.09130	0.57009
Ducks eggs	0.06443	0.03330	0.06443	0.03330
Anchovies	0.05325	0.24286	0.05325	0.24286
Bangus	0.08166	0.29253	0.08167	0.29254

Galunggung	0.05649	0.74629	0.05648	0.74628
Tilapia	0.07025	0.52863	0.07025	0.52866
Shrimp	0.23020	0.20645	0.23019	0.20644
Squid	0.05058	0.06477	0.05058	0.06477
Sardines	0.05500	0.25090	0.05500	0.25090
Bagoong	0.09399	0.30868	0.09399	0.30868
Coffee (processed)	0.67500	0.51451	0.67500	0.51451
Coffee (beans)	0.12000	0.03745	0.12000	0.03745
Cocoa (powdered drinks)	0.13000	0.14053	0.13000	0.14053
Soft drinks	0.03000	0.53362	0.03000	0.53362
Orange juice (powder/concentrate)	0.12000	0.10146	0.12000	0.10146
Brown sugar	0.02444	0.35585	0.02444	0.35585
Refined sugar	0.02745	0.26905	0.02745	0.26904
Candies	1.04500	0.40334	1.04500	0.40334
Cooking oil	0.06000	0.56352	0.06000	0.56352
Catsup	0.07500	0.05266	0.07500	0.05266
Toyo	0.03500	0.15564	0.03500	0.15564
Patis	0.05000	0.03517	0.05000	0.03517
Salt	0.01500	0.12708	0.01500	0.12708
Black pepper	0.37800	0.03413	0.27800	0.02510
Garlic	0.11000	0.13466	0.11000	0.13466
Ginger	0.05500	0.11972	0.05500	0.11972
Vetsin	0.08000	0.03592	0.08000	0.03592
Vinegar	0.03080	0.21253	0.03670	0.25324
TOTAL		22.76247		22.81179
FPL (TOTAL COST x 365)		8308.30		8326.3

Table A-5. Unit Prices of Items in the Food Bundle (2000 FIES and 2000 price data from NSO's ITSD)

Item	2000 FIES Median Unit Price per kg (a)	ITSD NCR Mean Unit Price per kg (b)	Percentage Difference = 100* a - b / a	2000 FIES Median Unit Price per kg (c)	ITSD Mean Unit Price per kg in Selected Provinces (d)	Percentage Difference = 100* c - d / c
Rice (1st class)	20.00	21.70	8.5%	20.00	20.09	0.4%
Rice (ordinary)	18.00	17.64	2.0%	18.00	17.59	2.3%
Rice (NFA)	15.00	14.79	1.4%	15.50	14.30	7.7%
Rice (other)	28.85			26.54	0.00	
Corn on the cob	27.97	17.63	37.0%	26.67	12.38	53.6%
Corn, milled, corn grits	14.36			14.00	13.52	3.4%
Bread, loaf (sliced)	50.00	50.40	0.8%	50.00	48.72	2.6%
Bread, pandesal	23.26	50.00	115.0%	23.26	41.31	77.6%
Other cereal prep, noodle soup	81.10	69.27	14.6%	83.30	76.29	8.4%
Potato	28.85	33.47	16.0%	25.96	34.02	31.0%
Cassava	9.62	8.75	9.0%	9.62	10.02	4.2%
Camote	10.03	20.47	104.1%	10.00	11.50	15.0%
Gabi	14.00	18.80	34.3%	10.10	13.60	34.7%
Banana	12.50			10.02	0.00	
Citrus fruits	28.64	44.76	56.3%	25.02	13.20	47.2%
Mango	33.33	56.82	70.5%	31.54	42.05	33.3%
Papaya	36.15			41.79	15.18	63.7%
Cabbage	23.39	31.04	32.7%	22.22	25.88	16.5%
Ampalaya	22.08	46.24	109.4%	20.15	27.94	38.7%
Eggplant	17.43	32.80	88.2%	15.05	23.05	53.2%
Tomato	20.11	31.84	58.3%	20.00	25.05	25.3%
Habichuelas	30.00			27.27	0.00	
Mongo	40.00	38.21	4.5%	40.00	79.89	99.7%
Onion	32.54	42.79	31.5%	32.21	39.21	21.7%
Meat (Fresh chicken)	80.74	80.32	0.5%	79.89	80.41	0.7%
Meat (Fresh beef)	110.00			105.09	91.98	12.5%
Meat (Fresh pork)	93.85			90.00	83.19	7.6%
Carabeef	100.00			100.00	73.96	26.0%
Corned beef	137.00	120.11	12.3%	140.00	132.20	5.6%
Luncheon meat	95.20	91.89	3.5%	97.90	103.67	5.9%
Longaniza	100.00	114.28	14.3%	100.33	119.47	19.1%
Hotdog	93.75	125.96	34.4%	88.46	124.07	40.3%
Tocino	105.13	115.97	10.3%	101.12	109.27	8.1%
Infant formula	211.00	271.22	28.5%	185.00	260.30	40.7%
Chicken eggs	60.00	56.80	5.3%	60.20	62.37	3.6%

