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Human Settlements Working Paper Series

Poverty Reduction in Urban Areas - 35

Appropriateness of the Sri Lanka poverty line for measuring urban poverty: the case of Colombo

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December 2011

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The Centre for Poverty Analysis (CEPA) is an independent, Sri Lankan think-tank promoting a better understanding of poverty-related development issues. CEPA believes that poverty is an injustice that should be overcome and that overcoming poverty involves changing policies and practices nationally and internationally, as well as working with people in poverty. CEPA's mission is to be the leading organisation providing independent analysis of poverty, shaping policy in Sri Lanka and the region. Ultimately, CEPA strives to contribute to influencing poverty-related development policy, at national, regional, sectoral, programme and project levels.

ACKNOWLEDGEMENTS

The authors are grateful to David Satterthwaite from the International Institute of Environment and Development, London, for giving us this opportunity to examine the measurement of urban poverty in Sri Lanka, and to analyse it from a multi-dimensional perspective, and for providing valuable comments.

We also sincerely thank our colleagues at CEPA, Azra Abdul Cader and Nilakshi de Silva for their comments, which were of immense help in the preparation of the final report, and Geetha Harshani for her assistance in fieldwork.

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ISBN 978-1-84369-836-4

This paper can be downloaded free of charge from http://pubs.iied.org/10606IIED.html. A printed version of this paper is also available from Earthprint for US$20 (www.earthprint.com).

Acronyms and abbreviations

CBN	cost of basic needs
DCS	Department of Census and Statistics
DFID	Department for International Development (UK)
DSL	Divisional Secretariat Level
FEI	food-energy intake
GND	Grama Niladhari Division
HCI	Head Count Index
HIES	Household Income and Expenditure Survey
OPL	Official Poverty Line
PCA	principal component analysis
PL1	First Poverty Line
PL2	Second Poverty Line
PL3	Third Poverty Line
UBNI	Unsatisfied Basic Needs Index
UNDP	United Nations Development Programme
USS	under-served settlement

CONTENTS

TABLES

SUMMARY

Poverty estimates in Sri Lanka

How poverty is conceptualised and defined influences any statistics on its scale and depth. This paper suggests that urban poverty is under-estimated in Sri Lanka, if consideration is given to the multiple dimensions of poverty.

In Sri Lanka, the government defines and measures poverty based on household expenditure on food. The allowance for non-food needs is based on what households whose expenditures should be sufficient to meet their food needs spend on non-food needs. This produces official statistics suggesting that only a small proportion of the urban population is poor (5.3 per cent in 2009/10) and that this proportion has been declining. But the monetary value allowed for non-food needs in official poverty lines is based on what low-income households spend on non-food needs, not on what they require to meet their needs.

The proportion of the urban population 'living in poverty' is much higher than the proportion said to be poor in official statistics. For instance, around half of Colombo's population live in what are termed under-served settlements characterised by poor-quality, overcrowded housing lacking adequate provision for infrastructure and services. By 2004, there were 1614 under-served settlements within the municipal limits of Colombo, housing around half its population. Yet official statistics suggest that only 3.6 per cent (2009/10) of Colombo's population is poor.

This paper discusses the many limitations of the official poverty lines applied in Sri Lanka (and many other nations). These include poverty lines' reliance on expert-based determination of basic food and non-food needs, the fact that they are a monetary measure and so do not measure whether food or non-food needs were actually met, their reliance on (questionable) expert-based determination of thresholds, their inability to measure deprivation adequately in multiple dimensions (including housing and living conditions), and their focus on private consumption ignoring common resources which are important to well-being. Despite these limitations, poverty estimates are used by government as well as non-government agencies to guide national poverty-alleviation programmes and to strategise poverty-targeted interventions. It is likely that the household surveys used to set official poverty lines also fail to include the homeless, those living and sleeping in public places, streets, refugee camps and illegal dwellings. Further, the official definition of what constitutes an urban area (and its urban population) in Sri Lanka considerably under-states the actual urban population – and this too implies an under-estimation of the scale of urban poverty.

Assessing the multiple dimensions of urban poverty

In the context of the growing interest in understanding the many dimensions of poverty not measured by conventional poverty statistics, this paper suggests a range of indicators that can be used to assess the multi-dimensional aspects of urban poverty. It then pilots these through visits and questionnaires for 20 households in Colombo with per capita food expenditures above the official poverty line in a district with among the highest levels of unsatisfied basic needs.

The indicators covered: income (magnitude and number of income sources); employment (share of adult members employed); education (average years of education for adults, school enrolment for children); nutrition (energy intake compared with recommended minimum levels); housing (tenure, overcrowding, quality of house); sanitation (availability and type of toilet); water (source and availability); safe energy for cooking and lighting; access to healthcare; mobility (vehicle available, mode, time to reach workplace); access to phone; savings or debts; substance abuse; and safety. Each variable was ranked on a scale from 1 (most deprived) to 3 (least deprived); for instance, for water, 1 was an unprotected well, 2 was a protected well, tap outside premises or tube well, and 3 was a tap within premises.

In terms of expenditure, none of the 20 sample households was in the lowest national decile and two-thirds were in the second to fourth deciles. Housing costs were low for most sample households as seven were encroachers who paid no rent and 11 were legal tenants of government flats paying rents below market rates. Sixteen households were in debt. All the children of school age were enrolled in school, and healthcare coverage was good – although all households reported difficulties affording tests or medicines. All households had tap water within their premises and all had access to a water-sealed toilet, although 30 per cent had shared toilets. Seventeen households had electricity.

In terms of the scale of deprivation from 1 to 3, sample households were assessed against a threshold score of 2. Of the 20 households, 11 were below this score for income, mainly because they had only one or two income sources. Eleven households had an average of fewer than 10 years education per adult. Fifteen households had no formal savings accounts, and/or had debts. Eight households had inadequate housing in terms of tenure, overcrowding and quality of structure. Six households were unable or sometimes unable to access medical treatment. In terms of the ten dimensions of deprivation, all households had at least one, 19 had at least two, 16 had at least three, 5 had at least four, and 3 had at least five.

Given the small sample, a principal-component-based factor analysis was not feasible. As an alternative measure of deprivation, a composite indicator was constructed with equally weighted sub-indicators representing the many dimensions of deprivation. To assess the level of deprivation, the cut-off or threshold for the deprivation line for each indicator was set at a basic level of well-being enabling a reasonably safe and healthy life. The findings reveal that, based on a uni-dimensional composite index and the selected thresholds, six out of the 20 sample households were below this deprivation threshold. In other words, this study indicates that around a third of these households are too poor to be safe and healthy, when none of them is recognised as ‘poor’ using the official poverty line.

The paper recognises the limitations of this study, including the small sample and the perhaps incomplete or partially subjective list of selected dimensions of poverty, design of sub-indicators and setting of poverty thresholds. However, the study does suggest that urban poverty is under-estimated and identifies refinements needed for more representative studies.

1. Introduction

The urban areas in Sri Lanka are defined as localities serviced by Municipal Councils and Urban Councils.[1] The Department of Census and Statistics (DCS) estimates that the share of the urban household population in Sri Lanka is more than 15 per cent[2] of the total population and is growing at around 3 per cent per year while Sri Lanka's population is growing at around 1 per cent per year. The Sri Lankan government's current development plan[3] envisages an increase in the population living in urban areas and states the necessity to have sustainable urban development, minimise poverty in cities and improve the urban poor's access to basic facilities.

Most of the Sri Lanka's urban poor live in slum and shanty settlements termed under-served settlements (USSs). There are currently 1614 such settlements within the municipal limits of Colombo, accounting for approximately 50 per cent of Colombo's population. USSs within Colombo have a concentration of residential units built on state or private land not owned by the residents. While these residential areas have the common features of very high population density (approximately 820 persons per hectare,[4] or four times the average of the city of Colombo) and congested housing (with each block averaging 1.5 perches), it is the chronic condition of the services and infrastructure available to the residents that give USSs their name (DFID et al. 2002).

Official Poverty Statistics of the Government of Sri Lanka are estimated by the DCS based on the Household Income and Expenditure Surveys (HIESs). The urban sector is reported as having the lowest rates of poverty in Sri Lanka, with only 5.3 per cent of the population falling below the poverty line – significantly lower than the national rate of 8.9 per cent. According to the latest available data (DCS 2011a), the average monthly expenditure of an urban household on food is 35.4 per cent (of total expenditure)[5] while the national average is 42.3 per cent. However when considering the amount of calories consumed, the urban poor are worst off, with the non-poor population consuming less than the minimum daily dietary energy requirement of 2030kcal (DCS 2004). Colombo District, which has the lowest poverty Head Count Index of 3.6 per cent, reports the lowest level of dietary energy intake. This indicates likely under-reporting of poverty in the urban areas, especially Colombo.

Although higher levels of income are reported in the urban areas, the facilities in the under-served settlements are seen to be poor and a number of studies have been carried out by various entities (e.g. Gunetilleke, Cader and Fernando 2004, DFID et al. 2002, UN Habitat 2009). The surveys and studies have measured income and other related aspects pertaining to poverty and services within the USSs, covering aspects of: transport, health and education, housing, access to electricity, water, sewerage and solid waste disposal, support facilities, land rights, families with women-headed households, payments of municipal rates, role of social and financial networks and the level of criminality and drug abuse.

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[1] The DCS defines the urban sector as 'areas governed by either Municipal or Urban Council'. However, there is a suburban sprawl around the city of Colombo, which brings into doubt the relevance of the current definition of 'urban', which is based on administrative boundaries rather than the nature of the built environment and socio-economic structures.

[2] There is an alternative estimate of urban population that takes account of populations administered formerly by town councils but now under Pradeshiya Sabhas. This definition leads to an estimated urban population of around 30 per cent of the total population. But due to the changes made in the urban definition in 1987, the stated urban population is very likely to be an under-estimate of the true urban population. We discuss this further in Section 3 of this report.

[3] *The Mahinda Chintana: a vision for a new Sri Lanka –10 Year Horizon Development Framework: 2006–2016*.

[4] Calculated based on 2001 Census and existing data on USS land area and proportion of Colombo's population living within the USSs.

[5] This figure refers to all urban households and is not disaggregated according to income groups.

The objective of many of these studies has been to improve the facilties of the USSs, but they have not focused on poverty measurement. The urban poor in cities face much higher food and non-food prices than their counterparts in rural areas. Thus, it becomes imperative to understand the costs, especially the non-food costs, faced by the urban poor to ensure that policy and programme responses are appropriate (Satterthwaite 2004). Sri Lanka adopts the 'cost of basic needs' approach in the calculation of the poverty line. Satterthwaite (2004) indicates that the Sri Lankan upper poverty line (with non-food) is 1.2 times that of the lower poverty line and that allowances are not made for the cost of price differences in the urban areas. Better understanding of the existing measures and the actual situation would enable a more informed discussion and appropriate policy and programme responses.

Our main objectives in this study were to reveal the possibilities of under-estimation of urban poverty. First, through a literature review of methodologies adopted in estimating consumption poverty and multi-dimensional poverty, we investigate the limitations in the adopted formulations in their applicability to measure poverty in the Sri Lankan context, especially in urban areas. Second, we explore within a multi-dimensional context the likely extent of under-estimation of urban poverty in Sri Lanka.

