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# Afghanistan

## Poverty Measurement Methodology

### Using ALCS 2016-17

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POV



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1818 H Street NW, Washington DC 20433  
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# Poverty Measurement Methodology using ALCS 2016-17<sup>1</sup>

## Methodology

The official poverty line for Afghanistan was set in 2007-08, using information available from the National Risk and Vulnerability Assessment (NRVA) survey. Adhering to international best practice, the poverty line was set following the “Cost of Basic Needs” (CBN) approach. The CBN method represents the level of per-capita consumption at which the members of a household can be expected to meet their “basic needs” in terms of both food and non-food consumption. The measurement of poverty based on the ALCS 2016-17 is obtained by updating the poverty line set using the NRVA 2007-08. More specifically, the CBN approach defines a consumption bundle deemed to be adequate for meeting basic consumption needs and estimates the cost of acquiring this bundle. The consumption bundle includes goods that a person consumes (i) to be adequately nourished and (ii) to fully participate in the society he/she lives in. The food component of the poverty line is anchored to a caloric requirement for maintaining body weight and sustaining activity levels, consistent with local food tastes and consumption patterns. In addition, a non-food component is added, consistent with the spending patterns of the poor. Together they provide an estimate for an absolute poverty line—explicitly fixed at a specific level of welfare—allowing for poverty comparisons across individuals.

Updating the original poverty line, as opposed to setting a new one, preserves the comparability of poverty estimates over time, thereby allowing an analysis of changes in poverty. In particular, to allow for comparisons between the three survey years for which data on welfare are available (NRVA 2007-08, NRVA 2011-12, and ALCS 2016-17<sup>2</sup>), the measure of welfare used to rank households (i.e. the consumption aggregate) should be constructed following the same methodology used for the baseline year. This ensures that the “updated” poverty line captures the same level of wellbeing identified by the original poverty line but is evaluated at the prices obtained from the current survey.

## Building the consumption aggregate using ALCS 2016-17

The first step in estimating a poverty line is to construct the consumption aggregate. The process of constructing the consumption aggregate follows the approach of setting the poverty line using information from the NRVA 2007-08 as well as NRVA 2011-12. In particular, the same consumption aggregate subcomponents were defined, namely (i) food component; (ii) non-food component; (iii) consumer durables; and (iv) housing. We provide a brief methodological overview on how each of these subcomponents was constructed.

### *Food component*

As in previous rounds, the ALCS 2016-17, includes a very detailed food consumption module in which female respondents are asked about household consumption (quantities/units consumed) for 92 food items, divided into nine food groups, over the past seven days. Food consumption data include food which was bought, home produced as well as food that might have been acquired by means of non-monetary

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<sup>1</sup> This report was prepared by a team led by Christina Wieser (Economist, Poverty and Equity Global Practice) and included Zihao (Tobias) Wang (Consultant, Poverty and Equity Global Practice) and Nandini Krishnan (Senior Economist, Global and Equity Global Practice).

<sup>2</sup> ALCS 2013-14 did not include a consumption module and direct poverty estimates are not available. Rather, in 2013-14 a survey-to-survey imputation was conducted to estimate poverty at the national level.

transactions such as gifts and food aid. The nominal expenditures on food consumption was obtained combining food items' consumption (quantities) with their respective prices, obtained from the District Price Survey (DPS) module which was administered in conjunction with the ALCS 2016-17<sup>3</sup>.

The consumption modules of NRVA series and ALCS 2016-17 were designed to (i) account for seasonal products, hence adapting instruments to the year-round nature of the survey; (ii) include a great variety of products consumed by households; and (iii) cover food items that do not contribute to the caloric intake of Afghans meaningfully but were nevertheless consumed by households such as water and spices.

For each of the nine food categories, a residual (or "other") food category item was included. Lacking a price for these residual categories, proxy prices were defined for each "other" category to be the median by month and district of the prices for items in each food group as done in the consumption aggregate in 2007-08. Since not every food item was available in all districts and markets at all times of the year from the DPS, missing prices were imputed, based on information for the closest available prices, to obtain a complete price matrix.

A final component of total food consumption is the total value of meals consumed outside home, i.e. in restaurants, prepared food purchased from the marketplace, etc. The ALCS 2016-17 collected this information in section 9 of the Male Household Questionnaire by asking "What did the household spend in the last month for food and drinks consumed outside the home", and accordingly the total value of food away from home was included in the estimation of total food consumption.

### ***Non-food component***

Total expenditure on non-food items was constructed by aggregating expenditures on goods and services from several sections of the ALCS. The non-food aggregate covers a wide and heterogeneous range of items such as expenditures on energy, education, transportation and clothing.