Ducks eggs	42.86			42.86	53.63	25.1%
Anchovies	40.00	58.35	45.9%	40.00	47.18	18.0%
Bangus	75.00	82.88	10.5%	75.32	79.13	5.1%
Galunggong	50.00	71.71	43.4%	46.36	50.77	9.5%
Tilapia	51.43	63.76	24.0%	50.00	56.24	12.5%
Shrimp	100.00	199.40	99.4%	90.83	127.14	40.0%
Squid	60.67			60.00	78.01	30.0%
Sardines	61.30	46.59	24.0%	62.90	49.25	21.7%
Bagoong	33.23	45.64	37.3%	30.14	254.09	743.0%
Coffee (processed)	540.00	374.60	30.6%	560.00	530.11	5.3%
Coffee (beans)	124.00	107.89	13.0%	110.00	92.00	16.4%
Cocoa (powdered drinks)	130.00	218.25	67.9%	140.00	205.21	46.6%
Soft drinks	16.20			18.10	0.00	
Orange juice (powder/concentrate)	74.30			75.60	0.00	
Brown sugar	20.00	20.97	4.8%	20.00	19.57	2.2%
Refined sugar	25.00	25.14	0.6%	25.00	24.65	1.4%
Candies	143.00			150.00	0.00	
Cooking oil	36.00	41.24	14.6%	36.90	35.18	4.7%
Catsup	30.30	30.47	0.6%	30.40	33.04	8.7%
Toyo	27.10	24.53	9.5%	27.70	27.57	0.5%
Patis	27.10	25.02	7.7%	28.20	29.76	5.5%
Salt	10.00	9.74	2.6%	10.00	7.49	25.1%
Black pepper	400.00	517.00	29.3%	450.00	857.78	90.6%
Garlic	123.00	281.81	129.1%	112.00	112.68	0.6%
Ginger	25.80	29.59	14.7%	24.80	23.07	7.0%
Vetsin	181.00	126.80	29.9%	183.00	204.16	11.6%
Vinegar	18.70	21.03	12.5%	17.10	15.40	9.9%

Table A-6. Unit Prices of Items in the Food Bundle (2003 FIES and 2003 price data from NSO's ITSD)

