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## **Guidance note:**

## **Monetary Poverty Measurement**

This guidance note aims to help statistics stakeholders in the PICTs to better understand the process to derive monetary poverty indicators using household consumption data. The process involves different steps with various concepts and assumptions around the two pillars of monetary poverty measurement, which are the consumption aggregate and poverty line. In order to provide guidance to PICTs in international recommendation for measuring monetary poverty, the PSMB has established a set of recommendations to PICTs when measuring monetary poverty (<a href="https://purl.org/spc/digilib/doc/57c42">https://purl.org/spc/digilib/doc/57c42</a>). Since the recommendations made by the PSMB additional issues were discussed and agreed as interim recommendations. The latter are described here with "interim" notice in brackets (report of the PSMB July 2020 meeting <a href="https://sdd.spc.int/events/2020/04/5th-pacific-statistics-methods-board-psmb-meeting">https://sdd.spc.int/events/2020/04/5th-pacific-statistics-methods-board-psmb-meeting</a>). These recommendations adapt the international best practices to the unique Pacific context. Some of them are related to complex concepts on which specific guidance notes have been produced (or are planned to be). The PSMB is still investigating on poverty measurement aspects that present a room for improvement in the PICTs. The present guidance note is therefore subject to updating for the incorporation of additional recommendations. This guidance note focuses on the measurement of monetary poverty in line with the SDG1.1.1 and SDG1.2.1 while a specific guidance note is to be drafted on "Approaches to measuring non-monetary poverty" that supports the SDG1.2.2.

**Household consumption aggregates** are used to measure well-being. Income is an alternative measure of well-being, but consumption is deemed more appropriate for the PICTs. The most appropriate data source to compile consumption aggregate is the Household Income and Expenditure Survey (HIES). Details on the HIES design and implementation are given in the guidance note "Method for collecting consumption data in the Pacific" (planned). Consumption aggregate includes food and non-food consumption.

**Food consumption aggregate** should be the compilation of food consumption collected using the 7-day recall methodology and add up all food spending of the household, including:

- Purchased food (adjusting for stocks if using a diary), including prepared meals purchased and brought into the home.
- Market price equivalent for in-kind food receipts, gifts, and rations (such as after a natural disaster).
- Prepared meals consumed outside the dwelling purchased or received for free (individual level).

Own produced food and other goods not purchased by the household can be valued using "Unit prices" that are calculated from the survey using corresponding values for the same quantity of purchased goods. However, there are some limitations to this approach; among which (1) Number of households who purchased a given good may be too small in the dataset, what compromises the robustness of the unit price derived from the survey, (2) Some purchased foods are recorded in non-standard unit measures. It is therefore recommended that a market survey be conducted concurrently with the consumption survey. The market survey should be conducted once in every enumeration area and it should collect information on the price and weight of products, by different units. However, there are also some concerns about market survey. This includes poor quality and the discrepancies

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found when comparing prices from unit values and market values, especially for perishable goods such as fish, which are important in daily diets. has its one limitations:

⇒ PSMB recommendation (interim) is to base the pricing on "the best available source of data". When pricing is based on unit prices it is advised to use the median unit values from the lowest area of geographic disaggregation at which stable estimates can be calculated. It is suggested to set a minimum number of observations and to include quality checks.

Food purchased and consumed away from home by the household members (FAFH) is captured using 7-day individual consumption recall by meal event that is further described in the guidance note "Measuring consumption away from home in household surveys" (planned).

**Non-food consumption aggregate** builds on spending categories that are more likely to properly reflect the household well-being. However, some expenditures are deemed non-eligible for consumption while some assets are valued for inclusion in the consumption. Thus, nonfood consumption includes:

- Eligible non-food spending.
- Imputed rent.
- Use value of durables (assets).

#### Non eligible non-food spending includes:

- "lumpy" expenditure or expenses that are large but infrequent, such as weddings, births, deaths, hospitalization, etc.
- difficult-to-cost items which are (theoretically) equally available to all individuals (public services and leisure time),
- investment and other business-related expenses,
- repayment of loans, interest payments, purchase of financial assets, and taxes paid,
- transfers out of the household (including gifts, remittances, and religious contributions).