Following standard practice, the non-food aggregate does not include certain expenditures, namely those that are either (i) lumpy in nature; (ii) are used for investment purposes; and (iii) are unrelated to household wellbeing. Examples of expenditures include expenditure on weddings, celebrations, funerals and Haj; expenditures on the construction of dwellings; and expenditures on health. Non-food items with reference periods other than the past month, were converted to monthly values.

### ***Consumer Durables***

Following the baseline methodology and international best practice, purchases of durable goods<sup>4</sup> are considered lumpy expenditures and are therefore converted to a "rental equivalent" or "user cost" which reflects the opportunity cost of money tied up in durable goods, their lifetime, and their depreciation. To estimate the "user cost" of consumer durables, we consider the date of purchase as well as the cost of the

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<sup>3</sup> The DPS module covers the prices of all food items in the consumption module and a few other items such as grains and fuels. DPS data were collected during the ALCS survey visits to the PSUs. Team supervisors were responsible to visit the markets of the respective districts (or nahia in urban areas) and to administer the survey. The identification of the relevant market to be surveyed and its location – whether it would be in the district headquarters, provincial capital, or in a neighboring district – were guided by key informant interviews within each community. Price information was matched to household-level food consumption by location and month of the interview.

<sup>4</sup> Durable goods include: refrigerator, washing machine, vacuum cleaner, meat grinder, bread oven, stove/gas balloon, gas heater, sewing machine, iron, electric fan, radio/tape recorder, TV, VCR/DVD, computer, bicycle, motorcycle, car, tractor/thresher, mobile phones, carpets (khalin), gilim, blankets, satellite dishes, solar panels and kitchen utensils. Compared to 2011-12: refrigerator, stove/gas balloon, sewing machine, iron, radio/tape recorder, TV, VCR/DVD, satellite phone, electric fan, bicycle, motorcycle, car and tractor/thresher.

item and assume a lifetime of ten years (with a flat-line depreciation of ten percent per year), and an interest rate of four percent, implying an effective discount rate of fourteen percent. An average Afghan household shows a “user cost” of 819 Afghanis per month for durable goods, which accounts for about five percent of total household expenditures in 2016-17.

## ***Housing***

As is the case for consumer durables, the contribution of housing to household welfare is captured in the consumption aggregate by estimating its monthly rental value. Following the same approach adopted for the baseline in 2007-08, the rental value of housing is either captured by households’ reported rent or—if a household does not report rent—estimated by fitting a hedonic pricing model, i.e. by regressing information available on housing characteristics on housing values.

The majority of households did not report values on paid rent (i.e. owners of housing rather than renters) but about half of all households in the ALCS 2016-17 report the value of their dwelling (i.e. owners). For these households, a hedonic housing model is estimated which predicts the value of the dwelling based on the characteristics of the dwelling. A hedonic housing model relates the housing price to factors such as size, location, construction materials, etc. To account for potential heterogeneity in the underlying pricing model, separate regressions are estimated for urban, rural, and tent dwellings.

Following the same practice as in the baseline, the actual or predicted housing values are converted to a monthly rent by imposing a relationship based on interest and depreciation rates. In particular, for 2016-17, a depreciation rate of 1.5 percent and an interest rate of 2.5 percent are used<sup>5</sup>. Table 1 shows the medians of actual and predicted housing values from the three dwelling groups.

*Table 1: Median of reported and predicted housing value, by residential dwelling type (in Afghanis)*

| DWELLING TYPE  | HOUSING VALUE |           |
|----------------|---------------|-----------|
|                | Reported      | Predicted |
| URBAN DWELLING | 1,000,000     | 1,259,346 |
| RURAL DWELLING | 200,000       | 261,127   |
| TENTS          | 12,000        | 19,424    |

