

**Measuring Poverty
and Inequality and
Indicators for
Identifying Groups
at Risk**

ANNEX 9

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Design of a social protection expenditure review requires an adequate method of identifying the poor and measuring inequality. This annex describes the basic method that should be used in the partner countries who is poor and at risk of becoming poor.

The measures recommended are the measures of multidimensional poverty and inequality based on the methodology pioneered by the UNDP and the Oxford University. These metrics avoids much of the limitations of standard money metrics used to assess social welfare and is applicable to any population in a country such as Belize including those in the interior of the country, such as Toledo or the Mayan and Maroon populations.

The basis of the measure is the set of dimensions identified and weighted as in the Table specified below. A household is in multidimensional poverty if the household to which the person belongs is deprived in 1/3 or more of the indicators listed in the table.

Let H be the proportion of **persons** that is in multidimensional poverty across the sample. Let A be average proportion of indicators in which households are deprived across the sample. The sample measure of multidimensional poverty is

$$1. P = H * A$$

With adjusted standards as in Table 2, the same equation will be estimated for multidimensional destitution.

Dimensions of Poverty	Indicator	Standard of Deprivation	Weight
Education	Years of schooling	No household member has completed five years of schooling.	1/6
	Child school attendance	Any school-aged child is not attending school up to class 8.	1/6
Health	Child Mortality	Any child has died in the family	1/6
	Nutrition	Any adult or child for whom there is nutritional information is malnourished.	1/6
Living standards	Electricity	Household has no electricity	1/18
	Improved sanitation	The household's sanitation facility is not improved (according to MDG guidelines), or it is improved but shared with other households.	1/18
	Improved drinking water	The household does not have access to improved drinking water (according to MDG guidelines) or safe drinking water is more than a 30-minute walk from home, roundtrip.	1/18
	Flooring	The household has a dirt, sand or dung floor.	1/18
	Cooking fuel	The household cooks with dung, wood or charcoal	1/18
	Asset ownership	The household does not own more than one radio, TV, telephone, bike, motorbike or refrigerator and does not own a car or truck.	1/18

Dimensions of Poverty	Indicator	Standard of Deprivation	Weight
Education	Years of schooling	No household member has completed at least one year of schooling.	1/6
	Child school attendance	No children are attending school up to the age at which they should finish class 6.	1/6
Health	Child Mortality	2 or more children have died in the household.	1/6
	Nutrition	Severe undernourishment of any adult BMI<17kg/m2) or any child (-3 standard deviations from the median).	1/6
Living standards	Electricity	Household has no electricity	1/18
	Improved sanitation	There is no sanitation facility (open defecation).	1/18
	Improved drinking water	The household does not have access to safe drinking water, or safe water is more than a 45-minute walk (round trip).	1/18
	Flooring	The household has a dirt, sand or dung floor.	1/18
	Cooking fuel	The household cooks with dung or wood (coal/lignite/charcoal are now non-deprived).	1/18
	Asset ownership	The household has no assets (radio, mobile phone, refrigerator, etc.) and no car.	1/18

Inequality

In the case of the multidimensional inequality measure, the PER can adopt the method proposed by Seth and Alkire (2014).¹ Let $c_i(k)$ be the deprivation measure for person i , β be a constant equal to 1/9 and n the number of poor persons in the sample. Then,

$$2. I_{md} = \frac{\beta}{n} \sum_{i=1}^n (c_i(k) - A)^2$$

The PER could then ask, what is the level of inequality across the population? Does the level of inequality vary by location or community? Are public resources shared equitably and according to needs across districts and social groups?

Further, with respect to the various indicators of the MPI, are there significant geographical and social differentials? Correspondingly, are there significant differentials in spending that are not explained by differentials in poverty or inequality across communities, or by the decision to locate industry strategically for export development?

Understanding Poverty and Its Dimensions

The following indicators should be analysed when assessing the factors that define who is likely to be currently poor and who is at risk of becoming poor. They should be analysed by age group, gender and location, school type, and poverty status.

¹ Seth, S. and Alkire, S. (2013). 'Measuring and Decomposing Inequality among the Multidimensionally Poor using Ordinal Variables: A Counting Approach'. OPHI Working paper 68.

