Reliability and Consequences in poverty measurement

Document prepared for the EGM on poverty statistics, Beirut, 28-29 April 2009 by Paul Alkemade , Luxembourg Income Study (LIS)

Introduction

Reliability is a concept comparable to accuracy or quality: they all have in common that they are vulnerable commodities. Quality needs to be kept in mind throughout the entire statistical process, otherwise the reliability will suffer. Once the reliability is at stake, users of the data may start questioning the results, and nothing is worse than when the results are considered unreliable. It is like a good reputation: it may take years to build it up, but can be lost in seconds when treated light-hearted. Moreover, once it is lost, it will take even longer to restore it. This introduction may sound like "stating the obvious" but it means that quality awareness does not start or stop after a specific stage in the statistical process. The chain is only as strong as its weakest link ; therefore quality must be treated as an integral part from the very first stage of the design of a survey up to publication of the final (and reliable) results.

What does this mean in practice ? To start with, it means that a couple of basic statistical elements have to be respected: an accurate survey design, an appropriate sample size and access to good statistical methods.

As for the survey design, the proposed Integrated Household Survey will offer a unique opportunity. Due to its integrated character, meaning that one-and-the-same set of respondents is being interviewed, this survey will allow analyses tailored to the multidimensional perspectives of poverty. The sample size should be chosen in such a way that reliable conclusions can be drawn not only at national level, but also at regional level. At the same time, certain groups in society that are especially vulnerable to poverty should be present in the sample in a sufficient number. Sound statistical methods and practices should be applied during crucial processes such as data collection, editing and cleaning, as well as dissemination. Various examples of good practices can be found on the following UN website :

http://www.unece.org/stats/publications/

Poverty measurement in connection to income and expenditure

Many poverty indicators are not directly measured, but are derived from information that is (at least in part) based on income or expenditure. The concept of "working poor" is such a combined indicator that uses both labor market information as well as income amounts. Even though poverty is nowadays more and more being considered to be a multidimensional phenomenon, measuring its magnitude by means of income or expenditure has been practiced since several decades and is practiced with global coverage. In order to produce good quality income /expenditure statistics, it is therefore important to

understand how to correctly measure income as well as expenditure, and to be aware of the different caveats that exist in both approaches. In particular when it comes to measuring income, there has been a fruitful effort to enhance quality of household income surveys. Starting in the mid 1990tees an expert group on Household Income Statistics was set up under the auspices of the UN , better known as the Canberra Group. The final report contains a vast set of recommendations that range from the conceptual framework for income analyses to concrete recommendations of what types of income should be included in say income from capital. Many different players were involved in setting up these recommendations, such as data suppliers (mainly national statistical offices) , international organizations (OECD, World Bank, UN-ECLAC) as well as research institutes like the Luxembourg Income Study (LIS) . Those who are interested in best practices for income statistics are warmly recommended to have a look at the final report which is hosted on the website of LIS at the following link :

http://www.lisproject.org/links/canberra/canberragroup.htm

Caveats and lessons

The Luxembourg Income Study, both a research center as well as a data archive, has focused on measurement of income distribution, poverty and income inequality for more than 25 years now. During these many years, we learned that despite the efforts to improve income surveys, there remain several caveats that need to be addressed.

Unit of analyses : it is widely accepted that income should preferably be measured at the household level , for obvious reasons of economy of scale, depending largely on the household size. However, not every country is using the household as unit. We have seen countries that use the family unit , or the dwelling as their unit, thus creating unnecessary bias with other countries.

Reference period : in order to capture an accurate measure of income, one has to find a reliable unit of time for its measurement. For day-labourers a month may already sound long, whereas income from capital is mostly not received for less than a year. For publication purposes, reporting annual incomes has turned out to be the most relevant reference period. This will smooth out hypes from either seasonal work, or from end of year bonuses. Collection of income data may focus on a shorter reference period such as monthly amounts for wages. This means that whenever such amounts need to be properly annualized, it is therefore good practice not only to ask the amount received, but also to ask “for how many months was this amount received”.