To address the second objective, we examine poverty within a multi-dimensional context, focusing on a purposively selected small sample of 20 households just above the official poverty line, selected from within the Colombo Municipal administration limits. The small size of the sample makes it inappropriate to apply multivariate statistical methods in calculating a poverty line in the multi-dimensional context. Therefore, we chose two other methods. First, we constructed a uni-dimensional indicator of multiple dimensions of poverty as a weighted average of subjectively selected sub-indicators. Second, we counted households in terms of a set of sub-indicators with a suitable intersection of multiple thresholds.

Our literature review revealed several limitations in the consumption poverty lines, especially their inappropriateness in measuring poverty in the urban sector, and especially in a multi-dimensional context. Our findings based on the survey of households indicated some under-estimation of urban poverty, within a multi-dimensional context. This study was exploratory in nature, but nonetheless has methodological implications for more representative sample-based studies in the future.

2. Measuring poverty

The section details the progression of poverty measurement in Sri Lanka, to reveal concerns and issues in the methods used that have direct bearing on poverty estimates, especially in the urban sector. Following a brief note on the evolution of the concepts of poverty, we present the definitions and methods used to estimate poverty in Sri Lanka, looking especially at how the definition of poverty has changed over time, and the effects of this on poverty estimates and particularly urban poverty estimates. Content on the various definitions, measures and issues is largely drawn from the work of Satterthwaite (2004), Gunawardena (2000, 2004, 2005) and Nanayakkara (2006), and various publications of the Department of Census and Statistics (DCS).

Globally, three alternative concepts of poverty have evolved – based on 'subsistence', 'basic needs' and 'relative deprivation'. The subsistence idea defined poverty as when an income was inadequate to meet subsistence needs: when people are deprived of income required to obtain food, non-food goods and services to participate in basic social and economic activities. An income threshold or 'poverty line' was defined, below which people were identified as poor. Deprivation of subsistence needs was the basis for ascertaining the threshold amount of income (Chambers 2006). An extension of the subsistence idea, the basic needs approach acknowledged that there are non-monetary dimensions that influence

whether people are poor. The five main basic needs usually considered are food, health, water and sanitation, education, and shelter (ADB 1985).

More recently, with the capabilities approach (Sen 1985, 1987, 1999) poverty was seen as a deprivation of the basic capabilities of individuals, and income is perceived as only one determinant of an individual's capability and functioning. The capability approach shifted the focus from means (such as having income to buy food) to ends (being well nourished), recognising that several factors determine the ability to turn income into well-being. Human development was defined as the process of expanding people's choices, and human poverty was the deprivation of the most essential capabilities to lead a long and healthy life, to be knowledgeable, to have adequate economic provisioning, and to participate fully in one's community. Participation, human well-being and freedom became central features of the notion of development (cited in Gunawardena 2004, 2005).

There is a large literature on the conceptualisation and measurement of poverty, resulting from these ideas. Five broad approaches can be identified within the literature: income poverty or consumption poverty, basic needs, multi-dimensional views of deprivation and capability deprivation, social exclusion, and the conceptualisation of poverty by the poor and related measures.

2.1. Measuring poverty in Sri Lanka

In Sri Lanka, as in most other countries, most estimates of the incidence and depth of poverty have been based on poverty lines based on food and non-food consumption and expenditure. Poverty estimation taking account of basic needs or multi-dimensional aspects of poverty has been minimal. Analysis of poverty takes place at two levels: defining poverty and measuring poverty. Defining poverty consists of conceptualising poverty as the basis for identifying people as either poor or non-poor. Measuring poverty seeks to aggregate the amount of poverty into a single statistic, based on the definition of poverty. The definition of poverty thus has direct implications on the measured magnitude of poverty.

In Sri Lanka, most of the methods used have defined poverty by setting a cut-off point or a poverty line on a chosen indicator of welfare. Household income or consumption are the commonly used indicators of welfare, but in Sri Lanka consumption has been used most because of its sound theoretical basis as well as for practical reasons. Individual or household welfare levels are compared using consumption expenditure as the basis for definitions of poverty. This is based on the welfare-economics assumption that the amount of money required by utility-maximising individuals or households, to obtain a given level of welfare, enables the comparison of welfare levels by using consumption levels (Glewwe 1985, Ravallion 1998).

The use of income as a welfare indicator is also limited by a theoretical drawback stemming from the permanent-income hypothesis. This suggests that, given the variation in disposable income over the years, a given year's income may not match a household's average level of welfare as generated by the consumption of goods and services over time (Deaton and Muellbauer 1980, cited in Glewwe 1985). Consumption is therefore a better indicator of an individual's or household's ability to maintain its standard of living, even when income fluctuates. The practical problem of using income as an indicator of welfare is the difficulty of measuring income accurately because of the possibility or tendency of people understating their income to avoid various statutory obligations and also, in the low-income strata, for fear of losing social benefits. Therefore, consumption expenditure has been used most of the time as it is more closely linked to welfare and can be measured more accurately. The major drawback of a consumption-based welfare measure is that welfare derived from public goods is not included.

2.1.1. Monetary approaches to poverty measurement

Two types of poverty lines are used in the estimation of poverty: absolute and relative. A relative poverty line is defined as a selected cut-off level in a welfare distribution, such as the bottom three deciles of a distribution of income or expenditure. An absolute poverty line is fixed at a specific welfare level. The relative poverty measurement approach sees an individual's or household's deprivation or lack of well-being determined by its position relative to others in society, where for example the poor are considered to be those in the bottom expenditure deciles of the welfare distribution. The relative poverty line is automatically updated accommodating changes and shifts in the welfare distribution but implies the existence of a poor group even when there are improvements in the welfare distribution.

In Sri Lanka, the common practice in measuring the incidence of poverty has been to measure consumption poverty using an absolute poverty line in terms of consumption expenditure. The few studies on relative poverty include the work of Balla and Glewwe (1986) and Gunaratne (1985) (cited in Gunawardena 2005). Absolute poverty lines are anchored in some absolute standard of what households should be able to count on in order to meet some basic needs. Within the monetary approach, absolute poverty lines are often based on estimates of basic food needs to which a provision is added for non-food needs.

Work on defining and estimating the incidence of poverty in Sri Lanka has focused on consumption poverty anchored to a minimum recommended food-energy intake (FEI). The poverty line is set at a point where the expenditure of a person is sufficient to meet the cost of a bundle of basic food and non-food needs, where the cost of the food component corresponds to a minimum energy-intake level and the cost of the non-food component has been measured using different methods.

From the early 1960s, researchers (e.g. Visaria 1979, Edirisinghe 1999, DCS various years, Nanayakkara and Premaratne 1987, Gunawardena 2000) using variations to the above approaches have defined and estimated poverty in Sri Lanka. Defining and measuring poverty for national development policy and interventions has been undertaken mainly by the DCS. A selected set of studies is discussed below.

2.1.2. Poverty lines based on nutrition intake and variations

The DCS's estimates of poverty based on the Labour Force and Socio Economic Survey 1985/86 use nutrition intake to define poverty. The cut-off level was 2500 kilocalories (kcal) and 53 grams of protein per adult (age 20–39 years) male equivalent per day. The energy and the protein intake were calculated based on the household food consumption data collected by the survey, and food-to-nutrient conversion ratios estimated by the Medical Research Institute of Sri Lanka. Based on the Head Count Index, the incidence of rural and urban poverty was found to be 31.7 and 16.4 per cent, respectively (DCS 1987, Nanayakkara and Premaratne 1987).

Based on data from the HIES 1990/91 survey, the DCS defined two groups of poor, Poor 1 and Poor 2. Both groups were households with a food ratio (of expenditure on food consumption to expenditure on both food and non-food consumption) exceeding 50 per cent, and adult-equivalent monthly food expenditure less than the average per-adult-equivalent monthly food expenditure of the households in the lowest two expenditure quintiles. The groups were distinguished by their per-adult-equivalent consumption levels of kilocalories per day: 2475–2750 for Poor 1, and 2200– 2750 for Poor 2. In the urban sector, incidence of Poor 1 and Poor 2 was estimated to be 19.0 and 20.8 per cent, respectively, and the corresponding estimates for the rural sector were 34.0 and 36.3 per cent (DCS 1992).

Nanayakkara (1994) used a further variation of the FEI-based method to estimate poverty using nutrition-based poverty lines considering energy consumption and the food ratio of households. Four poverty lines were examined: PLs1–4. In terms of PL1, a household was considered poor if it received less than the minimum calorie requirement, and its per capita expenditure on food was less than the minimum required to achieve the minimum requirement of calories, and the food ratio was greater than 50 per cent. In terms of PL2, the definition is the same except that the food ratio of the household was greater than 60 per cent. For PL3, a household was considered poor if it did not receive the minimum calories, and whose expenditure on food per adult equivalent was less than the per-adult-equivalent food expenditure needed to achieve the minimum requirement of calories, and whose food ratio was greater than 50 per cent. For PL4, the definition of poverty was the same as for PL3 except that the food ratio was greater than 60 per cent. Based on these poverty lines, estimates of urban poverty incidence ranged between 36.9 and 44.1 per cent, and of rural poverty between 39.3 to 43.3 per cent.

2.1.3. Poverty lines based on cost of basic needs and variations

Using the HIES 2002 data, the DCS defined poor households as those in the lowest income quartile, spending more than 50 per cent of the total monthly expenditure on food with an adult-equivalent calorie intake of 2475–2750 kcal per day. The resulting estimates of poverty incidence for urban and rural sectors were 8.6 and 31.3 per cent, respectively (DCS 2003).These estimates were later revised by the DCS using the Official Poverty Line discussed below.

Vidyaratne and Tilakaratne 2003Using the HIES 1995/96 data, estimated poverty based on the estimated per capita monthly expenditure levels to consume a minimum food and non-food consumption bundle (). A food poverty line was defined as the expenditure per month required to attain 2030 kilocalories per capita per day, based on HIES 1995/96 data. The per capita minimum energy requirement of 2030kcal was based on age-sex-based energy recommendations of the Medical Research Institute of Sri Lanka.

In 2004 the DCS estimated an 'Official Poverty Line' based on the HIES 2002 data (DCS 2004). The methodology adopted for the calculation of the official poverty line was an extension of the methodology adopted by Vidyaratne and Tilakaratne (2003). The official poverty line was defined as the arithmetic average of lower and upper poverty lines. Where the upper poverty line was defined as the sum of monthly food expenditure required to attain 2030 kcal per capita per day, and per capita non-food expenditure of the households whose per capita food expenditure was close to the food poverty line (within 10 per cent above or below). The lower poverty line was defined as the sum of food expenditure required to attain 2030 kcal per capita per day, and non-food expenditure of the households whose per capita total expenditure is close to the food poverty line (within 10 per cent above or below).

This poverty line is updated over time using the Colombo Consumer Price Index to account for inflation (DCS 2004). Based on the official poverty line and HIES 2002 data, incidence of urban poverty was estimated at 7.9 per cent, rural poverty at 24.7 per cent. Based on the official poverty line and HIES 2006/07 data, urban and rural poverty levels were 6.7 and 15.7 per cent, respectively (DCS 2008a). Based on HIES 2009/10 data, urban and rural poverty levels were 5.3 and 9.4 per cent, respectively (DCS 2011a, 2011c).

Poverty lines at district level are estimated by applying spatial price indices to the national poverty line. The district/spatial price indices have been computed using district average prices of a selected group of food items based on the HIES 2002 survey data of a reference group consisting of households belonging to the second to fourth expenditure deciles (DCS 2004).