**Health spending** is given a special treatment as certain aspects should certainly be included because they are welfare enhancing (such as preventative care and cosmetic procedures) while some others should be excluded (lumpy expenditures such as hospitalization. Other spendings, including doctor visits and treatment for illness could either be considered a welfare enhancing (and included) or a regrettable necessity (and excluded). PSMB recommendations involved two steps:

- Design the questionnaire to capture health spending in much more details allowing compilation of three
  types of health expenditures: preventative and elective care (including routine check-ups and cosmetic
  procedures), urgent care (treatment for an illness), and hospitalization and other high-priced events.
- Preventative and elective care should be eligible while hospitalization should be non-eligible.
- Classification of urgent care remains unaddressed.
  - ⇒ PSMB recommendation (interim) is breaking health spending into three categories: preventive, elective, and emergency. Catastrophic spending will be excluded. The questionnaire design will therefore need to distinguish between preventive and elective care, emergency care, and catastrophic spending.

**Education spending** present issues that are comparable to those of health spending. In addition, the inclusion of education can be controversial as some economists see it as an investment (as children will care for parents as they age). In the line with Angus Deaton & Salman Zaidi ("Guidelines for Constructing Consumption Aggregates for Welfare Analysis", World Bank LSMS Working Paper, n°135, 2002).

⇒ PSMB recommends the inclusion of education expenditures.

**Imputed rent for dwelling and Use value of household assets** are important parts of the consumption aggregate, particularly in places like the Pacific where most households meet their food needs readily and reliably. These measures are calculated using dwelling characteristics and household assets value.

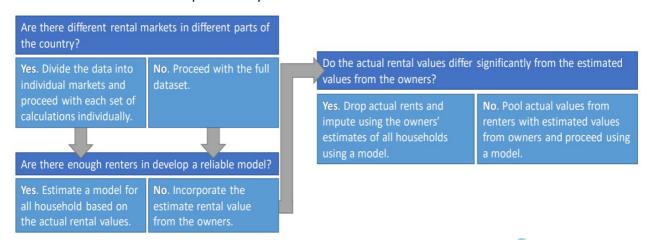
**Use value of household assets** is used to reflect the household's well-being rather than asset price itself. To calculate the use value of an asset the following information should be collected by the questionnaire:

- The ownership of the asset by household members,
- Number of the assets owned by household members,
- Age of the assets,
- The mean of acquisition of the assets (purchased new, purchased secondhand, received new as gift, received secondhand as gift, etc.),
- The price of the purchased assets (or estimated price if it was given as gift),
- The self-estimated cost if the asset was to sell today.

The depreciation rate is a key information that should be collected from other sources including data from Revenue Authority and any other institution that deals with assets. The depreciation rate may also be estimated from dedicated surveys on assets. Details are provided in the guidance note "Consumption of fixed assets in the Pacific region".

**House rent** is added to consumption aggregate in recognition of the input of the house use to the well-being of households who pay a rent. For those who do not pay a rent (owners, free users, etc.) the common practice is to impute a fictitious rent. Different approaches are used for this purpose, however each of them is subject to some caveats. The commonly used approaches include:

- Using the characteristics of the dwelling to develop a model to estimate the rental equivalent; this approach requires a substantial number of rented home on which to base the model.
- Surveying the self-estimated rent. The households are asked what the equivalent rent would be, this question, however, can be hard to answer if no one in the community rents; several studies have shown, moreover, that homeowners tend to overvalue their dwellings.
  - ⇒ Since none of these options is exempt from drawback, the PSMB recommends to combine different approaches according to the scheme below. More details are provided in the guidance note "Measuring rents in Pacific consumption surveys".



To calculate the imputed rent the following information should be collected by the questionnaire:

- Actual rent for households who are paying one.
- As many questions as relevant to estimate the equivalent rental value of a dwelling: materials for wall, soil and roof, indoor kitchen, water source, power type for cooking or lighting, etc.
- Self-estimated rental value by the dweller not paying a rent

**Living standard as adjusted consumption**: Consumption aggregate in itself is not enough to compare well-being among households, across regions or between two periods of time. Some adjustments are needed to make consumption aggregate comparable as well-being indicator. Such adjustments consist in taking into account household composition (size, adult equivalent measures), differences in cost-of-living across areas of the country (spatial deflators) and seasonal variation of prices (temporal deflators).

