Some Quantitative Methods and Practices of Poverty Measurements and Poverty Statistics in the Eastern Caribbean

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I. Introduction

During the period, 1995 to 2003, the Caribbean Development Bank (CDB), the World Bank and the IDB (Inter-American Development Bank) commissioned a number of poverty assessment studies in for the Islands of the Caribbean, including Grenada (1998), St. Lucia (1995), Belize (1996), Trinidad and Tobago (1997) SLC (Survey of Living Conditions) HBS 1997/98 amongst others. In almost every case the assessments covered not only a quantitative assessment of the situation of the poor versus the non poor in per capita consumption terms but also an assessment of institutional capacity to deliver poverty alleviating services to the poor segment of the populations in question. Further, all these studies had a specific objective to develop action plans that identify policies, strategies, programmes and projects that would reduce the extent of poverty and improve overall quality of life in the selected countries and so guide interventions by CDB, other donors and international agencies.

II. Administrative features of SLC survey design

Many of these studies were influenced by work on poverty measurements which was very well established in Jamaica from the early 1990's. The questionnaires used all contained, housing, detailed expenditure data[1], income, demographic, health, education, employment, migration and anthropometric data. However, the CDB studies differed from the Jamaica LSMS (Living Standards Measurement Survey) in several important respects. At the organizational level there were important differences. Firstly, in the case of each country the national sample survey was executed within a one or two month period and involved a single one hour and a half interview applied to selected households. Secondly, a multi-disciplinary team of experts hired by the CDB provided the technical leadership for the conduct of the sample surveys in collaboration with national assessment teams in each island. Thirdly, the assessments were intended to be completed within a period of about four months in every case, this imposed several limitations on the data collected and the extent of the analysis outside of what was expected which could be done.

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[1] The expenditure data contained a section on annual expenditure, such as durable goods, educational expenses, insurance cost, vehicles purchase and maintenance. Other sections included, home grown food consumed, food and non food items. Information on food and non-food items was collected over the week and month of the reference period where possible.

III. Sampling methods and data processing used in the SLCs

In almost all cases the strategy for data collection involved the conduct of a sample survey drawn with PPS (probability proportional to size of enumeration districts selected); on completion of which, data was keyed into computers by data entry personnel to produce the requisite databases required for derivation of food, non food and total expenditure aggregates, in addition to the processing of the other components of the SLC questionnaires. This strategy can quite clearly be improved with the application of OMR/OCR/ICR techniques to the data capture of survey questionnaires thereby increasing data accuracy, reducing on data processing time and effort by at least a factor of 60%. Moreover, using a process to ensure immediate scanning of data, feedback to enumerators and supervisors about the quality of data collected upon arrival at the data entry point can improve data quality significantly.

IV. Computation of food and non food values within the poverty line

At a technical level all of the studies in question derived the food component of the poverty line on the notion that every individual must satisfy certain basic nutritional requirements for survival. The basket of goods was selected in such a way as to maximize a person's nutrient intake at the lowest possible cost given general prevailing consumption patterns using software developed by the Caribbean Food and Nutrition Institute (CFNI). The market cost of the selected basket was then determined using prices available from the Consumer Price Index Survey. Households and/or individuals unable to meet the per capita cost of obtaining this basket of food items were categorized as *critically* poor, or *indigent*.

In the derivation of the non-food component of the poverty line use was made of the common practice of dividing the monetary value of the food component of the poverty line by the share of expenditure on food obtained from the bottom two quintiles when the dataset was ordered on the basis of adult equivalent per capita consumption variable within the household dataset. Many of the CDB studies also employed the technique of averaging the adult equivalent per capita non-food expenditure for the bottom two quintiles and adding this value to the indigence line to derive the overall poverty line. Other poverty indicators such as the headcount, poverty gap (FGT), poverty severity (FGT^2) were then derived from this computed line.