2.1.4. Concerns

Notably, the incidence of poverty is officially estimated to be comparatively low in the urban sector, yet the per capita daily calorie consumption of the urban population is lower than that of the rural population. Table 1 shows the average per capita daily energy intake of the poor and non-poor based on consumption poverty lines estimated using the cost-of-basic-needs approach using HIES data for different years (as detailed above).

Using the cost-of-basic-needs (CBN) poverty line, anchored on a minimum nutritional level of 2030kcal per capita per day, based on HIES 2002 data, 92.1per cent of the urban population were non-poor but their average energy intake was 1988kcal per capita per day – lower than in the rural sector (DCS 2003). Given that nutrition intake is a most basic consumption need, this discrepancy raises concerns about the magnitude of estimated poverty in the urban sector.

According to HIES 2006/07 data, the urban sector has only 6.7 per cent falling below the poverty line. Yet, again, data from the same survey indicate that the urban poor consume fewer calories than the rural poor: 65 per cent of the urban population consumes less that the 2030kcal per capita daily dietary energy requirement. DCS (2008a) shows that Colombo district, which has the lowest poverty Head Count Index of 5.4 per cent, reports the highest proportion (64 per cent) consuming less than the required dietary energy requirement.

Table 1: Poverty and per capita intake of food energy in urban and rural areas, 2002–2009/10

Sector	Percentages of poor and non-poor		Per capita average energy intake (kilocalories per day)			Food Ratio (%)
	Non-poor	Poor	Non-poor	Poor	All	
Based on 2002 HIES data						
Urban	92.1	7.9	1988	1553	1953	35.9
Rural	75.3	24.7	2195	1768	2069	45.3
Based on 2006/07 HIES data						
Urban	93.3	6.7	1949	1316	1906	31.2
Rural	84.3	15.7	2222	1686	2138	38.7
Based on 2009/10 HIES data						
Urban	94.7	5.3	1922	1139	1881	35.4
Rural	90.6	9.4	2180	1497	2116	43.7

Sources: DCS 2003, 2004, 2008a, 2011a

Despite the poverty line being based on a minimum energy-intake level, the cut-off level is an expenditure level – a monetary aggregate. Whether or not the observed consumption expenditure is incurred on food to satisfy the minimum nutritional requirement is questionable. In the urban sector, in general, non-food consumption expenses are higher and hence a larger percentage of the total expenditure may be allocated for non-food consumption. This is reflected in the lower food ratio) in the urban sector, compared to the rural sector (see Table 1).

Ravallion (1998, cited in Nanayakkara 2006) notes that urban consumers pay more for calories consumed, and therefore their food-energy intake will be lower at any given expenditure level, and also that the consumption basket is more expensive in the urban areas. However, the activity levels of typical urban jobs tend to require fewer calories than activities in the rural sector. Access to better healthcare and schooling in the urban areas

may mean that urban residents tend to consume a diet that is nutritionally better balanced, with relatively fewer calories and more micro-nutrients.

Although based on the cost of food required to meet a minimum energy level and minimum non-food consumption needs, the poverty line is ultimately a monetary level. Therefore, per capita expenditure above that level does not guarantee that sufficient money was allocated for consuming food to ensure the intake of recommended calories. High costs of non-food basic needs, particularly housing and clothing, in urban areas may force the household to spend less on food and hence consume fewer calories. Given that nutrition, represented here by food-energy intake, is a basic need for healthy living and well-being, a higher percentage of the population consuming below the recommended calorie level is an indication of nutrition deprivation. This raises the question of whether, in the urban sector – with people consuming much less than expected – there is more poverty than estimated by a monetary poverty line.

2.1.5. Implications

The discussed consumption poverty lines carry basic problems inbuilt in the conceptualisation of basic food and non-food needs. The focus is on what the poor are consuming, but not what they truly require. The allocation of expenditure for non-food, based on what poor people spend on non-food needs, is unlikely to reflect what they would have consumed, had they money to spend. For example, the expenditure of a low-income household of five or more people on renting a single room in which they all live – with no security of tenure, and inadequate hygienic conditions and sanitation – is no indication of the amount of money actually required to meet their housing needs. Further, the lower poverty line, where total household expenditure is the same as or close to the food poverty line, is more or less the point where households will not eat enough if they spend on non-food needs (Satterthwaite 2004).

The use of a national level poverty line to estimate urban and rural sectoral poverty does not allow for sectoral consumption differences and price differences, raising questions about the accuracy of urban and rural poverty estimates. Further, adjusting the poverty line for spatial variations only across districts disregards price variations across sectors within districts. Constructing the district poverty lines based on spatial price indices, which take account of only food-price differential, completely ignores the high spatial variations in non-food prices (e.g. housing rents).

Using the Colombo Consumer Price Index (CCPI) to update the poverty lines over time ignores the different trends in price changes in time across sectors and regions. For example, the official poverty line based on HIES 2006/07 data is adjusted for price changes over the period 2002 to 2007, using the CCPI, reflects price changes in Colombo. Therefore, the suitability of the time-adjusted poverty line is questionable for measuring national level poverty, as well as poverty levels in other geographic areas and other sectors.

Differences in the scope of the definition of ‘poor’ have resulted in different estimates of poverty in Sri Lanka. The apparent absence of consensus on how poverty should be defined has led to different definitions being used with the different national datasets. However, based on a consumption poverty line, an observation common across all cases is that, urban poverty levels are low compared to the rural levels. Because the official poverty lines are based on household populations, they do not consider homeless people, those living and sleeping in public places, refugee camps and illegal dwellings. This means that the figures do not include those likely to be living in severe poverty. Gunetilleke and Senanayake (2004) note that, despite the variance and controversy in methodology, poverty estimates are widely used by government as well as non-government agencies to guide national programmes of poverty alleviation and strategise interventions to reduce poverty.

2.2. Multi-dimensionality of poverty

With the growing discourse on the importance of broadening the definition of poverty to include wider aspects of well-being, countries have focused on using indicators representing a wide array of dimensions. The greater focus within this has been on the basic needs of nutrition, shelter, health, education, safe water and safe sanitation, such as in the eight broad dimensions of the Millennium Development Goals (DCS 2005b). Studies focusing on wider areas such as security, self-respect, access to state-provided as well as common property resources, social inclusion and so forth are fewer, particularly in Sri Lanka.

2.2.1. Capability approach to measuring poverty

The capability approach to poverty measurement provides a theoretical basis for identifying poverty within a multi-dimensional context. In the capability approach, poverty is understood as capability deprivation in a multi-dimensional context, where capabilities of a person are opportunities or abilities to generate valued outcomes (Sen 1999, cited in Gunawardena, 2005). The poor are those who are capability-deprived. As in monetary measures of poverty, measurement here involves identification and aggregation of chosen indices, a choice of unit of analysis (often the individual or household), and thresholds in the multi-dimensional space. Thresholds may be obvious, natural or determined by experts (Gunawardena 2004).

2.2.2. Basic-needs dimension

Identification of the poor in a multi-dimensional context has often focused on basic needs – usually nutrition, shelter, health, education, safe water and safe sanitation. Indicators representing different aspects within the focused basic needs have been constructed, and identification of the poor has been based on these primary indicators or on a composite index using a system of weights to combine the primary indicators. The weights are either selected subjectively, or statistical methods have been used to estimate the weights. Subjective classifications have been used to construct primary indicators, and hence these methods carry a significant arbitrariness in choice of indicators as well as in setting thresholds. Using a composite index, a person is considered poor below a given composite threshold; using multiple primary indicators, a person is considered poor if the person is below one or several thresholds.

Siddhisena and Jayathilake (2003) constructed a composite indicator of multi-dimensional poverty combining nutrition, primary education, primary healthcare, sanitation, safe water, household income and expenditure dimensions of poverty, which indicates capabilities of individuals/households to meet basic needs. The construction of the composite index was based on principal component analysis (PCA). The analysis resulted in the extraction of three factors: explaining the variations in household conditions, calorie consumption and the other basic needs. All three factors together were able to explain only 52 per cent of the total variation.

The DCS has used a variation of this method in constructing an 'Unsatisfied Basic Needs Index' (UBNI). UBNI was calculated for Grama Niladhari Divisions (GNDs)[6]. The nine indicators used for the construction of the index were selected based on their high correlation to consumption poverty estimates based on DCS's HIES 2002 data (Table 2).

[6] The lowest formal administration level.

Table 2: Indicators used in constructing the DCS Unsatisfied Basic Needs Index

Indicator	Correlation coefficient*
1. Percentage of households not having water-sealed toilets	0.46
2. Percentage of households using kerosene for lighting	0.63
3. Percentage of households using firewood for cooking	0.65
4. Percentage of housing units not having brick or cabook or cement blocks for walls	0.56
5. Percentage of housing units not having cement, terrazzo, tile or granite flooring	0.61
6. Percentage of housing units not having tiles, asbestos, concrete or metal sheets for roofing	0.40
7. Percentage of households with household heads who have not passed GCE AL or higher examinations	0.71
8. Percentage of household heads who are not paid employees who work 52 weeks per year for wages/salaries	0.48
9. Percentage of household members aged 20 and above who have not passed GCE AL and higher examinations	0.53

* significant at 0.01 level based on a two-tailed test
Source: DCS 2007

Indicators are scored from 1 to 4, so that high values represent high levels of poverty. Applying PCA, three factors were extracted and these three factors explain 81 per cent of the total variation in the data. Factor 1 largely focused on housing conditions and explained 51 per cent of the total variation; Factor 2 captured variations in educational level of the head of the household and members over 20 years. The third factor and the most heavily loaded variable was the employment of the household head. These factors, together with the factor loadings, enabled construction of a UBNI used as a composite indicator to map spatial variations across GNDs in terms of unsatisfied basic needs. However, estimates of the incidence of poverty based on the UBNI have not been published.

A correlation analysis between the UBNI and the head count ratio at Divisional Secretariat Level has given a correlation coefficient of 0.62 (DSD).[7] While the UBNI indicates some important unsatisfied non-food basic needs, minimum nutrient intake is a most important basic need and an important need in individual well-being. The absence of an indicator of nutrient intake in the estimation of the UBNI raises serious concern about its use as a proxy measure of poverty. This is further reflected in the moderate correlation (0.62) between the level of the UBNI and the incidence of poverty. Commentators have noted the further needs to account for unhygienic living (e.g. overcrowding, inadequate aeration of dwellings), absence of savings/investment, indebtedness, insecurity, vulnerability of household members to physical and psychological abuse, domestic violence particularly abuse of women and children, and social marginality (e.g. Satterthwaite 2004).

2.2.3. Social exclusion

Social exclusion relates to the inability to participate. In the Sri Lankan context, Silva (2001) discusses the aspects of poverty in some social groups and community settings that cannot be fully explained by conventional economic analysis. The focus is on social marginalisation that perpetuates poverty, the analysis leading to an understanding of the broader dimensions of poverty captured by conventional economic analysis.

[7] Administration level above the GND but below district level.

Research in Sri Lanka points to several communities that are marginalised and held at a distance by mainstream society on the basis of their socio-cultural identity, neighbourhood characteristics and lifestyle. These include low-income communities of slum and shanty types, village expansion colonies, squatter settlements in marginal farming systems, fishing communities in coastal belts, irrigation settlements in the dry zone, displaced communities in welfare centres and relocated communities in conflict-affected areas, plantation communities, and the so called depressed communities characterised by hereditary low social status. Conclusions are limited to general observations about the nature and causes of poverty in these marginalised communities, with no specific poverty estimates.