Wealth, income and consumption levels

- a. Per capita household consumption
 - a. Decile of consumption
 - b. Composition of expenditure
 - i. Food consumption and nutritional quality
 - ii. Non-food consumption
 - 1. Recreation / leisure
 - iii. Non-consumption, such as gambling
- b. Mean household income
 - a. Decile of income
 - b. Employment status / work quality
 - i. Paid employment
 - ii. Self-employment
- c. Access to credit
- d. Asset ownership
 - a. Durable goods
 - b. Land
 - c. Transport

Education Indicators

- a. School Attendance and Education Level
- b. Distance travelled to school and mode of transport
- c. Reasons for Not Attending School
- d. Student Access to Required Books
- e. Nutrition status of students
- f. Cohort repetition rates and dropout rates
- g. Effective cohort survival rates and completion rates
- h. Functional illiteracy in the labour market, regarding both reading and numeracy
- i. Mean Expenditure (\$) on education
- j. Student use of student loans or other financing for tertiary education
- k. Public grants received for tertiary education
- l. Conditional bursaries received for tertiary education
- m. Mean years of schooling
- n. Perception of general education status
- o. Satisfaction with household education Status
- p. Average class size
- q. The number of tertiary staff per student
- r. The number teaching staff involved in research and publication
- s. Average salary of teaching staff

Health Indicators

The following indicators should be considered when assessing the health dimensions of the persons at risk of being in poverty:

- a. Transport, by distance travelled to clinics and mode of transport
- b. The number of tertiary-trained nursing staff
- c. The number medical doctors involved in research and publication per 1000 population
- d. Average salary of medical doctors; of nursing staff
- e. The number of support staff and allied medical professionals
- f. Average salary of support staff; allied medical professionals
- g. Index of quality of assets in clinics and hospitals
- h. Immunization Coverage of Children 6-59 Months and Birth Registration, by type of immunization
- i. Prevalence of Self-Reported Chronic Illness, by Type of Illness
- j. Prevalence of Certain Lifestyles among Young Adults (Smoking, etc), by Lifestyle disease.
- k. Prevalence of Disabilities, by type of disability
- l. Prevalence of Injury in Reference Period (say 3 weeks), by duration of the injury and severity of injury
- m. Infant (under 1 year) mortality rate
- n. Child (under 5) mortality rate
- o. Maternal mortality rate
- p. Malnutrition among Children 0–59 Months
- q. Malnutrition in population Above Age 59 Months
- r. Use of Public/Private Sector Services by injured or sick during reference period, by type of service used (public vs private); preference for service used, and distance of residence from healthcare facilities
- s. Purchase of medication and hospitalization during reference period, by prescription status of the medicine (over the counter vs prescription)

Housing Indicators

A strong indicator of well-being is usually the housing conditions under which households and individuals live. The following indicators should be used:

1. Type of dwelling, as indicated by whether the dwelling is:
 - a. A separate house
 - b. A shared dwelling – such as a semi-detached two-family single building
 - c. Apartment or Townhouse
2. Construction material of the home, such as:
 - a. Wood
 - b. Block and steel
 - c. Concrete noggin

3. Tenure of the household, in particular:
 - a. Owned
 - b. Rented
 - c. Squatter
 - d. Rent-free
4. Household toilet and sanitation facilities
 - a. Water closet
 - b. Pit latrine
 - c. Regular public garbage collection/disposal
 - d. Private garbage collection/disposal
5. Housing amenities
 - a. Exclusive use of kitchen
 - b. Exclusive use of flush toilet/water closet
 - c. Durable goods useable for business activity
 - i. Sewing machines
 - ii. Autos
 - iii. Agricultural and other productive equipment for business activity
 - d. Gas stoves/electric stoves
 - e. Television
 - f. Computer facilities
6. Type of water supply
 - a. Piped water
 - i. Indoor
 - ii. Outdoor
 - b. Public standpipe
 - c. Rain water (barrels/tanks)
 - d. Well
 - e. River/spring
7. Energy and lighting type
 - a. Electricity
 - b. Kerosene
 - c. Wood/coal
8. Household communications
 - a. Access to internet
9. Cost of housing
 - a. Mortgage
 - b. Rent
 - c. Electricity
 - d. Water
 - e. Internet
 - f. Property taxes