Adult equivalent measures. The two main options used to define the household living standard through consumption are: 1) consumption per capita which divides consumption by the household size and 2) consumption per adult equivalent which divides consumption by adult equivalent value. The latter option intents to account for differences in the requirements of adults and children. Since there is no universal perception of these differences the proposed values of adult equivalent differ among institutions and researchers. The most used adult equivalent measures include those of the OECD and of the FAO. The FAO adult equivalent is really based on the ratio of the dietary energy requirements of each member of the household with respect to the requirements of a male adult while the OECD use economic concept based on all the needs each household member has in the household (not just food). It takes into account the size of the household and the age of the household member. So, the FAO scale is based on food needs while the OECD scale is based on the weight of each individual within the household in terms of his/her economic cost. Research showed that the choice of method does not matter much to ranking (all measures are highly correlated) but can make a significant impact on the headcount.

⇒ PSMB recommends to define the household living standard using the OECD adult equivalent which has been commonly used historically in the region. That means assigning value of 1 to the first household member, 0.7 to each additional adult, and 0.5 to each child.

**Partakers for adjustment of Adult equivalent measure** "Partakers" is a new concept that has recently emerged from the survey literature to address sharing of meals with non-family members. This phenomenon is common in many cultures, particularly in the Pacific, but is rarely reflected in the surveys. It can be captured during the survey using questions that can be used to adjust the adult equivalent measure like the followings:

- In the last 7 days, did any non-household member (visitor) join in a meal consumed in this home.
- In the last 7 days, how many meals did you share at home with a guest aged 0 to 5 years old?
- In the last 7 days, how many meals did you share at home with a guest aged 6 to 15?
- In the last 7 days, how many meals did you share at home with a guest aged 16 to 65?

**Deflators**. There are three common price deflator measures used for price adjustments:

Paasche, Laspeyres and Fisher. Fischer is an average of Paasche and Laspeyres.

The basic formulars of Laspeyres index and Paasche index are very similar:

Laspeyres index:

Paasche index:

$$P_{L} = \frac{\sum (p_{c,t_{n}}) * (q_{c,t_{0}})}{\sum (p_{c,t_{0}}) * (q_{c,t_{0}})}$$

$$P_{P} = \frac{\sum (p_{c,t_n}) * (q_{c,t_n})}{\sum (p_{c,t_0}) * (q_{c,t_n})}$$

Where:

- "c" represents a product in the basket;
- "t" is the time period with  $t_n$  the current period and  $t_0$  the reference period;
- $p_{c,t_n}$  is the price of the product c at the period  $t_n$
- $q_{c,t_n}$  is the quantity of the product c at the period  $t_n$
- When indexes are used for spatial adjustment, "t" is the space area with  $t_n$  a given sub-national location and  $t_0$  the reference population;

Characteristics of price indexe approaches

Adjustment	Spatial	Temporal		
Paasche	Uses budget shares of given sub-national location	Uses budget shares of the current period		
Laspeyres	Uses budget shares of a reference population	Uses budget shares of the reference year		
Fisher	Accounts for both as it is an average of the Paasche and Fisher indices			

PSMB recommends (interim) to use deflator indexes according to the following scheme:

- Calculate price deflators using a Paasche index for spatial deflators and a Fischer index for temporal deflators.
  - A Paasche index is recommended for spatial deflators because it takes into account that households make different consumption decisions when they are faced with different prices. The basket should reflect the consumption of the household's location.
  - A Fisher index is recommended for temporal deflators because both the Paasche and Laspeyres indices have drawbacks for temporal measures. Taking the average between the two mitigates these concerns.
- Apply these deflators to the nominal household consumption total spending to obtain the final real household consumption.

**Poverty line** is defined as the level of consumption under which an individual is considered poor. Different poverty lines maybe set up according to the purpose of poverty analysis. Thus, two different poverty lines are required to the aims of the SDG monitoring:

- (1) the international poverty line for global comparisons and
  - The current international poverty line of \$1.90 per person per day in 2011 dollars and adjusted using the 2011 Purchasing Power Parity rates was introduced in September 2015.
- (2) the national poverty line for regional and national analysis.
- The national poverty line is calculated using the approach named "Cost-of-Basic-Needs" (CBN) which is based on a basket of food consumed by poor people (including unhealthy or foods low in nutritional value).