2.2.4. Community Dimension

This section draws largely from the work of Gunawardena (2004), Gunetilleke, Cader and Fernando (2004) and Satterthwaite (2004). Communities generate their own criteria with which to rank poverty. Participatory approaches use local knowledge in the choice of indicators, the unit of analysis is typically the household, and poverty thresholds are implicit. The aggregation of information on individuals in poverty into a general measure is not addressed in the participatory approach.

The community dimension of poverty is a deprivation in the relevant setting and hence not captured by the investigation of poverty using the household as the unit of analysis. Income level is not a key indicator of poverty in these communities; rather, the pattern of expenditure determines the ability or inability to meeting basic needs. The analysis of household budgets in these communities reveals high expenditure on substance abuse (involving alcohol, tobacco, drugs and other addictives). Because of their social marginality, these communities experience inability to access formal-sector employment and public services such as good schools. Incidences of unlawful practices and domestic violence (particularly abuse of women and children) are high in these communities.

Gunetilleke, Cader and Fernando (2004), studying Under-Served Settlements (USSs) in Colombo, made important observations on what USS communities considered as poverty. These observations were based on the opinion of household members and those working closely with them. At household level, poverty was perceived largely in terms of income and earning capacity. The focus however has been more on the mix of income sources and their nature, rather than on magnitudes. Both poor and non-poor groups valued stability of income source, complemented by multiple sources. Most households saw the possibility of at least one member being in salaried employment while others engaged in some form of business activity as an optimal combination. Poverty was also seen as a condition which encompassed non-economic dimensions including substance abuse, participation in illegal activities, negative attitudes of household members, and feelings of vulnerability. Table 3 summarises household well-being characteristics identified through focus group discussions and household survey.

Table 3: Summary of household well-being characteristics

	Poor	**Non-poor**
Income and earning capacity	Unemployed Irregular income Wage labour Single source	Business Foreign employment Salaried employment Multiple sources Stable/regular income
Housing	Illegal Bad condition Live near canal/railway	Permanent Houses closer to road Multiple-storey houses
Substance abuse and illegal activities	Drug and alcohol addiction	Illegal business
Attitudes	Don't make effort to improve Addicted	Hardworking Use brains Don't waste
Services	Lack of access to water and toilets No electricity	Access to water and toilet Have electricity and telephone
Dependants/assets	Disabled/elderly/sick members Many small children Large household size	Multiple houses Vehicles Jewellery and savings
Debts	In constant debt	
Vulnerability	No one to help Always problems	

Householders in the under-served settlements therefore define poverty in terms of income but also in terms of socio-cultural, political and protective dimensions. Within the settlement, the communities identified a range of issues, including settlement environment, household well-being, social fabric and institutions. The range of issues shows that communities view poverty as a multi-dimensional issue rather than a purely economic one.

3. Urban poverty in Sri Lanka

This section presents some social and economic features of Sri Lanka's urban sector overall, as a prelude to the discussion of urban poverty in Sri Lanka and focus on the Colombo administrative district. This is the most urbanised district of the country, containing over 86 per cent of Sri Lanka's urban population (DCS 2001 a). The content of this section is drawn largely from the reports of the 2006/07 and 2009/10 HIES (DCS 2008a, 2011a, 2011b) and the CEPA study on under-served settlements in Colombo (Gunetilleke, Cader and Fernando 2004).

3.1. Profile of the urban sector

Sri Lanka's urban sector is defined as the areas administered by municipal councils and urban councils. The definition of the urban sector changed in 1987, with the abolishment of Town Councils which were treated as urban. From 1987, the former Town Councils were absorbed into 'Pradeshiya Sabhas' which are treated as rural administrative bodies.

The magnitude of the urban population, and the growth rate, depend on the definition or criteria used to define urban places and people. As indicated in Indrasiri (2006, cited in Satterthwaite 2010), the urban population of Sri Lanka is likely to be much larger than that

estimated. The likely under-estimation is also indicated by the high level of per capita income of the country, and the very low national and urban differentials.

Subject to the above limitations, HIES 2009/10 data lead to an estimated urban household population of 15 per cent of the country's total household population. This urban population shows a growth rate of 3 per cent, between HIES 2006/07 and HIES 2009/10 – faster than the overall population growth rate of 1 per cent.

Education

In Sri Lanka, primary education is compulsory for children of 6–14 years old, according to the education ordinance. The Sri Lankan government education system includes free education from year 1 up to university, free text books from years 1 to 11, subsidised clothing, and mid-day meals to the needy. There is a high school enrolment rate of 98 per cent, and primary-education completion of 96 per cent (Ministry of Education, 2011).

Compared to the rural sector, educational attainments are higher in the urban sector. Only 2.5 per cent of the population above six years has had no schooling, with over 16.2 per cent of the population completing over 12 years of schooling. In the 5–20-year age group, 86.2 per cent are in school, 11.2 per cent have dropped out, and 2.6 per cent never attended school (DCS 2011a).

Health

Information here is drawn from the Demographic and Health Survey 2000 (DCS 2001a) and the Demographic and Health Survey 2006/2007 (DCS 2008b). Compared to many developing countries, Sri Lanka has a well-developed healthcare system with a high level of outreach to all populations. It records comparatively low infant, child and maternal mortality rates, especially in the urban sector. The levels of infant (under one year) and child (under five years) mortality in Sri Lanka were 21 and 15 deaths per thousand live births. The maternal mortality rate was 92 per 100,000 live births.

All children in Sri Lanka receive free vaccination against tuberculosis, diphtheria, tetanus, polio and measles. According to the World Health Organization, a child is considered fully vaccinated if he or she has received a BCG vaccination against tuberculosis, three doses of DPT vaccine to prevent diphtheria, whooping cough and tetanus, at least three doses of polio vaccine and one dose of measles vaccine. Over 96 per cent of the children in Sri Lanka's urban sector were fully vaccinated and over 99 per cent received all vaccines except the measles vaccine. Only 0.4 per cent of children were never vaccinated.

Stunting and wasting of children under five years old are conventional indicators of under-nutrition. Stunting is the outcome of failure to receive adequate nutrition over an extended period and is also affected by recurrent or chronic illness. Wasting represents the failure to receive adequate nutrition in the period immediately before the survey and is typically the result of recent illness episodes, especially diarrhoea, or of a rapid deterioration in food supplies. The 2006/07 data for Sri Lanka show 18 per cent of Sri Lankan children stunted and 4 per cent severely stunted. Fifteen per cent of Sri Lankan children are wasted, with 3 per cent severely wasted. Stunting and wasting are 14 and 15 per cent respectively in the urban sector – lower than the national and rural levels. The prevalence of stunting is 8 per cent in Colombo (lowest among all districts) and of wasting, 13 per cent (DCS 2001a, 2008b).

Employment

Forty-two per cent of Sri Lanka's labour force is from the urban sector. The urban unemployment rate of 3.4 per cent is significantly below the national unemployment rate of 4.3 per cent (DCS 2011d). The *Sri Lanka Urban Development Study* of the Asian Development Bank (ADB) 2000, notes that urban unemployment disguises a very large number of underemployed, mainly in the informal sector. A majority of the urban poor work in the informal sector as self-employed income earners or casual labourers. Most of them have no productive assets and depend on their labour and skills.

Income

According to the HIES 2009/10 (DCS 2011a), median household income in the urban sector is Rs31,000 per month, 30 per cent higher than that of the rural sector. The Gini coefficient (indicating the degree of income inequality) in the urban sector is 0.48, only slightly lower than the rural value of 0.49. In the urban sector, 4.6 per cent of the total household income is drawn by those of the poorest two deciles, while 53 per cent of the total income is drawn by those in the richest two deciles. At rural level, the corresponding figures are 4.5 and 54 per cent, respectively. This indicates a broadly similar state of income inequality in both urban and rural sectors.

In the urban sector, over 80 per cent of the household income is drawn as cash income while 35.9 per cent are wages and salaries. The estimated value of owner-occupied housing taken as income in kind is 15.7 per cent of the total, and other cash receipts including social benefits account for 13 per cent of the total – higher than in the rural sector (DCS 2011c).

Consumption expenditure

The food ratio is the proportion of expenditure on food and drink compared to total expenditure. In Sri Lanka's urban and rural sectors, the food ratios are 35.4 and 43.7 per cent, respectively, indicating that the urban sector spends a larger portion of total expenditure on non-food consumption (DCS 2011a).

Compared to national and rural food-consumption patterns, the urban sector spends the largest share of food expenditure (19.2 per cent) on meat and fish, including dry fish, and 11 per cent on milk and milk foods. Expenditure on housing is the largest non-food expenditure group at national, urban and rural sectoral levels. In the urban sector, 26.2 per cent of the total expenditure on non-food is spent on housing; this is 10 percentage points higher than the rural-level expenditure on housing (DCS 2011a).

Housing

Table 4 shows housing characteristics at sectoral level, according to the latest official data (DCS 2011b). In the urban sector, most households (93.8 per cent) live in attached/detached housing units, which are not considered slums, shanties or row houses. Most urban homes (91.3 per cent) are owned, leased, rented or rent free, and nearly all (97.8 per cent) have at least one bedroom, have safe drinking water (96.8 per cent) and have access to electricity (96.5 per cent). Most urban households (85.1 per cent) have access to a toilet exclusive to the household.

Table 4: Urban and rural housing characteristics

Sector	Characteristic (percentage)	
	Tenure	
	Owned/rented/leased/rent free	**Other**
Urban	91.3	8.7
Rural	92.2	7.8
	Type of housing	
	Attached/detached housing units	Slums/shanties/row houses
Urban	93.8	6.2
Rural	98.6	1.4
	Number of rooms	
	At least one room (separated spaces)	No rooms (separated spaces)
Urban	97.8	2.2
Rural	98.7	1.3
	Drinking water	
	Safe water	Unsafe water
Urban	96.8	3.2
Rural	87.1	12.9
	Sanitation	
	Safe sanitation	Unsafe sanitation
Urban	85.1	14.9
Rural	90.3	9.7
	Electricity	
	Use electricity	Other
Urban	96.5	3.5
Rural	83.2	16.8

Sources: DCS 2011a, 2011b

Consumption poverty

Official statistics (DCS 2011a, 2011c) show a relatively low incidence of poverty in the urban sector. The most recent assessment (2011a) shows that 8.9 per cent of the country's population overall were poor, with only 5.3 per cent poverty in the urban sector. The poverty estimates from 1990/91 to 2009/10 show a decreasing trend in urban poverty, from 16.3per cent in 1990/91 to 5.3 per cent in 2009/10. The figures show a significant reduction in poverty in both urban and rural sectors, but poverty levels are shown as consistently lower in the urban sector (Table 5).

Table 5: Poor people in the urban and rural sectors, 1990/91–1009/10 (percentage)

Survey year	1990/91	1995/96	2002	2006/07	2009/10
Urban sector	16.3	14.0	7.9	6.7	5.3
Rural sector	29.5	30.9	24.7	15.7	9.4

Note: these percentages are based on the official poverty line
Source: DCS 2011c

3.2. Poverty in urban under-served settlements

Colombo is the most populated administrative district in Sri Lanka, with over 2.55 million people and a population density of over 3500 persons per square kilometre. The district houses the country's largest urban population – recorded as over 2.4 million persons, which is over 90 per cent of the district population and over 80 per cent of the total urban

population in Sri Lanka.[8] With a district poverty head count ratio of 3.6 per cent (2011a), and a large part of the district population classified as urban, urban poverty is likely to be of similar magnitude.

