# Poverty Lines and Poverty Rates

## Goal

In order to get any measure of poverty, it is essential to make some assumptions concerning the criteria based on which to define poverty. The approach used by LIS (and most commonly adopted in the literature), is that of creating a relative poverty line based on the level and distribution of household disposable (equivalised) income in the total population. Households are classified as poor or non-poor on the basis of whether their income is lower or higher than the relative poverty line.

Once poor households are identified, you can create an indicator to help identify the proportion of poor households (or individuals) and to measure the level of poverty. The choice of indicator used will mainly depend on the purpose of the research. In this exercise, we will calculate the main indicator of poverty incidence, the head count ratio, and the income gap ratio (an important indicator of poverty intensity).

## Activity

Using the 2000 Finnish data, run the same data cleaning procedures and create the equivalence scale introduced in the previous exercise. Define the poverty line as 50% of the median equivalised income. Calculate the head count ratio (defined as the percentage of individuals living in poor households) and the income gap ratio (as explained in the guidelines).

## Guidelines

➢ When creating a value that is the same for all observations (e.g., median equivalised income or poverty line), use the **scalar** command or local macros. Scalars are best when you are using the values for calculations. For this exercise, use local macros, since they are simpler to display in your log file.

For the poverty line, create a new local macro, *povline*, equal to the same value (50% of the median equivalised income) for all observations:

```
_pctile ey [w=hweight*d4], p(50)
local mneqinc = r(r1)
local povline = r(r1)*.5
```

**_pctile** is a programming command that extracts percentiles of your choosing. The first two lines above are equivalent to:

```
sum ey [w=hweight*d4], de
local mneqinc = r(p50)
```

➢ Again, be careful when choosing weights: use *hweight* if you want to measure household poverty, and *hweight*d4* if you are interested in individual poverty.

➢ The Head Count Ratio (HCR) is the percentage of poor individuals in the total population. When you create a dummy variable indicating that an individual is poor (**poor** = 0 or =1), then the mean of the indicator variable (properly weighted) will be the percentage of poor individuals.

➢ The Income Gap is the difference between income and the poverty line. The Income Gap Ratio (IGR) is the average income gap as a percentage of the poverty line.

➢ In Stata, a number of routines are available to compute a series of poverty and inequality measures. These routines have been written by Stata users and published in the Stata Technical Bulletin or made available via the Web site (www.stata.com). The LIS team keeps the official and unofficial set of programs added to Stata updated, so you can use these routines.

You can get the poverty measures above, plus many more, by using either:

>     `poverty ey [aw=hweight*d4], all` or
>
>     `povdeco ey [hweight*d4], varpl(povlin)`

Notes:

- Analytical weights must be specified.

- For the `poverty` command:

   a. The default poverty line is set to half the median of the specified income variable.

   b. You can specify the options `h` and `igr` (instead of `all`) to get only the Head Count Ratio and the Income Gap Ratio.

- For the `povdeco` command, the specified poverty line (povline, above) must be a variable in your data set, not a scalar or a local macro.

## **Program**

```
di "** INCOME DISTRIBUTION I - Exercise 10 **"


global keepit "hweight d4 dpi"
use $keepit if !mi(dpi) & !(dpi==0) using $fi00h, clear


gen ey=(dpi/(d4^0.5))
_pctile ey [w=hweight*d4], p(50)
local mneqinc = r(r1)
local povline = r(r1)*.5
display "mneqinc = `mneqinc'"
display "povline = `povline'"


gen byte poor=(ey<`povline')
tab poor
sum poor [w=hweight*d4] if poor==1
sum poor [w=hweight*d4]


gen gap = `povline'-ey if poor
sum gap [w=hweight*d4]


local gapratio=r(mean)/`povline'
display "gapratio = `gapratio'"


*ado-files
poverty ey [aw=hweight*d4], all
poverty ey [aw=hweight*d4], h igr


gen povline = `povline'
povdeco ey [w=hweight*d4], varpl(povline)
```

## **Results**

| | |
|---|---|
| Median equivalised income | *96 332* |
| Poverty line | *96,332 / 2 = 48,166* |
| How many poor households are in the sample? | *588* |
| How many poor individuals are there in the total population? | *277 263* |
| Head Count Ratio | *5.43%* |
| What is the average income gap among poor individuals? | *12 317* |
| Income Gap Ratio | *12,317 / 48,166 = 25.57%* |

## **Comments**

➢ The head count ratio (HCR) measures poverty incidence (i.e., the number or proportion of poor people), but gives every person equal weight no matter how far they fall from the poverty line.

➢ The Income Gap Ratio (IGR) measures poverty intensity or depth (how poor are the poor), but one poor person with an income of an amount x counts the same as two poor people each with an income of x/2. That is, the IGR measures the average income gap, but not its distribution among the poor).

Only two indicators of poverty are mentioned here, but there are several others. These include, among the most common, the whole family of Foster-Greer-Thorbecke indicators (of which the HCR is only one), the Sen index, the Takayama index, the Clark index, and the Thon index. It is important to note that a country may score better in comparison to a second country when using a particular index, but could score worse if another index was used instead.