Item	Urban			Rural		
	2003 FIES Median Unit Price per kg (a)	ITSD NCR Mean Unit Price per kg (b)	Percentage Difference = 100* a - b / a	2003 FIES Median Unit Price per kg (c)	ITSD Mean Unit Price per kg in Selected Provinces (d)	Percentage Difference = 100* c - d / c
Rice (1st class)	22.92	22.40	2.3%	22.92	21.34	6.9%
Rice (ordinary)	17.75	18.40	3.7%	17.75	18.81	6.0%
Rice (NFA)	16.11	15.61	3.1%	16.11	15.83	1.7%
Rice (other)	36.77			36.76		
Corn on the cob	58.13	17.68	69.6%	58.13	15.50	73.3%
Corn, milled, corn grits	16.33			16.33	14.12	13.5%
Bread, loaf (sliced)	75.00	67.05	10.6%	75.00	57.05	23.9%
Bread, pandesal	20.06	54.50	171.7%	20.06	43.59	117.3%
Other cereal prep, noodle soup	70.00	81.09	15.8%	70.00	86.56	23.7%
Potato	28.96	29.34	1.3%	28.96	34.69	19.8%
Cassava	12.31	11.64	5.4%	12.75	10.82	15.1%
Camote	12.50	19.31	54.5%	12.50	12.57	0.6%
Gabi	23.23	20.44	12.0%	23.23	16.85	27.5%
Banana	29.25			29.25		
Citrus fruits	34.58	41.34	19.5%	34.58	27.22	21.3%
Mango	49.05	57.16	16.5%	49.05	41.81	14.8%
Papaya	86.60			86.60	22.44	74.1%
Cabbgae	30.24	28.01	7.4%	30.23	26.67	11.8%
Ampalaya	37.85	41.81	10.5%	37.85	30.81	18.6%
Eggplant	26.83	28.70	7.0%	27.80	21.28	23.5%
Tomato	38.22	33.52	12.3%	38.24	27.68	27.6%
Habichuelas	38.35			38.34		
Mongo	75.00	37.65	49.8%	75.00	82.29	9.7%
Onion	43.30	30.15	30.4%	43.31	37.99	12.3%
Meat (Fresh chicken)	103.70	86.50	16.6%	103.70	87.95	15.2%
Meat (Fresh beef)	132.25			132.25	100.09	24.3%
Meat (Fresh pork)	85.82			85.82	88.49	3.1%
Carabeef	98.34			98.34	76.67	22.0%
Corned beef	245.00	128.97	47.4%	245.00	146.79	40.1%
Luncheon meat	230.00	99.35	56.8%	230.00	104.65	54.5%
Longaniza	147.93	120.08	18.8%	147.93	125.73	15.0%
Hotdog	137.20	142.09	3.6%	137.21	130.65	4.8%
Tocino	150.01	120.16	19.9%	150.00	117.89	21.4%
Infant formula	465.00	338.44	27.2%	465.00	327.65	29.5%
Chicken eggs	91.30	64.20	29.7%	91.30	69.62	23.7%

Ducks eggs	64.43			64.43	55.63	13.7%
Anchovies	53.25	61.31	15.1%	53.25	48.93	8.1%
Bangus	81.66	69.73	14.6%	81.67	78.63	3.7%
Galunggong	56.49	73.00	29.2%	56.48	51.71	8.4%
Tilapia	70.25	61.29	12.8%	70.25	59.33	15.5%
Shrimp	230.20	235.01	2.1%	230.19	149.93	34.9%
Squid	50.58			50.58	90.47	78.9%
Sardines	55.00	49.51	10.0%	55.00	52.29	4.9%
Bagoong	93.99	54.84	41.7%	93.99	279.23	197.1%
Coffee (processed)	675.00	419.60	37.8%	675.00	530.51	21.4%
Coffee (beans)	120.00	163.03	35.9%	120.00	95.79	20.2%
Cocoa (powdered drinks)	130.00	261.75	101.3%	130.00	226.72	74.4%
Soft drinks	30.00			30.00		
Orange juice (powder/concentrate)	120.00			120.00		
Brown sugar	24.44	23.20	5.1%	24.44	22.00	10.0%
Refined sugar	27.45	27.64	0.7%	27.45	27.22	0.8%
Candies	1045.00			1045.00		
Cooking oil	60.00	47.38	21.0%	60.00	35.87	40.2%
Catsup	75.00	34.41	54.1%	75.00	38.01	49.3%
Toyo	35.00	25.50	27.1%	35.00	29.25	16.4%
Patis	50.00	28.03	43.9%	50.00	31.69	36.6%
Salt	15.00	20.25	35.0%	15.00	8.04	46.4%
Black pepper	378.00	671.50	77.6%	278.00	1080.00	288.5%
Garlic	110.00	116.70	6.1%	110.00	101.29	7.9%
Ginger	55.00	49.71	9.6%	55.00	38.43	30.1%
Vetsin	80.00	142.60	78.3%	80.00	203.97	155.0%
Vinegar	30.80	22.17	28.0%	36.70	16.75	54.4%