#### Poverty line in the "Cost-of-Basic-Needs" approach includes the following steps:

- Define the food basket on a relevant reference population
- Define the caloric requirements of national population
- Derive food poverty line
- Define the non-food component of the poverty line
- Derive the national cost-of-basic-needs poverty line as the sum of food poverty line and the non-food component

## **Poverty line: process chart**

## -FOOD EXPENDITURE:

- On non-food products eligible for expenditure aggregate
- Include imputed rent and use of durables

## **FOOD EXPENDITURE:**

On food products eligible for expenditure aggregate

## EXPENDITURE AGGREGATE = FOOD + NON-FOOD EXPENDITURE:

- Calculate expenditure per capita
- Generate the distribution of expenditure per capita (deciles, etc.)

## **REFERENCE HOUSEHOLDS:**

Exclude extreme values of expenditure (example: decile 1 & 10)

## NON FOOD SHARE OF POVERTY LINE:

- Choose among different approaches including:
  - o Regression method based on an Engel curve
  - Ravallion non-parametric methods using spending patterns of households around poverty line

## **FOOD BASKET:**

- Calculate food expenditure for the reference households using food products eligible for food basket
- Calculate the total food expenditure per product
- Calculate product share in total
- Rank products by share,
- Select biggest expenditures with cumulated value of 90% of total

## **FOOD POVERTY LINE:**

- Calory intake in the food basket scaling calory intake for a basket of 2,100 calories
- Calculate le price of one calory
- Calculate food poverty line

# POVERTY LINE = FOOD POVERTY LINE + NON-FOOD SHARE THE POVERTY LINE

### The Food basket should be defined on a relevant reference population

- The reference population should be households in the deciles of consumption distribution around the poverty line. At the processing time, however, the poverty line is not yet known. Previous values of poverty lines can hence be used as raw estimate. The top and bottom deciles should be excluded as appropriate if there are outliers in the distribution.
- Since the food poverty line will change every time the reference population changes, this approach is often an iterative process to fix a robust reference population.

#### In practice, Food basket is defined as follows:

Select the reference households: Eliminate those with extreme consumption values (for example, exclude the first and last deciles of total consumption per capita):

- Select the Eligible food products (eliminate those that value of calory intake is not available)
- Sum expenses per product on reference households: DFi=SUM(Di)
- Calculate the total expenses on all selected food items: DF= SUM(DFi)
- Calculate the share of each product i in the food expenses: SHi=DFi/DF
- Rank products by share (descending order) and calculate the cumulative share (CSHi=SUM(SHj) with j=1 to i)
- Food basket= Products that the cumulated share represents 90% of the total consumption (CSHi <= 90%)

This process can be illustrated by the Mauritania case (table below). The HIES2019 showed that the eligible products for the basket were 188 among which 58 were selected as they represented 90,1% of the total food expenses. It is worth noting that the ten highest expenses represent 48.9 % of the basket while the ten lowest account for less than 1%.