## ***Analysis of the consumption aggregate***

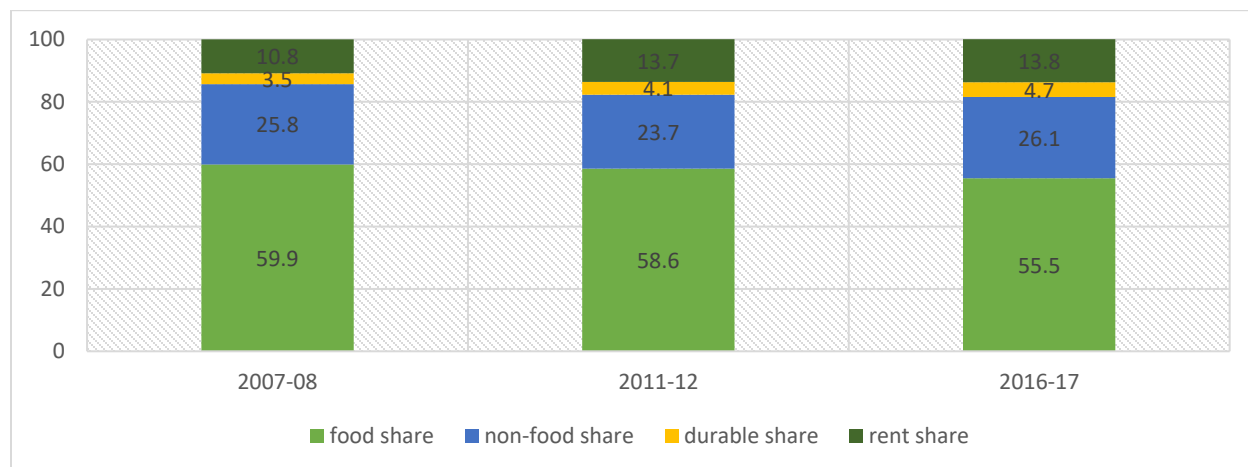
The consumption aggregate based on the ALCS 2016-17 is constructed as the sum of the food and non-food expenditures as well as the monthly user values of durables and housing. The relative share of each component to the total varies across survey years (see

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<sup>5</sup> Different alternatives were considered but the discount rate of four percent provides the best approximation to the actual rent values reported by the subsample of households renting their dwelling in urban areas.

Figure 1). In 2016-17, we see a significant decline in food shares which typically happens in cases where food expenditures remain constant or grow in real terms but spending on non-food grows as the economy grows. In Afghanistan's case, however, the decline in food shares is caused by a stagnation or decline in expenditures due to the deterioration of welfare.

Figure 1: Share of the components of the consumption aggregate, by survey year



Despite the fact that we construct the consumption aggregate at the household level, we assess welfare at the individual, rather than the household level. That is, we want to know the percentage of the *population* below a certain poverty threshold. Since we do not have data on individual consumption, we convert household expenditure to per-capita terms using the household size as a deflator to account for differences in household size and composition<sup>6</sup>.

The Cost of Basic Needs approach allows us to anchor poverty to a fixed level of welfare, which facilitates comparison of expenditures over time. However, households face different price levels depending on where they live. Prices levels in urban Kabul, for example, are different from price levels in rural Farah and we have to take such differences in the cost of living into account when comparing standards of living across locations or over time using a fixed measure of welfare. As food prices rose much faster than non-food prices, different indexes were used for food and non-food expenditures. Food prices were adjusted by calculating a spatial and temporal food price index from the District Price Survey<sup>7</sup> and non-food expenditures were temporally adjusted using the non-food CPI<sup>8</sup>.

## The Poverty Line

The poverty line represents the benchmark for assessing whether an individual can attain the minimum level of wellbeing required to satisfy basic needs in terms of food and non-food consumption. The ultimate objective of measuring poverty using ALCS 2016-17 is to produce poverty estimates that are comparable to those estimated in 2007-08 and 2011-12. More specifically, the ALCS 2016-17 poverty line should reflect the same level of wellbeing identified by the 2007-08 baseline official poverty line as well the one updated in 2011-12.

The poverty line consists of two components—the food poverty line and an allowance to account for basic non-food needs. The consumption aggregate is the basis for measuring wellbeing, whereas the poverty line

<sup>6</sup> This approach does not take into account economies of scale within the household and assumes equal distribution of household consumption among all members.

<sup>7</sup> The food price index chosen for adjusting food consumption is the Laspeyres price index at the spatial aggregation area-quarter level. The Laspeyres index comprises prices in each region-quarter unit with a base reference.

<sup>8</sup> Due to the absence of a non-food CPI for all provinces of Afghanistan, non-food expenditures were only adjusted temporally.

is the benchmark for assessing whether an individual can attain a minimum required level of wellbeing. In other words, if the per-capita, real (or price-adjusted) expenditure is less than the poverty line, the individual is considered to be poor.

### ***Food poverty line***

According to the CBN approach, the food poverty line reflects the cost of consuming the reference basic-needs basket, i.e. the food bundle corresponding to a minimum caloric requirement (Table 2). In the case of Afghanistan, the food poverty corresponds to the cost of attaining 2,100 kilocalories based on the typical consumption pattern of the relatively poor<sup>9</sup>.