The district contains 13 sub-administrative divisions known as Divisional Secretariat Divisions (DSDs); within these, the urban population is concentrated within four Municipal Councils and six Urban Councils. Two DSDs – Colombo and Thimbirigasyaya DSD – fall under the Colombo Municipal Council (Colombo District Secretariat, 2011). The lowest level for which poverty head counts have been estimated are for DSDs. Based on 2002 HIES data, poverty head count ratios for the Colombo and Thimbirigasyaya divisional secretariats are 12 and 4.4 per cent, respectively (DCS 2005a).

These figures are based on a food- and non-food-consumption poverty line. A large portion of the urban population in Colombo is characterised by households with income above the official consumption poverty line, so are not categorised as poor but live in low-quality housing under overcrowded, unhygienic conditions.

A study conducted by UN Habitat (2009) notes the incidence of 1506 urban poor settlements within the Colombo Municipal Council limits in 1998/99, consisting of populations living in slums, shanties and low-cost flats.[9] DFID (2002) notes that of these settlements, 74 per cent having fewer than 50 housing units, settlements with more than 500 units accounting for only 0.7 per cent of these urban poor settlements. The study notes that more than half of the families lacked security of tenure of their occupancy, 56 per cent did not have exclusive connections to water, and 67 per cent did not have access to an exclusive toilet. Only 12 per cent of families had a regular source of employment while 34 per cent depended on self-employment; 45 per cent of the income-earners were engaged as unskilled workers such as wage labourers or helpers.

Gunetilleke, Cader and Fernando (2004) note that, as of 2004, there were 1614 under-served settlements within the Colombo Municipal Council, accounting for approximately 50 per cent of Colombo's population. Semi-skilled waged labour, formal and informal sector low-level employment, self-employment and enterprise and foreign employment were the main forms of livelihoods. Maintaining a portfolio of employment which includes stable low-paying employment with less stable but higher-earning income forms such as enterprise is a strategy used by households to raise income levels. The central location of settlements is a key feature, with access to wage/salaried employment, self-employment, enterprise and services including health, education and transport.

4. Measuring urban poverty in a multi-dimensional context

The previous sections demonstrate that consumption poverty lines are unable to capture poverty in a multi-dimensional context, and therefore are likely to under-estimate poverty levels. The main objective in the following analysis is to show that, in the urban sector, households categorised as non-poor, in relation to the official poverty line, may turn out to be poor in terms of unsatisfied basic needs in a multi-dimensional context. This section also examines the likely magnitude of the under-estimation of poverty.

[8] Estimated based on 2009/10 HIES data (DCS 2011a), data on ww2.unhabitat.org.
[9] Slums are generally understood as deteriorated permanent housing units with overcrowded living conditions and shared amenities. Shanties are squatter settlements made of improvised materials with poor facilities, and located on public marginal lands.

4.1. Methodology

We analyse household-level poverty using a set of basic needs indicators reflecting the multi-dimensional perspective of household poverty. We present a case study of 20 purposively selected households that are above but close to the consumption poverty line. Given that our selection is purposive, and the sample small in size, this study provides indicative findings.

4.1.1. Basic needs indicators

The unit of analysis is the household and the indicators are chosen to reflect a selected set of well-being dimensions. These indicators represent household income and income stability, food-energy intake, employment, quality of housing, access to safe water and sanitation, education of children, access to medical treatment, access to safe fuel and lighting, mobility, communications, substance abuse and safety. The selection of these indicators is largely based on the findings of a study of under-served settlements in Colombo documented by Gunetilleke, Cader and Fernando (2004). The indicators are formed by scoring and weighing relevant variables measured in the sample survey, using a variation of the scoring and weighing scheme discussed in Klasen (2000). Through scoring, the values taken by each variable were ranked on a scale from 1 to 3.

Income

The study of under-served settlements in Colombo (Gunetilleke, Cader and Fernando 2004), found that, at household level, poverty was seen predominantly in terms of income, with households being concerned about stability of income as much as the amount. Households perceived stability of income in terms of having multiple sources of income, with having multiple sources considered a strategy of overcoming financial vulnerability. Therefore, the income indicator considered both the magnitude of income and the number of sources of income.

Nutrition

Although expenditure thresholds corresponding to consumption poverty lines can accommodate basic consumption needs of both food and non-food, there is no guarantee that both or either of these requirements will be met. In urban areas where non-food expenditure is much higher than the national averages, the non-food expenditure could be large, preventing consumption of the minimum recommended amount of calories.

Therefore, our nutrition indicator reflects the extent to which a household satisfies the minimum energy consumption level based on the minimum per capita daily requirement of 2030kcal per adult. Based on the household's daily energy intake and the household composition, a per-adult-equivalent daily energy consumption was computed, and the ratio of this to the recommended minimum intake of 2030kcal was chosen as the nutrition indicator.

Employment

Being employed counts as an indicator of well-being due to its instrumental and intrinsic significance. The share of adult members of the household who are employed is the chosen indicator.

Adult education

The chosen indicator for education is the average number of years of education achieved by the adult members of the household (those 18 years or older).

Quality of housing

The quality of housing affects the health of the inhabitants, and reflects the household's capability to live in a house with acceptable characteristics. The study on under-served settlements in Colombo documented that households in their self-assessments of poverty perceived several aspects of housing these as important elements of well-being. Therefore, our indicator for housing quality considered tenurial status, (e.g. owned/leased/rented/free/encroached), occupancy (single or multiple families), crowding (e.g. ratio of household size to rooms), type of housing (e.g. detached/flat, row, slum/shanty), construction materials of walls, roof and floor, and aeration (e.g. ratio of air inlets to spaces).

Tenure is viewed as a critical factor of well-being in terms of vulnerability to eviction, ability to acquire services such as electricity, water and access roads, opportunities for income generation, and investing in improvements to the housing unit. Multiple occupancy – often two or more families sharing a single housing unit because this is all they can afford – leads to congested, unsafe and unhealthy conditions. The majority of urban low-income housing is in slums, shanties or low-cost government flats. The level of crowding is defined as the ratio of the number of rooms (spaces separated by walls/partitions) to the household size. We considered the construction material used on the floor, walls and roof as indicators of quality of housing. Aeration is defined as the ratio of the number of windows to the number of rooms. A ratio of one or greater is taken as acceptable, between zero and one is taken as moderately acceptable, and zero is unacceptable.

Sanitation

Lack of sanitation facilities in many low-income urban areas results in unhygienic conditions causing diseases and stench. We examined variables indicating the household's access to an exclusive toilet, shared toilet or otherwise, and the type of toilet. The sanitation indicator is designed to represent both access and type of sanitation.

Water

Given that access to clean water is a most basic human requirement of well-being, we examine a variable indicating the household's access to safe drinking water.

Energy – access to safe cooking and lighting

The use of unsafe fuels for lighting as well as cooking has resulted in a significant number of deaths and injury, leading to extended misery. We use a variable indicating the use of electricity, gas, firewood, kerosene or other fuel for cooking and lighting. The energy indicator is designed to represent access to both safe cooking and safe lighting.

Children's education

In Sri Lanka, as mentioned above, the government provides free education up to university level, and primary education, for ages 6–11, is compulsory. The public education system ensures access to schools closest to home. School clothes and the mid-day meal for children in need are subsidised. Nationally, 98 per cent of children are enrolled, and non-enrolment in primary education and/or dropping out indicates severe deprivation. Two

variables, school enrolment and dropout rates, were considered in constructing the children's education indicator. The enrolment variable considers whether children aged 6–16 years are enrolled in school, and the dropout rate considers whether children aged 6–16 attended school in the past but are not attending at the time of the survey due to any reason other than illness.

Health

Sri Lanka has a well-developed healthcare system with a high level of outreach to all populations. All children receive free vaccinations, and there are relatively low rates of infant, child and maternal mortality, and comparatively low levels of stunting and wasting, especially in the urban sector. The most frequent difficulty is an inability to afford medical treatment due to associated costs. Therefore, the chosen indicator measures deprivation of access to medical treatment due to associated costs, which may include costs of transport to a medical facility such as a hospital or clinic, costs of medicine required, costs of medical tests and so on.

Mobility

Transportation in the present context is mainly linked to access to labour markets. Given that public transport is available, the main concern was affordability. Un-affordability of using a faster and safer mode of transport will force the use of cheap and unsafe transport or even walking long distances to work, which may often be costly in terms of time. Hence we examine a variable which indicates the mode of transport to the workplace. The chosen indicator considers the availability of a vehicle, mode of transport and time taken to reach the workplace.

Communication

With telephones available at low cost, inability to afford one can result in loss of income-earning opportunities, and costs in terms of loss of time by communicating in other ways. An indicator on access to telephones and other communication facilities was examined.

Finance

Absence of savings and a high level of household debt indicate financial stress on the household, with obvious impact on present and future well-being. In addition, poor access to financial services may limit the ability of many poor households to manage income streams and deal with uncertainties. An indicator representing savings and debt was considered.

Substance abuse

In the study of under-served settlements, drug or alcohol addiction featured as a cause of poverty and a factor preventing moving out. Residents considered addiction to be a factor defining poverty and affecting well-being at household level.

Safety

We examined two types of insecurity: those arising from networks of illegal activity (mainly drug-based networks and incidence of substance abuse within the community), and insecurities arising from tensions caused by affiliations to political parties. We used indicators to examine whether households were threatened by insecurities caused by drug-based or political networks. Responding to these insecurities could ultimately result in costs arising from loss of time.

Table 6 lists the indicators chosen to measure the different dimensions, and scores attached to the deprivation levels of the variables. Each variable is scored on a scale of 1 to 3, so that a score of 3 represents the best possible standard of well-being, and a score of 1 is an indication of severe deprivation. The weights attached in the computation of the sub-indicators (basic needs indicators) were chosen according to the nature and relative importance of various dimensions, and are intuitive and subjective.