#### Illustration of food basket selection: Mauritania HIES2019

Product name	Product rank	Total expenses on the product	Total expenses on food	Share of the product in total	Cumulative share of the products
Fresh beef	1	51,810,464,582	508,568,076,288	10.2	10.2
Sheep/goat	2	40,127,355,936	508,568,076,288	7.9	18.1
Local broken rice	3	36,492,649,551	508,568,076,288	7.2	25.3
Milk	4	23,438,412,191	508,568,076,288	4.6	29.9
powdered sugar White poudered sugar	5	22,317,272,758	508,568,076,288	4.4	34.3
green tea	6	19,558,620,337	508,568,076,288	3.8	38.1
Camel meat, fresh with bone	7	15,577,317,826	508,568,076,288	3.1	41.2
Wheat flour	8	14,073,459,285	508,568,076,288	2.8	43.9
Macaroni	9	13,785,034,582	508,568,076,288	2.7	46.6
Unsweeted condensed milk (Gloria)	10	11,763,155,858	508,568,076,288	2.3	48.9
*****					
Salted fish, dried (Guedj)	56	1,754,673,066	508,568,076,288	0.3	89.4
Coffee	57	1,697,998,090	508,568,076,288	0.3	89.7
Lemon	58	1,577,410,768	508,568,076,288	0.3	90.1
egg	59	1,539,304,382	508,568,076,288	0.3	90.4
Animal offal and tripe	60	1,471,019,334	508,568,076,288	0.3	90.6
*****					
Celery	179	6,250,344	508,568,076,288	0.0	100.0
Spotted Beans	180	5,592,193	508,568,076,288	0.0	100.0
Guava	181	5,196,498	508,568,076,288	0.0	100.0
Game meat	182	4,957,015	508,568,076,288	0.0	100.0
Coconut	183	3,309,016	508,568,076,288	0.0	100.0
Plum	184	2,639,441	508,568,076,288	0.0	100.0
Wild birds (game)	185	2,638,045	508,568,076,288	0.0	100.0
Lawyer	186	2,425,202	508,568,076,288	0.0	100.0
frozen turkey	187	1,750,342	508,568,076,288	0.0	100.0
Frozen shrimps	188	791,828	508,568,076,288	0.0	100.0

#### Caloric requirements of national population:

- From information on height and age/sex structure of the population it is possible to estimate the normative energy requirements of a population. To estimate the prevalence of undernourishment (SDG 2.1.1), FAO is using as threshold the Minimum Dietary Energy requirement (MDER). The MDER corresponds to the lower limit of the acceptable BMI (Body Mass Index) to be healthy and to a low level of physical activity. FAO has estimated the MDER for different countries including some PICTs for instance: Fiji (1860), Kiribati (1770), Samoa (1810), Solomon Islands (1730) and Vanuatu (1730). But the MDER cannot be used as a threshold for the poverty line. Higher dietary energy requirements based on the level of physical activity of the poor and higher normative BMI should be used. That's why the 2100 kcal/capita/day threshold habitually used for the poverty line is higher than the MDER.
  - The PSMB recommendation (interim) is to base the dietary energy requirements on a normative threshold value (defined as providing the estimated minimum calorie intake consistent with an economically active and healthy life for the average person in the population) from WHO/FAO 2011 Human Energy Requirements and the most recently available population pyramid information. For the Pacific the World Bank calculations of daily calorie requirements give a best estimate of between 2300 and 2400 kcal.

#### Food poverty line is determined through the following steps:

- 1. Determine the food basket including items and their share.
- 2. Determine how those shares translate in calories for a given minimum calorie requirement.
- 3. Look up the calories per 100g for each item.
- 4. Determine the number of grams needed to reach the share of the calories.
- 5. Use the survey to determine the cost per 100g.
- 6. Determine the total cost per item (amount x cost)
- 7. Sum over all items in the basket

#### In practice, Food poverty line is proceeded in two main steps:

#### Calory intake in the food basket

- Use reference households and products included in the food basket
- Information on product i : Qi (quantity per capita per day in kilograms); Pi (price per kilogram); Ki (calorie intake per 100g)
- Expenses per capita per day on i: Di=PiQi
- Calory intake per capita per day on i: Ei=(10\*Ki)\*Qi
- Take into account the unused portion of some products (Nci) such as banana peelings: Ei=(10\*Ki)\*Qi\*(1-Nci)
- Total calory intake per capita per day for all products: SE=SUM(Ei)

#### Scaling products for a basket of 2100 calories

- Objective= Determine the composition of a basket providing 2100 calories and whose energy structure is the same as that of the average basket
- Energy intake per capita per day on product i (basket of 2100 calories): Eiup=2100\*(Ei/SE)
- Quantity per head per day of product i in the 2100 calories basket:
   Qiup= Eiup/(10\*Ki) = 2100\*(Ei/SE)/(Ei/Qi\*(1-Nci)) = 2100\*(Qi\*(1-Nci)/SE)
- Per capita expenditure of product I in the basket of 2100 calories: Diup=PiQiup
- Total expenditure per capita of all products in the basket of 2100 calories: Val2100cal =SUM(Diup)
- Food poverty line (annual): ZALI=365\* Val2100cal
- Average price of a calory in the basket: Pricecalory =Val2100cal/2100

Determination of the food poverty line is illustrated by the Mauritania HIES2019 case where different groups of reference households were defined: decile 1 to 10, decile 2 to 8 and so on (table below). When the whole population is defined as reference households (decile 1 to 10), the price of one calory is estimated at 0.151 CFAF,

which leads to an annual poverty line of 115 733 CFAF. When the reference population is within decile 3 to 8 the poverty line is estimated at 112 802 CFAF, that is a deviation of 2,5% from the basic case.