Universe : for whom should we collect income ? In most developed countries incomes are collected for adults only. This same limitation is applied to labor force surveys where individuals are interviewed starting mostly at the age of 16 years. When in developing countries children earn a non-negligible part of the household income, we should take care not to leave their income out of scope. This means that the universe may need to be enlarged, but more important : the age cut-off should be consistent over countries within the ESCWA region.

Net versus gross : depending on the country, incomes may be collected either gross, or net of taxes. When gross incomes as well as deductions like taxes and social contributions are available, a measure called net disposable household income can be calculated. This is fully comparable to countries where net amounts are collected and summed up to total net household income. However, such different datasets do not allow comparisons between countries at the level of a specific income source because of the mismatch in pre- and post taxation amounts.

Scope of income sources : what incomes to include for income distribution comparisons? If we include imputed rent for owner occupied housing, the elderly will favour from the fact that they own their houses outright more than their younger counterparts, which will drastically change the income distribution between age groups. Hence the risk to fall into poverty of an otherwise vulnerable group like the elderly will be affected.

Finally, we can mention the problem of underreporting of certain incomes. The magnitude of underreporting varies largely by type of income, but the two most prominent types are self-employment income or income from capital. Underreporting will most likely happen an almost every country, but can be worsened when the respondent is not informed for what purposes these data will be used. The mere statistical use should be clearly communicated to the respondents. The statistical independence of the NSO's is a crucial issue that is to be respected by donors of survey programs.

The previous issues focus primarily on income because this is the main field of expertise within the Luxembourg Income Study. This should not give the impression that expenditure is free of caveats. When we recently harmonized datasets from five Latin American countries, we discovered that expenditure and consumption are equally difficult to measure, and that they have their caveats as well. A brief example may illustrate the problem for the reference period : if a country has a higher rate of inflation, people tend to buy goods (mainly food) directly after the moment when they receive their wage. Waiting to buy food will imply to buy at a higher cost. As a result, the quantities mentioned in the diary (often a short period of seven or fourteen day's) are far overestimated and will not give reliable outcomes. This small example, combined with different recall periods for different goods makes that annualizing consumption data tends to becoming more like an art than science.

A final point that can help improve reliability of statistics is access and availability. Enhanced use of the raw data can reveal possible weaknesses or even errors, which would have remained uncovered otherwise.

Consequences and different type of poverty measures

Once income / expenditure has been collected and correctly processed, one reaches the stage to choose the appropriate poverty measure. The measures however differ that much in nature that the poverty rate can jump up or down enormeously, depending on the measure itself. In the worst case, this could lead to the choice being politically driven.

If an absolute poverty line is adopted (be it 1 dollar a day , or 1,25$ or even the US absolute poverty line of more than 20,000$ annually) , it will be obvious that a country like Bahrain or Qatar will have a lower poverty rate than Yemen or Sudan. Such results will not surprise anyone; it is more a confirmation in figures of what was known already.

If instead of the absolute approach, a relative poverty line is adopted, the results are less predictable. The poverty rate now only depends on the income distribution within the country itself. Therefore, even a richer country may show a poverty rate that reaches a substantial level.

Within a country, regions can differ substantially in terms of level of income. It may therefore be enlightening when the income level of a household living in a poor region is not compared to the national median, but to the median of that region. Italy can serve as such an example where the north is by far richer than the much poorer provinces in the south. The same reasoning can be held for expenditure, where housing costs in rich areas make up for a large portion of household's resources, whereas housing cost can drop considerably in other regions.

As the 14 member-countries of ESCWA are highly diverse in terms of income level, ranging from the lower end to the very top, it is not obvious to pin oneself down on one specific poverty measure on beforehand. In general , LIS favors relative poverty because it is a robust measure and its methodology guarantees full consistency between countries, regions as well as between different point over time.

Finally, in stead of putting all effort in finding the one-and-only good poverty measure, one could opt for a complimentary measure that combines different aspects of financial resources. In this case, one could look at the number of incidents of being poor to any of the axes like income, expenditure or assets.

The picture below may illustrate this measure: the larger rectangle represents the total population. Those outside the circles represent the non-poor, whereas the circles represent those who are poor by income, expenditure or assets. Where the circles overlap, households are poor in more than one aspect. Needles to say that one can adapt this measure to include any other form of human poverty.