Table 6: Scoring and weighing of variables used in constructing the basic needs indicators

Basic needs indicator	**Variable**	**Score (1= most deprived, 3 = least deprived)**			Weight
		1	**2**	**3**	
Income	Magnitude of income: location of household within the urban-sector income deciles	1st–3rd decile	4th–7th decile	8th–10th decile	0.5
	Income sources: number of sources of income	One	Two	Three or more	0.5
Employment	Percentage of adult household members employed	0–49	50–79	80–100	1
Adult education	Average years of education of all adults	Fewer than 6	Between 6 and 10	10 or more	1
Nutrition	Ratio of per-capita adult-equivalent energy intake to recommended minimum energy intake (2030kcal)	Less than 80%	80–100%	100% or more	1
Housing	Tenure	Encroached/other	Rented/ leased/rent free	Freehold ownership	.2
	Occupancy	Three or more families	Two families	One family	.2
	Type of shelter	Slum/ shanty/ other	Annex/row house	Single detached house/flats	.2
	Crowding: ratio of number of partitioned spaces to household size	Less than 0.5	Between 0.5 and 1	1 or more	.2
	Roof type	Other	Metal sheet/ cadjan/ vinyl sheets	Tile/asbestos /concrete	.05
	Wall type	Mud/ cadjan/ other	Pressed soil blocks/ plank/metal sheet	Brick/cement block/stone/ cabook	.05
	Floor type	Other	Earth/clay	Tiles/cement	.05
	Aeration: number of windows per partitioned space	Less than 0.5	Between 0.5 and 1	1 or more	.05

Basic needs indicator	**Variable**	**Score (1= most deprived, 3 = least deprived)** 1	2	3	Weight
Sanitation	Availability of a toilet	None	Sharing	Exclusive	.5
	Type of toilet	Other	Pit latrine	Water seal	.5
Water	Source of water	Unprotected well or other	Protected well/tap outside premises/ tube well	Tap within premises	1
Energy	Energy for lighting	Kerosene or other fuel	Electricity, non-metered/	Electricity from main grid, metered	.5
	Energy for cooking	Other	Firewood/ kerosene	LP gas/ electricity	.5
Children's education	School enrolment (SE)	All children 6–16 years not enrolled	Some children 6–16 years not enrolled	All children 6–16 years enrolled	.5
	School dropouts (SD)	All children 6–16 years not attending school	Some children 6–16 years not attending school	All children 6–16 years attending school	.5
Health	Access to medical treatment	Always unable	Sometimes unable	Never unable	1
Mobility	Availability of vehicle (AV)	None	Bicycle	Motorcycle/ three-wheeler/ car or other	.33
	Mode of transport (MT)	Walking	Public transport (train/bus)	Private transport (car/ three-wheeler/ bicycle/other	.33
	Time to reach work place (TW)	More than 3 hours	Between 2 and 3 hours	Less than two hours	.33
Communication	Communication	No land phone, mobile phone, radio or television	Land phone or mobile phone or radio or television	Land phone and/or mobile phone, radio and/or television, internet connection	1
Financial capability	Savings	None	Non-formal credit group	Savings account with bank or other formal financial institution	0.4
	Magnitude of	Above	Rs5000 and	None	0.6

Basic needs indicator	**Variable**	**Score (1= most deprived, 3 = least deprived)** 1	2	3	Weight
	loan/mortgage	Rs5000	under		
Substance abuse	Substance abuse	Somebody in the household is addicted to alcohol or drugs, severely affecting income	Somebody in the household is addicted to alcohol or drugs but not severely affecting income	Nobody in the household has an addition to alcohol or drugs	1
Safety	Safety	Feel unsafe, affecting income-earning and/or children's education	Feel unsafe, but not affecting income-earning and/or children's education	Feel totally safe	1

To identify poor people within a multi-dimensional context, it is common to use either a uni-dimensional index with a single threshold, or to use several indicators with multiple thresholds. In the uni-dimensional method, the multiple indicators of well-being are combined into a single aggregate index, and a poverty cut-off is set on this aggregate index based on the cut-off levels of each component indicator. The union method considers a household to be multi-dimensionally poor if the household is deprived in at least a single dimension. The intersection method requires that a household be deprived in all dimensions in order to be identified as poor. The union approach leads to over-estimation of poverty, and the intersection approach leads to under-estimation. Here, we use two methods to assess poverty in a multi-dimensional context: the uni-dimensional index method with a single threshold, and a variation of the counting method introduced by Alkire and Foster (2007) where a household is identified as deprived if it is deprived in a given number of dimensions.

4.1.2. Application of a uni-dimensional index

The broad measure of deprivation is a composite index of equally weighted sub-indicators representing the considered dimensions of deprivation. The sub-indicators are composite indicators of specific variables related to the focused dimensions (see Table 6). The small sample size in our study prevents the estimation of weights based on data through a statistical technique such as principal component/factor analysis. To assess the level of deprivation, the cut-off or threshold for the deprivation line was set at the point at which each indicator takes the value '2', which indicates a basic level of well-being likely to enable a reasonably safe and healthy existence.

4.1.3. Application of counting method

We examined a method in which a cut-off is set for each dimension, and the level of household deprivation is assessed with respect to all the dimensions considered. If the dimensions are equally weighted the cut-off is simply the number of dimensions in which a household must be deprived to be considered poor. We set cut-offs as 'k', which gives the number of dimensions in which a household must be deprived in order to be considered multi-dimensionally poor, and examine several values of k (Section 4.2.3).

4.1.4. Survey sample and data

The construction of these indicators was based on data collected through a questionnaire (Annexe 1) in a survey involving visits to a purposively selected cluster sample of households in the Colombo district.

Within the Colombo district we selected the Thimbirigasyaya administrative sub-division (Thimbirigasyaya DSD), in which the entire population is classified as urban, with a low level of consumption poverty, and the UBNI has a high value. This is one of the DSDs within the Colombo district with a low Head Count Index (HCI) – 4.4 per cent, based on 2002 HIES data – compared to the poverty levels of other DSDs such as the Colombo DSD which has a poverty level of 12.1 per cent. Selection of a DSD with a low poverty level will increase the probability of finding an urban population with a low level of consumption poverty. As our sample was to be only 20 households, we needed to narrow down the selection to a third level.

The DSDs are composed of another level of sub-administration unit, the Grama Niladhari Divisions (GNDs). Head Count Indexes are not published at GND level, but UBNI values for the GNDs are published (DCS, 2007). Here, we based our selection on the UBNI and selected the GND with the highest level of unsatisfied basic needs. Such a selection would increase the probability of a randomly selected household being above the official consumption poverty line but with a higher degree of unsatisfied basic needs. We selected the Dematagoda GND as satisfying these conditions. We needed to select 20 households within this GND, which contains 3368 housing units and a similar number of households. A random selection would lead to a geographically widely dispersed sample. We therefore decided to select a cluster of 20 households, based on information from the Grama Niladhari, the government officer in charge of administrative functions of the GND. We surveyed a cluster of 25 households and selected 20 above the official poverty line for Colombo.

4.2. Analysis

The survey was carried out in July 2011, and the latest officially published poverty line for Colombo was then for May 2011: Rs3578 per capita expenditure per month.[10] This corresponds to a monthly household expenditure threshold of Rs14,312, and falls within the second income decile.[11]

[10] This has since been revised by the DCS to Rs3476 but in our study we have used the original figure of Rs3578.

[11] The questionnaire used for the collection of data is given in Annexe 1. The data were collected during the second week of July. Initial exploration of the data on food consumption quantities and values revealed an unacceptable variation in unit prices. Therefore all foods consumed have been valued using the open market retail prices in Colombo collected by the DCS during the first week of July. The markets surveyed for the price estimation cover the Dematagoda market which is the main market for the surveyed sample households.
The data also showed that the responses were not satisfactory with respect to prepared foods consumed (including buns, string hoppers, etc.), condiments, and other miscellaneous items (e.g. biscuits, sweets, other drinks and beverages) and hence, based on findings of the DCS 2009/10 HIES, 34.8 per cent was added to the total value of food consumption obtained by the survey.
As consumption varied among household members and because there are economies of scale in consumption, arriving at per capita consumption expenditure by dividing the household consumption expenditure by the household size may not be ideal. The usual alternative has been to use an adult-equivalent scale and to compute the expenditure per adult equivalent. A study by Visaria (1980) of living standards in Asia shows that equivalence scales used gave similar ranking of households to those using expenditure per capita and notes that if poverty estimates are not affected by adult-equivalence weights that we chose, it is safe to say that poverty estimates are not biased as a

4.2.1. Profile of the selected households

Expenditure

Distribution of sample households by the national urban sector monthly household expenditure[12] deciles shows that 65 per cent of our sample households lie within the second and fourth deciles, 15 per cent within the fifth decile, and 20 per cent in the sixth decile (Table 7).

The average monthly household expenditure for both food and non-food items is Rs25,561,[13] 43 per cent lower than the monthly household expenditure of the national urban sector monthly household expenditure of Rs44,928. Without imputed rents, the average expenditure is Rs25,141. For the sample households the food ratio (food expenditure to total expenditure) is 77 per cent. This is more than twice the food ratio of the overall urban sector, which is 34.4 per cent, estimated based on the 2009/10 HIES.

Seven of the 20 sample households were encroachers and did not pay rent. The food ratio of the rent-free households was 80 per cent[14] and for the rent-paying households was 76 per cent. Eleven of the remaining households were legal tenants, living in government flats and paying a rent very much below the market rate. Based on HIES 2009/10, the average share of housing expenditure within non-food expenditure is 27 per cent; in our sample it was only 9 per cent. The very low non-food ratio we found is likely to be because many sample households lived rent-free in encroached lands or in very-low-rent government housing.[15]

Table 7: Distribution of sample households by national urban sector monthly household expenditure

Decile	National urban sector expenditure deciles based on HIES 2009/10	Urban sector, mean household expenditure based on HIES 2009/10	Number of sample households within the decile	Mean household expenditure based on sample
(1)	(2)	(3)	(4)	(5)
	All	44,928	20	25,561
1	Less than 15,763	12,109	0	–
2	15,763–20,794	18,221	6	17,577
3	20,794–25,125	23,162	4	23,609
4	25,125–29,161	27,059	3	26,454
5	29,161–34,039	31,420	3	30,757
6	34,039–40,136	37,064	4	34,922
7	40,136–46,320	42,984	0	–
8	46,320–58,468	51,834	0	–
9	58,468–79,027	66,725	0	–
10	More than 79,027	13,9209	0	–

Note: Columns (2) and (3) are from DCS (2011a) and (4) and (5) are based on the sample study

consequence of the weighting procedure and hence the case for using and adult-equivalence scale is not compelling.

[12] With rent imputed, based on average payments.

[13] With rent imputed.

[14] With rents un-imputed.

[15] National urban sector per capita expenditure deciles based on HIES 2009/10 have not been published.

Income

The average monthly income of the sample households was Rs15,466, and falls within the second decile of the national urban sector household income distribution. For 90 per cent of the sample households, their estimated monthly household expenditure exceeded their stated total income. The average difference was in the order of Rs10,000.[16] Most of the households (80 per cent) were in debt, with an average debt over Rs40,000, partly explaining how these households meet their expenses given a very low income level. Thirteen of the 20 households had mortgages or loans ranging from Rs5000 to Rs150,000, taken for various reasons from food-consumption emergencies to private functions.

However, the households' tendency to understate income was clearly observed during the survey visits. Many households avoid stating their true income for fear of losing their current or potential social benefit receipts.

Fifteen of the 20 households had multiple income sources, with nine having three or more sources, although a majority were temporary or unstable. The study of under-served settlements in Colombo (Gunetilleke, Cader and Fernando 2004) revealed that, at household level, poverty was seen mainly in terms of income-earning capacity. Households in our survey were more concerned about the stability of income, rather than magnitude. Households perceive stability of income as having multiple sources of income, and regard having multiple sources as a strategy for overcoming financial vulnerability.

In more than 80 per cent of the sample households, half or more of the adult members were employed. Almost all of the people in the sample worked on a temporary basis with no security of employment, indicating a high level of employment vulnerability. The average length of schooling of adult members was six years, indicating that the majority had only primary schooling. Only two households included adults with over 10 years schooling. The very low education level of the adults partly explains their inability to find higher-paying and more stable employment. However, all school-age children in the sample households were enrolled in school, and there was only a single drop-out within the sample.

Nutrition and health

The average dietary energy consumption for the sample households was 3115 kilocalories per capita per day, a per-adult-equivalent intake of 4361kcal. The per capita intake is over 50 per cent higher than the recommended minimum energy intake, and the adult equivalent is more than double. In terms of adult-equivalent energy intake, no one surveyed was below the 2030kcal recommendation, and in terms of per capita intake there was only one household that consumed below the recommended minimum.

All the sample households stated that they faced situations where they were unable to obtain medicine or get medical tests done due to financial problems and limited access to health services. Over 50 per cent of the households indicated that in times of medical emergencies they had to obtain financial loans to meet costs.