## Food poverty and price of calory by food basket (Mauritania HIES2019)

Food basket in decile of per capita expenditure	Price of a calory (MRO)	Food poverty line (annual, MRO)	Deviation of food poverty line from decile 1 to 10
décile 1a10	0.151	115,733	0.0%
décile 2a8	0.1436	110,058	4.9%
décile 2a9	0.1477	113,187	2.2%
décile 3a8	0.1472	112,802	2.5%
décile 3a9	0.1506	115,425	0.3%

**Food Away From Home (FAFH)** should be taken into consideration in food poverty line since it is a growing share of consumption across the world. While the amount spend on FAFH is straightforward, converting this measure into calorie equivalents is more complicated and requires some assumptions. There are two main approaches:

- Incorporating a food establishment survey into the HIES data collection. This approach collects the composition of common restaurant and street vendor meals by location, which are then converted into calories.
- Making the assumption that the per-calorie cost of FAFH is the same as or a multiple of the per-calorie cost of food prepared and consumed at home, and that the composition of food eaten in restaurants is similar to that prepared at home.
  - 1. When the assumption is made the process for the food poverty line then runs as follows:
  - 2. Start with basket shares: calculate the share of each food item in the total.
  - 3. Remove the FAFH line
  - 4. Rescale basket shares: calculate the share of each food item in the total (excluding FATH)...
  - 5. Multiply rescaled basket share by cost per 100g.
  - 6. Sum the costs.
  - 7. Decide if it is necessary to use a multiplier to account for restaurant expenses / preparer's time.
  - ⇒ PSMB recommendation (interim) is to adopt a multiplier of 1.25. Additional work will help to revise the multiplier.

**Non-food component of the poverty line** is constructed using the relationship between food and non-food spending of the reference population. This construction is supported by the main idea that the non-food component is the non-food share of total spending by households whose food spending is close to the food poverty line. Several different approaches are used to calculate the non-food component of the poverty line, among which:

- Regression method based on an Engel curve. It uses econometrics models to predict the shape of the curve describing the relationship between food spending and consumption.
- Ravallion non-parametric approaches; they use the spending patterns of the households around the food poverty line to estimate the non-food share of the poverty line.

#### Ravallion non-parametric approaches includes:

- The Ravallion <u>upper poverty line</u> that uses per adult equivalent <u>food consumption</u> around the food poverty line and proceed as follows:
  - Step 1: Obtain average total per adult equivalent consumption for households whose per adult equivalent **food consumption** is +/- 1% of the food poverty line.
  - Step 2: Repeat for households around +/- 2%, continuing up to +/- 10%.
  - Step 3: Take average of all averages as the estimate of the non-food component of the total poverty line.

- The Ravallion <u>lower poverty line</u> that uses per adult equivalent <u>total consumption</u> around the food poverty line and proceed as follows:
  - Step 1: Obtain average total per adult equivalent consumption for households whose per adult equivalent <u>total consumption</u> is +/- 1% of the food poverty line.
  - Step 2: Repeat for households around +/- 2%, continuing up to +/- 10%.
  - Step 3: Take average of all averages as the estimate of the non-food component of the total poverty line.
  - ⇒ PSMB recommendation (interim) is to compute the non-food component of the poverty line by calculating both the upper and lower bound and deciding which is most appropriate. This method is flexible and addresses concerns related to small sample sizes and relatively low poverty rates in PICTs.

#### Monetary poverty measures commonly include a set of three measures:

- Poverty Headcount that is the proportion of the population living below the poverty line.
- Poverty Gap that is the average shortfall, as expressed as a percentage of the poverty line.
- Squared Poverty Gap that measures the gap to poverty line in giving more weight to those living farer to
  poverty line. It is also used as measure of inequality since more weight is given to the poorest.