Adult equivalence scales are used in most of the poverty assessments conducted in the Caribbean to account for changes in household size and age composition, total household expenditure is divided by the number of adult equivalents; the number of equivalent adults is computed on the basis that children $0 – 6$ years are equivalent to 0.2 of one adult, 7 - 12 years to 0.3 of an adult, $13 – 17$ years to 0.5 of an adult, and person over 17 years are considered to be equivalent to one adult. Poverty assessments done in the Caribbean have not improved on the computation of adult equivalent per capita consumption to dis-aggregate the effect of economies of scale as it relates to numbers of persons in the household versus the household composition as reflected in the age of the individuals within the households. There are a number of studies which have indicated the significance of dis-aggregating the effects of size economies and equivalence scales when estimating poverty levels (Dreze and Srinivasan (1997), Buhmann, et al (1988), Ranjan Ray, 1999) this needs to be considered in future studies.

There have been a number of computational challenges associated with the lack of a uniform approach to dealing with expenditure on durable goods when the monthly and weekly expenditure data derived from the SLC is annualized. Expenditure on consumer durables such as furniture, household appliances, and vehicles provide a flow of service over time, and because it is often difficult to derive a measure of *use value* to represent value of services obtained from these items, the approach which has been adopted is to allocate a percentage of the total expenditure on these items to the year in question. This approach has minimized any underestimation of welfare derived from the exclusion of consumer durables from total non-food expenditure, however it is somewhat subjective and qualitative factors inherent in the items in question impact on the computations.

These approaches have produced headcount indices of between 20 and 30% of the population for Caribbean island states. A few attempts have been made to use purchasing power parities to derive a US one and two dollar a day poverty line as a basis for international comparison of rates of poverty in the Caribbean vis-à-vis other countries of the world most of these attempts resulted in headcount indices of less than 10% and in most last in a headcount of either nil or less than 5% (Henry, St. Catherine 2002).

V. Use of "unmet basic needs" index in the censuses, SLCs and labour force surveys

Countries in the Eastern Caribbean have completed the 2000 round of censuses and techniques for estimating poverty at the household and by extension at the community level from this very comprehensive data source is particularly appealing. Unlike, larger countries some of the Islands of the Eastern Caribbean depend heavily on the census as a source of information and a large number of variables of data was collected during the recently completed round. The use of unmet basic needs approaches would be particularly useful in this context. The approach which has been applied to the Census of St. Lucia developed a community based poverty map using an unmet basic needs index approach. This index was built from pre-defined weights assigned to several household and person characteristics, such as, persons per bedroom, employed persons to total person in the household, education of head, availability of basic household amenities such as toilet, vehicle, TV, radio etc., the index once computed at the household level was scaled up to the community level by averaging this index over all households in a particular community. The World Bank has recently initiated in collaboration with the UNDP the CWIQ (Core Welfare Indicator Questionnaire) process; they are now in the process of picking a pilot island in the Eastern Caribbean. This will bring stronger capacity for living condition assessment using "unmet basic needs approaches" to our region and a more cost effective means of continuously monitoring the living conditions of the population. Part of the reason why more SLC's have not been done in the Caribbean outside of Jamaica has been due to the cost, expertise required and the small size of the statistical organization in the countries, which are under resourced with respect to the requirements for the conduct of LSMS type activities.

Trinidad and Tobago conducts a quarterly sample survey of population which collects information primarily on the labour market but also on housing conditions and basic household possessions. This therefore represents a very good source of continuously updated information

on living conditions through the lens of the "unmet basic needs approach". A soon to be completed IDB commissioned study on poverty in the twin-island republic of Trinidad and Tobago uses the unmet basic needs approach to track changes in living conditions from 1994 through to 2002 on a quarterly basis. This has provided valuable insights into the changes which have occurred in the living standards of the population over this period in the absence of a properly constituted Survey of Living Conditions, the last of which was done in 1997 along with an HBS in 1997/98.

VI. Conclusion

Much progress has been made in the past decade in the measurement of poverty in the Caribbean and we are excited about implementing improved living conditions monitoring systems using the updated versions of the SLC and HBS survey sources which will be complementing the more frequent CWIQ surveys which we expect to be conducting in the not too distant future in collaboration with the UNDP and the World Bank MECOVI team.