Housing, water, sanitation and energy

In our sample, nearly all of the homes were government flats, slums or shanties. Of the 20 households, 11 lived in government-owned flats as legal tenants paying a monthly rent to the

[16] The permanent-income hypothesis suggests that, given the variation in disposable income over the years, a given year's income may not match a household's average level of welfare as generated by the consumption of goods and services over time (Deaton and Muellbauer (1980) cited in Glewwe, 1985).

government. The flats were those constructed by the Housing Development Authority of the Government of Sri Lanka, and rented at a rate much lower than the market rate. The remaining households lived in slums or shanties on encroached land often occupied by previous generations, but with no legal entitlement so far.

The flats have walls of brick or cement, and are plastered with cement floors and concrete roofing. The slums or shanties have brick, cement blocks or planks for walls, a few were plastered with rough cement floors, and roofing was asbestos sheets, metal sheets or cadjan.

Crowding was seen to be a problem in four cases, with a single housing unit shared by three or more families. In 10 cases, one housing unit was shared by two families. In four out of the 20 cases, the ratio of the number of partitioned spaces to household size was less than 0.5.

Despite their varying tenurial status, all the surveyed homes were serviced with tap water flowing in the main line managed by the Colombo Municipality Council. All except one of the sample households had access to tap water within the premises, obtained legally or illegally. All of the households had access to a toilet and the toilets were water-sealed, but over 30 per cent of the households shared with more than two houses. In the sample, 17 households had access to electricity through illegal or legal means, but 16 used kerosene or firewood for cooking, due to cost concerns.

Mobility and communication

In our sample, 15 households did not own a vehicle; most used public transport to commute to their workplace, and the average time taken to reach the workplace was less than one hour. The average expenditure on transport was 11 per cent of the non-food consumption expenditure and much below the national urban sector share of 17 per cent. In 18 households, at least one member owned a mobile phone, with average spending of about Rs200 per month. Only about a quarter had access to either a radio or a television.

Safety and well-being

None of the households stated that income was affected by the incidence of alcohol abuse or drugs. None indicated any serious insecurity from drug networks, political opponents or others. In the sample we surveyed, 40 per cent of the households were Sinhalese, 35 per cent Tamil and 25 per cent Muslim, living harmoniously. More than half of the households indicated mid-level well-being, the stated reason being that they are free of hunger, with reasonable access to children's education, health and job markets. The numbers of households by deprivation level are shown in Table 8.

Table 8: Deprivation scores of the 20 sample households

Basic needs indicator (sub-indicator)	**Variable**	**Number of sample households with each score (1 = most deprived, 3 = least deprived)**		
		1	**2**	**3**
Income	Magnitude of income: location of household within the urban-sector income deciles	15	5	0
	Income sources: number of sources of income	5	6	9
Employment	Percentage of adult household members employed	4	15	1

Cont over

Basic needs indicator (sub-indicator)	Variable	Number of sample households with each score (1 = most deprived, 3 = least deprived)		
		1	**2**	**3**
Adult education	Average years of education of all adults in the household	11	7	2
Food-energy intake	Ratio of the household's per-capita adult-equivalent energy intake to recommended minimum energy intake (2030kcal)	0	0	20
Housing	Tenure	7	13	0
	Occupancy	4	10	6
	Type of shelter	8	0	12
	Crowding: ratio of number of partitioned spaces to household size	4	11	5
	Roof type	0	6	14
	Wall type	0	2	18
	Floor type	0	5	15
	Aeration: number of windows per partitioned space[17]			
Sanitation	Availability of a toilet	0	7	13
	Type of toilet	0	0	20
Water	Source of water	0	1	19
Energy	Energy for lighting	3	0	17
	Energy for cooking	0	16	4
Children's education	School enrolment	0	0	20
	School dropouts	0	1	19
Health	Access to medical treatment	6	14	0
Mobility	Availability of vehicle	15	4	1
	Mode of transport to work	1	17	2
	Time to reach workplace	1	4	15
Communication	Communication	2	13	5
Financial stress	Savings	12	1	7
	Magnitude of loan/mortgage	13	4	3
Substance abuse	Substance abuse	0	1	19
Safety	Safety	0	1	19

4.2.2. Incidence of poverty based on the uni-dimensional index

In this section, we analyse a composite indicator of sub-indicators representing the broad dimensions of deprivation. The sub-indicators are composite indicators of specific components relating to the dimensions discussed above. The cut-off for the deprivation line was set at the point at which each indicator has a value of 2, which corresponds to a basic level of well-being. This gives an overall deprivation threshold or cut-off value of 2. For each household, comparison of the value of the sub-indicators with the cut-off at 2 shows that

[17] This variable was not used in the calculations due to inaccuracies in the data.

significant deprivation is seen in terms of income, adult education, housing and financial capability (Table 9).

Table 9: Number of deprived sample households for each indicator

Sub-indicator	Number of households below threshold score '2'
Income	11
Employment	4
Adult education	11
Food-energy intake	0
Housing	8
Sanitation	0
Water	0
Energy	2
Children's education	0
Health	6
Mobility	5
Communication	2
Financial stress	15
Substance abuse	0
Safety	0

For five of the 15 sub-indicators (food-energy intake, water, children's education, substance abuse and safety) all or nearly all (19 or 20) of the households were in the no-deprivation category (score '3') (Table 8). Therefore the five sub-indicators were not used in the computation of the overall deprivation index. The overall deprivation index for each household was computed by equally weighting the remaining 10 sub-indicators. The comparison of the index with the cut-off level showed that, in our sample, 6 out of 20 households (30 per cent) are below the deprivation threshold. Given that this is a purposively selected sample of households above but near the poverty line, this indicates that there are at least 30 per cent deprived in terms of the focused dimensions. Therefore, within a multi-dimensional context of poverty, there is a significant indication of under-estimation of poverty.

4.2.3. Incidence of poverty based on the counting method

In the counting method a cut-off is set for each dimension and a second cut-off (k) is set down indicating how widely deprived a household is with respect to k dimensions considered. If the dimensions are equally weighted, the cut-off is simply the number of dimensions in which a household must be deprived to be considered poor. We set a cut-off k, which gives the number of dimensions in which a household must be deprived in order to be considered multi-dimensionally poor, and examine several values of k. Here we examine 10 dimensions of poverty, and hence examine the incidence of poverty for k values ranging from 1 to10.

Table 10: Number of sample households deprived, by number of dimensions of deprivation

Number of dimensions of deprivation (k)	Number of deprived households
All 10	0
At least 9	0
At least 8	0
At least 7	0
At least 6	1
At least 5	3
At least 4	5
At least 3	16
At least 2	19
At least 1	20

Table 10 shows that a cut-off at k=3 results in 16 of the sample households being considered multi-dimensionally deprived. A cut-off at k=4, however, results in only five households that could be considered as multi dimensionally deprived – and the selection of k is purely subjective. Considering the natural break in this sample at k=4, we may conclude that five out of the 20 households (25 per cent) are deprived.

5. Conclusion

Conceptualisation and definition of poverty has direct implications on the measured magnitude of poverty. A variety of approaches and definitions have been used to measure poverty in Sri Lanka, but the basic approach has been measuring consumption poverty using an absolute poverty line defined in terms of cost of a minimum food-energy intake or cost of basic food and non-food needs. In the food-energy method, the poverty line is set at a point where consumption expenditure is just sufficient to meet a pre-determined food-energy requirement. In the cost-of-basic-needs method, the poverty line is set at a point where the expenditure is sufficient to meet the cost of a bundle of basic food and non-food needs.

Several limitations of monetary measures of poverty are discussed in the literature. These include: its reliance on expert-based determination of what are basic food and non-food needs and thresholds; being a monetary measure, its inability to guarantee the satisfaction of either the basic food or non-food consumption needs; inability to measure deprivation adequately in multiple dimensions; inability to capture personal, social, political and community diversity; its focus on private consumption, ignoring common resources which are important contributions to well-being.

In addition to the above concerns, a few methodological issues are noted. These poverty lines are widely used to estimate sectoral-level (urban, rural) poverty. However, they are constructed to measure national-level poverty, and so do not take account of sectoral consumption differences or price differences. This limits their effectiveness in measuring sectoral poverty. Further, using the Colombo Consumer Price Index, which reflects price changes in Colombo, to estimate the time-adjusted poverty line to measure poverty in other geographic areas and sectors is a problem.

Given the evidence for very low energy intake in the urban sector, and possible misclassification of urban populations, there is likelihood that urban poverty may be under-estimated. Despite the poverty line being based on a minimum energy-intake level, the cut-off level is an expenditure level – a monetary aggregate. Whether the observed consumption expenditure is incurred on consumption of food to satisfy the minimum nutritional

requirement is questionable. In the urban sector in general, non-food consumption expenses are higher and hence a larger percentage of the total expenditure may be allocated for non-food consumption. This is reflected in the lower food ratio in the urban sector, compared to that of the rural sector.

The magnitude of urban poverty, or the estimated headcount index, will critically depend on the definition of the urban population. The magnitude of the urban population depends on the definition or criteria used to define which places and people are urban. Indications in the literature were that the urban sector is likely to be much larger than that under the current definition, and hence very likely to affect urban poverty estimates. Within these limitations in the definition of urban and the likely inappropriateness of the poverty line to measure urban poverty, it is likely that urban poverty incidence is under-estimated, and the under-estimation can be larger when poverty is viewed in a multi-dimensional context.

With the growing discourse on the importance of broadening the definition of poverty to include other aspects of deprivation, countries have focused on using indicators of unsatisfied basic needs. A wide array of deprivations is discussed in the literature but the greater focus has been on nutrition, housing, education, health, water and sanitation. Two broad methods commonly practised in identifying those poor in a multi-dimensional context have been discussed in the literature

Against this background, this study was conducted to explore the likely magnitude of the under- estimation of urban poverty and to explore the implications for methodology for estimating urban poverty in a multi-dimensional context. Based on a purposively selected sample of 20 households above the official poverty line at the time of the survey (July 2011), we examined multiple dimensions of poverty using indicators on: income, nutrition, employment, adult education, housing (tenure, occupancy, type of housing, permanent, semi-permanent or improvised housing, aeration), sanitation, water, energy (access to safe cooking and lighting), children's education, health, mobility, communication, financial situation (savings, debts), substance abuse, and safety.

Our sample was based in Colombo, the most populated administrative district in Sri Lanka, which houses the largest urban population in Sri Lanka. Given that our study was exploratory in nature, we used a purposively selected sample of households from an area where a majority of the households are likely to be above but close to the official poverty line. We examined the application of a uni-dimensional composite indicator and a poverty threshold, as well as separate sub-indicators and multiple thresholds. Given the very limited size of our sample, statistical formation of indicators with the commonly used principal component analysis (PCA) was not feasible, and hence the composite indicator was constructed using an arbitrary classification based on available literature and intuitively selected weights.

Our findings revealed that, based on a uni-dimensional composite index and arbitrarily chosen thresholds, six of the 20 households (30 per cent) were below the threshold or likely to be poor in a multi-dimensional context. We further examined a method in which cut-offs are set for each dimension and set down an identification criterion – how widely deprived a household is with respect to several dimensions. Based on an arbitrarily chosen cut-off, in this case based on a natural break at four dimensions, we observed that five of the 20 households (25 per cent) were deprived in four or more dimensions or likely to be poor in a multi-dimensional context.

These observations, together with the likely under-estimation of urban poverty using the consumption poverty line and under-coverage of the identification of the urban population, provide substantial indications of under-estimation of urban poverty in Sri Lanka. Our findings are limited by the size of the sample, and the subjective selection of the dimensions,

design of the sub-indicators and choice of poverty thresholds. Nonetheless, this study supports the suggestion that urban poverty is likely to be under-estimated, and indicates refinements needed in more representative studies.