**FGT poverty measures** defined in a formula by Foster, Greer & Thorbecke (1984) are the most common set of measures used in poverty analysis.

$$FGT_{\alpha}(y,z) = \frac{1}{n} \sum_{i=1}^{q} \left(\frac{z - y_i}{z}\right)^{\alpha}$$

where z is the poverty line,  $y_i$  is the  $i^{th}$  lowest income (or other standard of living indicator), n is the total population, q is the number of persons who are poor, and  $\alpha$  is a "poverty aversion" parameter.

FGT are a family of measures as the  $\alpha$  takes different values ( $\alpha \ge 0$ )

- 1.  $\alpha = 0 \rightarrow P0$ : Poverty Headcount (Incidence of poverty)
- 2.  $\alpha = 1 \rightarrow P1$ : Poverty Gap (Depth/Intensity of poverty)
- 3.  $\alpha = 2 \rightarrow P2$ : Squared poverty gap (Severity of poverty/Inequality of consumption)

**Poverty trend analysis** describes how poverty indicators change over time. Since these indicators are built on poverty line it is crucial to address the issue of poverty line change over time.

In most countries, the poverty line is only recalculated rarely, perhaps once every 10 - 15 years or when a major methodological change is introduced (such as switching to CAPI). For other periods the poverty line from the previous survey is adjusted using CPI data to the midpoint of data collection for the new survey.

⇒ PSMB recommendation (interim) on the Adjustments to the poverty line over time: poverty lines should be updated using the CPI in successive rounds up to the point at which they become obsolete. The line should therefore be updated every 5–10 years or when there has been a significant shift in the economic environment. It is suggested to update food and non-food components separately, provided appropriate, good-quality CPI measures are available.

Stata / R / SAS are the most suitable software for poverty analysis.

- Regardless of the decisions made in the calculation of the consumption aggregate and poverty line, it is
  essential that the analyst use a software capable of handling the calculations correctly and maintaining a
  record of the steps.
- Possible choices include Stata, R, or SAS. Yet, Excel, while useful for some part of the analysis, cannot be used for the core calculations as it cannot be used for the imputed rent calculations or account for the stratified cluster design in calculating the standard errors.
- The do / R files should be retained and archived as part of the survey documentation process

#### Summary of the recommendations

- 1. SDG 1.1.1 should be measured using the USD 1.90 PPP per capita per day International Poverty Line. SDG 1.2.1 should be measured using a national cost-of-basic-needs poverty line based on national survey data.
- 2. Food consumption should include purchases, gifts received, food provided in-kind, own production, meals prepared and consumed away from home (purchased or received in-kind) and rations (such as after a natural disaster)..
- 3. Non-food consumption should include the use value of assets, imputed rent, education spending, health spending on preventative and elective procedures, but exclude "lumpy" expenditures, investment, loans, interest, taxes, and transfers out of the household (including gifts, remittances, and religious contributions).
- 4. Imputed rent should be calculated using the proposed decision path to account for local price differences and compensate for owners' tendencies to overvalue their dwelling.
- 5. Countries should continue to use the OECD per adult equivalent instead of per capita measures to adjust the consumption aggregate for household composition. That means assigning value of 1 to the first household member, 0.7 to each additional adult, and 0.5 to each child.
- 6. The reference population for the consumption basket should exclude the top and bottom deciles as appropriate if there are outliers, and otherwise use an iterative approach to determine the correct part of the distribution.
- 7. Poverty analysis should use the FGT measures, including poverty headcount, poverty gap, and poverty severity.
- 8. All data cleaning and calculations should be done using replicable methods in a statistical analysis program such as Stata or R. The do / R studio files should be retained and archived along with the dataset

#### Questions for the PSMB's decision includes areas currently not covered in the recommendations:

- 1. How should own production of food be priced? Unit values? Market survey? Other? (interim)
- 2. When estimating the calories consumed away from home, should a multiplier be used? If so, how should the value be determined? (interim)
- 3. Should urgent care health spending be included in the non-food consumption aggregate?
- 4. Should the household composition adjustment take into account partakers? (interim)
- 5. Should there be a regional caloric requirement? How should that value be set? (interim)
- 6. What method should be used for calculating the non-food component of the poverty line? (interim)
- 7. How should the poverty line be adjusted over time? (interim)