*Table 2: NRVA 2007-08 basic needs basket<sup>a</sup>, by main food category (in kg per person per day)*

| FOOD CATEGORY           | QUANTITY |
|-------------------------|----------|
| <b>GRAINS AND BREAD</b> | 0.4317   |
| <b>MEAT</b>             | 0.0179   |
| <b>DAIRY</b>            | 0.1030   |
| <b>OIL</b>              | 0.0281   |
| <b>VEGETABLE</b>        | 0.1565   |
| <b>FRUITS</b>           | 0.0414   |
| <b>SWEETS AND SUGAR</b> | 0.0235   |
| <b>BEVERAGES</b>        | 0.0064   |
| <b>SPICES</b>           | 0.0187   |

<sup>a</sup> The basic need basket is composed of 84 food items, which were grouped into main food categories in this table

To update the food poverty line, the basic-needs basket estimated in 2007-08 was priced using information from the 2016-17 District Price Survey. Therefore, households' food consumption in quantities was first converted to kilocalories using a caloric conversion table. This reference bundle contains 2,377 calories. We then estimate the cost of obtaining 2,100 calories if those calories were obtained following the same consumption patterns as found in the food bundle of the reference population. The estimated cost of this food bundle is 1,188 Afghanis per-capita, per month<sup>10</sup>, which represents the average cost of purchasing the basic-needs food basket in 2016-17.

### ***Non-food component of the poverty line***

In order to fully reflect basic needs, the poverty line also includes an allowance for non-food basic needs, which are essential to sustain the minimum living standards of the poor. Setting the non-food poverty line is more challenging than determining the food poverty line because there is no minimum threshold for non-food expenditures, such as the minimum caloric intake for food needs. Therefore, the non-food component of the poverty line is typically estimated as the median non-food expenditure of individuals with food consumption around the food poverty line<sup>11</sup>.

<sup>9</sup> The relatively poor are defined as those individuals whose consumption level is in the 2-5<sup>th</sup> deciles of real per-capita consumption in each region.

<sup>10</sup> The poverty line is expressed in real terms—accounting for cost of living differences—and is costed in terms of prices for quarter 1 (spring-summer 2016) and region 1 (Central urban region). Due to the fact that we spatially and temporally adjust food expenditures (real food expenditures), the food poverty line is the same for all Afghans, whereas it differs across regions and over quarters in nominal terms

<sup>11</sup> The subsample of households used for non-food allowance estimation in Afghanistan was selected with the two-fold objective of guaranteeing a sufficient sample size for each of the 14 regions and of obtaining an equal representation of households whose food expenditure was just above and just below the food poverty line. In



The non-food poverty line in 2016-17 is estimated by inflating the 2007-08 non-food poverty line in each region and quarter, using the non-food CPI to obtain the price level of non-food expenditures in quarter one of the ALCS 2016-17 survey. This inflation of non-food thresholds from their 2007-08 benchmark levels using non-food inflation rates as measured by the official CPI, differs from the methodology implemented in 2011-12. This change in methodology is, however, implemented in the interest of increased transparency, and in line with international good practice. To ensure comparability across time, all methodological changes undertaken in 2016-17, were implemented across all survey years<sup>12</sup>.

### ***Setting the National Poverty Line***

The overall poverty line is the sum of the food poverty line and the non-food allowance. The national average poverty line based on ALCS 2016-17 is 2,056 Afghanis per month; it represents the sum of the cost of attaining 2,100 calories per person per day based on the basic need basket set in 2007-08 and the cost of meeting basic non-food needs. A household is defined as poor if the total value of real per-capita consumption falls below the poverty line. In 2016-17, 54.5 percent of Afghanistan’s population was poor, which corresponds to approximately 15.9 million Afghans who were not able to meet their basic needs.

*Table 3: Poverty indicators in Afghanistan, 2016-17*

| <b>POVERTY INDICATORS</b>     | <b>ESTIMATE</b> | <b>STD. ERR.</b> | <b>95 PERCENT C.I.</b> |
|-------------------------------|-----------------|------------------|------------------------|
| <b>POVERTY HEADCOUNT RATE</b> | 54.5            | 0.004            | 53.6 – 55.4            |
| <b>POVERTY GAP</b>            | 14.9            | 0.002            | 14.6 – 15.2            |
| <b>POVERTY GAP SQUARED</b>    | 5.6             | 0.001            | 5.4 – 5.7              |

Note: Individual level weights used, standard errors incorporate complex sample design

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particular, the definition of the relevant subsample is selecting 10 percent of the sample above and 10 percent of the sample below the poverty line.

<sup>12</sup> Three important changes were implemented: (i) In the interest of increased transparency, and in line with international good practice, non-food thresholds are inflated from their 2007-08 benchmark levels using non-food inflation rates as measured by the official CPI; (ii) Improvements and changes in the survey questionnaire have required small changes in the definition of the welfare measure, which have been consistently revised for all survey years; and (iii) CSO has made the decision in the interest of transparency to include all provinces in national estimates; while indicating clearly provinces for which estimates are deemed to be of inadequate quality due to the security situation or concerns about data quality. These revisions imply that current estimates may differ from previously released numbers.