ANNEXE 1

SURVEY SCHEDULE
IIED URBAN POVERTY STUDY
Household Questionnaire

The objective of the survey *is to generate a set of data which will enable us to assess the position of the household in relation to the official poverty line and to construct measures that will allow us to analyze the level of deprivation of these households in terms of broader dimensions of poverty.*

Instructions to the enumerator:

- Please select the head of household or spouse for the interview. If neither is available please make an appointment to meet them at a suitable time.
- If the head of the household and spouse are BOTH NOT EMPLOYED, please direct the employment questions to the main income earner in the household
- If the respondent shows reluctance to answer any question, please ask if they if they prefer not to answer. If they say yes, please say: "That is fine and thank you for letting us know. Can you please give us an indication of why you find it difficult to answer this question?"
- Start the interview by introducing who we are and what we are trying to do as follows:

We are from the Centre for Poverty Analysis (CEPA) which is a Sri Lankan organization providing research support to development activities in Sri Lanka. We are working with various government agencies such as the RDA, Samurdhi, NWSDB, as well as international financing agencies such as the World Bank and the Asian Development Bank.

"We are carrying out a survey to explore the level of well-being of families in the Dematagoda divisional secretary division and we will be talking to 20-30 families in this area. We want to know about your consumption expenses and to know about your basic living conditions.
If you would agree to be part of this survey, I (the interviewer) will ask several questions about expenditures. As we go along the structured discussion please let us know if any of these questions are unclear or ambiguous, and need clarifications. If there is any question that you do not wish to reply, please let me know, so we may continue with the following question. Everything you tell us will be strictly confidential. Your participation in this study is completely voluntary and you may leave at any time without any consequence. The interview will last less than an hour.

Before we begin, do you need any other clarification? If not let us begin."

Section 1: Control information

B1 Enumerator information	
(a) Enumerator team	
(b) Date of interview	
(c) Time of interview	From: To:
(d) Number of visits to the household	
(e) Status of the interview 1. Completed 2. Deferred 3. Not competent respondent at home 4. Refused 5. Household is temporarily closed 6. Household is demolished/vacant 7. Other (specify)	
(f) Date of handover to supervisor	
(g) Enumerator comments *(please provide comments regarding the house (location, general appearance and facilities), the respondent/household (in terms of their co-operation, ability to articulate, their general appearance and attitudes) and the manner in which the questionnaire was administered (for example, whether respondent was alone etc))*	

B2. Data cleaning

(h) Data cleaned by	
(i) Date data cleaned on	
(j) Supervisor's name	
(k) Checked and approved (circle as relevant)	1. Completed 2. Incomplete 3. Rejected
(l) Signature of supervisor	Date

S/ No	1/Name and Relationship to head of HH 1. Head of HH 2. Spouse 3. Son/daughter 4. Spouse of son/daughter 5. Grandchild 6. Father/mother 7. Brother/sister 8. Nephew/niece 9. Father/mother-in-law 10. Brother/sister-in-law 11. Other relative 12. Boarder 13. Other(please specify)		2/ Age (yrs)	3/ Gender 1 Male 2 Female	7/ Years of schooling of each adult member (over 16 ears of age)	8/ Household member living outside home? 1. In Sri Lanka 2. Overseas	15/ Were you engaged, during the last four weeks, even for a few hours, in paid employment, own-account profitable work or contributing family work as an economic activity (including employer) 1. Yes , 2. No *Enumerator Instructions: Ensure that this question is asked of all HH members over the age of 10 years*	16/ If not engaged in economic activity, main activity HH member: 1. Unemployed, but seeking work 2. Unemployed, and not seeking employment 3. Household work 4. Student 5. Retired (from formal sector) 6. Disabled 7. Elderly 8. Other (please specify)……	18/ If employed, what is the status of your employment? 1. Wage labour 2. Salaried Employee 3. Self-employed 4. Other *Enumerator Instructions: Ensure that this question is asked of all HH members who said 'Yes' to question 8*	20/ Are you employed on a permanent, temporary or casual basis? 1. Permanent 2. Temporary 3. Casual	21/ When is your salary/ wage paid to you? 1. Monthly regular 2. Daily rate 3. Piece rate 4. Contract	22/ Salary/ income received according to last payment received (Rs) (from both primary and secondary income sources) *Reference period month*
	Name												
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

Ethnicity of household head …… (1. Sinhala, 2. Tamil, 3. Muslim, 4. Other ……. (specify))

Other sources of income (including transfer payments):

Source	Average monthly income

Education of children age 6-16

9/ Are any child/children in the age group 6-16 not enrolled in school. Yes 1 No 2		10/ 1 All children 6-16 years not enrolled 2 Some children 6-16 years not enrolled 3 All children 6-16 years enrolled		11/ Reasons for not enrolling children in school.	12/ Are any child/ children in the age group 6-16 not attending school Yes 1 No 2		13/1 All children 6-16 years not attending school 2 Some children 6-16 years not attending school 3 All children 6-16 years attending school		14/ Reasons for children not attending school.

23/ Household food expenditure (food consumption and expenditure per week in a normal week during the last month)

Item	Unit	Quantity	Expenditure (Rs)	Comments
Rice				
Bread				
Buns				
Wheat flour				
Wheat-flour-based food ……				
Item	**Unit**	**Quantity**	**Expenditure (Rs)**	**Comments**
Coconut				
Green gram				
Cowpea				
Gram				
Other				
Dhal				
Soy products (TVP etc)				
…… ……..				
Potato				
Item	**Unit**	**Quantity**	**Expenditure (Rs)**	**Comments**
Sweet Potato				
Manioc				
Vegetables (specify)				
……				
……				
……				
……				
……				
……				
……				
……				
……				
……				
Greens (specify)				

……				
……				
……				
Fruit (specify)				
……				
……				
……				
……				
Item	**Unit**	**Quantity**	**Expenditure (Rs)**	**Comments**
Eggs				
Fresh fish				
Dried fish				
Canned fish				
Meat (specify)				
……				
……				
……				
Coconut oil				
Gingerly oil				
Other oil ……..				
Butter				
Margarine				
Dried milk powder				

Condensed milk				
Liquid milk				
Tea leaves				
Sugar				

24/ Household non-food expenditure (monthly expenditure on non-food items)

Item	Expenditure (Rs)	Comments
House rent		
Electricity		
Water		
Gas		
Kerosene		
Fire wood		
Petrol		
Diesel		
Telephone		
Transportation		
Healthcare/medicines		
Personal care (soap, toothpaste etc.)		
Item	**Expenditure (Rs)**	**Comments**
Clothes		
Shoes		
Household linen		
Expenditure on education e.g. stationery, private tuition		
Any other consumable…….		
…….		
…….		
…….		
…….		
……..		
…….		
.....		

25/ Expenditure on household durables purchased over the last year

Item	Unit	Expenditure (Rs)
Furniture		
Electrical items		
Sports/musical instruments		
Other (specific)		
……		
……..		
……		
Total		

Housing

26/ Tenure	
3 Owned/constructed/purchased by an occupant/inherited/received as gift/compensated	
2 Rented/leased/rent free	
1 Encroached/other (specify)……	

27/ How many families live in this house?	3	One family	2	Two Families	1	Three families or more

28/ In what type of shelter did the respondent live?	
3Single detached house/single attached house (flat)	
2Attached house/annex/row house	
1Slum/shanty/other ……	

29/ What kind of material was used for the roof (use most prevalent form)?		30/ What kind of wall type (use most prevalent form)?		31/ What kind of floor type (use most prevalent form)?	
3 Tile/concrete		3 Plastered/brick/cement block/stone		3 Tiles/polished cement	
2 Metal sheet/asbestos sheet		2 Plank/metal sheet		2 Rough cement	
1 Cadjan/other (specify)……		1 Mud/cadjan/other (specify)……		1 Earth/clay/other (specify)……	

32/ Number of rooms (any partitioned units) in the housing unit?		33/ Is there a separate kitchen in the house? 2 Yes/ 1 No		34/ Number of windows & doors in the housing unit?	

Water

35/ Main source of drinking water	
3 Tap within unit/premises (main line)	
2 Protected well within premises/ protected well outside premises/ tap outside premises (main line)/ tube well	
1 Unprotected well or other (specify) ……..	

36/ Distance to source of drinking water	Meters
Within premises	
Outside premises	

Sanitation

37/ Availability of toilet 3 Exclusive for the household 2 Sharing with one or more households 1 No toilet facility, hence using unhygienic means		38/ What type of toilet do you use? 3 Water seal 2 Pit latrine 1 Other (specify)	

Energy

39/ Energy for lighting (use most prevalent form)? 3 Electricity from main grid, metered 2 Electricity non-metered/from generator/solar 1 Kerosene, other fuel (specify)		40/ Energy for cooking (use most prevalent form)? 3 LP gas/electricity 2 Firewood/kerosene 1 Other (specify)	

Mobility

41/ Availability of vehicle		42/ Usual mode of transport to work place		43/ Time to reach work place	
1 None		1 Walking		1 More than 3 hours	
2 Bicycle		2 Public transport (train/bus)		2 1–3 hours	
3 Motorcycle/three-wheeler/car or other		3 Private transport (car/three-wheeler/bicycle/other)		3 Less than one hour	

Communication

44/ Communication facilities	
3 The house has a land phone and/or mobile phone, radio and/or television, internet connection	
2 The house has a land phone/mobile phone/radio/television	
1 The house does not have a land phone, mobile phone, radio, television or internet connection	

Savings

45/ Does the household have any savings to use in case of need? Yes 1 /No 2		46/ Form of savings 3 Savings account with bank or other formal financial institution 2 Non-formal credit group 1 None	

Debts

47/ Does the household face any financial debts (Banks/finance companies/employer/money lenders/retail outlets/mortgages/good		48/ Source of credit 3 Bank or formal financial institution 2 Non-formal credit group 1 Other (specify)		49/ Magnitude of remaining debt/mortgage	51/ Describe reason for taking loan or mortgage		52/ The household's perception of being in debt with regard to moving out of poverty	

s brought on credit)? Yes 1 /No 2		……		……				

Healthcare

53/ During the last 3 months did any household member/s fall ill Yes 1/ No 2		54/ Which one of the following statements best explains your response to a household member/s falling ill 3 Never faced any problem in getting medical treatment 2 Sometimes unable to seek treatment due to costs connected to seeking treatment 1 Always unable to seek treatment due to costs connected to seeking treatment	

Substance abuse

55/ The nature of substance abuse 3 Nobody in the household has an addiction to alcohol or drugs 2 Somebody in the household is addicted to alcohol or drugs but it does not severely affect the income stream 1 Somebody in the household is addicted to alcohol or drugs, severely affecting the income and preventing moving out of poverty	

Safety

56/ Does any member/s of the household live in fear of drug network or other criminal activities? Yes 1 / No 2		57/ Does any member/s of the household live in fear of any kind of threat to safety, political or otherwise? Yes 1 / No 2		58/ What is your perception of safety inside/outside the house? 3 Feel totally safe 2 Feel unsafe but it is not affecting income-earning opportunities and/or children's education 1 Feel unsafe, affecting income-earning opportunities and/or children's education	

Perception of well-being

59/ Taking all these factors into account what is your perception of the level of well-being of your household?

1 Low well-being 2 Mid well-being 3 High well-being

Give reasons

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