

# SETTING THE OFFICIAL POVERTY LINE FOR AFGHANISTAN

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## TECHNICAL REPORT

CENTRAL STATISTICS ORGANIZATION (CSO)

AND

THE WORLD BANK

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## 1. Introduction

Reducing poverty is at the core of the Afghanistan's National Development Strategy (ANDS) approved by the Government of Afghanistan in 2008. The Government has undertaken extensive assessments to improve the quality and quantity of information available to understand poverty. Setting a poverty line is the first and most important step in poverty analysis in that it allows identifying who the poor are. Moreover, having a poverty line which is rigorously defined and commonly accepted is a necessary precondition to the development of a meaningful debate around poverty issues and of a coherent strategy for poverty reduction.

The purpose of this Technical Report is twofold.

First, this report is meant to describe the process of setting the official poverty line, to discuss the rationale and to provide a reference for future poverty estimations in Afghanistan. The methodological approach underlying poverty line estimation was discussed and reviewed through a consultative process within the inter-Ministry Poverty Estimates Technical Committee (PETC)<sup>1</sup>. The decisions made during the meetings of the PETC reflect changes and improvements made to the latest round of the "National Risk and Vulnerability Assessment (NRVA)" 2007/08. In particular, changes to the survey instruments led to a more complete definition of the total consumption aggregate, which is central to the definition of poverty. Similarly, the 2007/08 design had the new feature that it was fielded over an entire year, which both allows for seasonal estimates but also introduced the methodological need to temporally adjust the poverty line for price changes. As highlighted by the poverty status report (IRoA and World Bank, 2010), the central importance of seasonality for the well being of Afghan households and for inter-temporal poverty comparisons directly calls for maintaining the year-round spell of the survey for future NRVA's rounds. For this reason, defining a methodology for inter-temporal price adjustments is particularly meaningful.

Second, this report is to be intended as part of a broader collaboration and capacity building process at the Central Statistics Organization (CSO). The development of this report has been contemporaneous with a series of training sessions at CSO and PETC workshops on use of the NRVA data, as well as on the methodological basis of the poverty estimates. The report also reflects a currently ongoing effort of CSO to improve the documentation and accessibility of its core data and indicators. The presence of technical reports explaining the methodology behind National statistics improves transparency and enhances the effectiveness of the National Statistical System.

This Technical Report provides a detailed description of the methodological steps and assumptions followed in the estimation of the 2007/08 poverty line for Afghanistan.<sup>2</sup> In the first section we discuss

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<sup>1</sup> The PETC was constituted in June 2009 by the Director General of the General Directorate of Policy, Monitoring and Evaluation of the ANDS at the Ministry of Economy. Members of the committee comprised technical representatives from the Government of Afghanistan (CSO, MRRD, SNC, MoF, and MOLSAMD) and from the donor community (WB, EC, DFID).

<sup>2</sup> For a preliminary poverty profile and analysis based on this methodology and data see IRoA, MoE, WB (2010).

the methodological approach followed for the poverty line estimation. In section 2 we describe how the consumption aggregate was determined and the methodology for price adjustment. To conclude, in section 3 we present the poverty line estimates.

## 2. Methodological Issues in Poverty Measurement

Assessing poverty requires both the definition of some welfare or living standards measure and the definition of a threshold – the “poverty line” – representing the minimum welfare level below which a person is deemed to be poor.

The most commonly used indicators of welfare are either based on household consumption or on household income. The choice of the welfare indicator generally depends on the availability and quality of data from the household surveys used for the analysis, on specific features of the survey design as well as on the socioeconomic conditions of the country object of analysis. In particular, in poor rural economies where there is a substantial variability of income associated with seasonality, consumption has been found to be a better indicator of current standards of living.<sup>3</sup> Moreover, once the welfare indicator is identified, and in order to make poverty comparisons across individuals and further proceeding with poverty analysis, household consumption (or income) needs to be deflated to account for temporal and spatial differences in the prices faced by households as well as for differences in the household size and composition.

The standard approach in setting the poverty line which is also followed for Afghanistan is the so-called “Cost of Basic Needs” (CBN) approach. This approach can be traced back to Rowntree’s (1901) seminal study of poverty in York, and is described in Ravallion (1994, 1998), Ravallion and Bidani (1994), Ravallion and Sen (1996). The CBN method consists of defining a consumption bundle deemed to be adequate for satisfying basic consumption needs, and then estimating the cost of this bundle<sup>4</sup>. Conceptually, the definition of the consumption bundle satisfying basic needs is meant to capture the commodities that a person uses to achieve two main capabilities: that of being adequately nourished to maintain health and that of participating fully in the society he/she lives in. Practically, the approach followed is to anchor the poverty line to a pre-determined nutritional requirement<sup>5</sup>, consistent with local food tastes and consumption patterns, and to subsequently incorporate an allowance for non-food

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<sup>3</sup> See Ravallion, 1994; Deaton and Zaidi, 2002.

<sup>4</sup> See for reference Ravallion (1998) and Deaton and Zaidi (2002).

<sup>5</sup> The food component of basic needs is defined in terms of food-energy requirements and constitutes the nutritional anchor of the poverty line. Nutritionists have estimated food-energy requirements for maintaining body weight at rest, processing food and sustaining various activity levels (WHO, 1985) thereby allowing researchers to fix a cut-off in terms of caloric intake. The food component of the poverty line is then computed by estimating the cost of a bundle which achieves the stipulated food-energy intake level.

goods - on non-food items such as clothes, housing, durable goods, services (e.g. health, education, transport) - consistent with the spending patterns of the poor.

The CBN methodology provides an estimate for an “absolute” poverty line – explicitly fixed at a specific level of welfare – which allows for poverty comparisons across individuals. In fact, once the cost of the consumption bundle defining the poverty line is adjusted to reflect price differences across various regions and/or over time, any two individuals’ poverty status can be compared. As clearly stated in Ravallion (1994), *“an absolute poverty line [...] is one which is fixed in terms of living standards, and fixed over the entire domain of the poverty comparison. [...] Thus absolute poverty comparisons will deem two persons at the same standard of living to both be either poor or not poor irrespective of the time or place being considered, or with or without some policy change, within the relevant domain [...]”*. An alternative methodology for estimating – in this case a “relative” – poverty line is to define it in terms of some percentage cut-off point in a welfare distribution. In comparison to the absolute poverty line, the relative poverty line is appealing in its simplicity and transparency but it has the disadvantage of varying over the domain of poverty comparison. As an example, a relative poverty line could be set to define as poor the bottom three deciles of the per-capita consumption expenditure distribution. Such definition however provides little information on poverty profiles over time and across different regions – or more generally across different subgroups – simply because there is always a bottom 30 percent of the population irrespective of changes in living standards. Accordingly, continuing to follow Ravallion (1994) discussion, *“[...] The appeal of consistency within the domain of a poverty comparison is contingent on the purpose for which that comparison is being made. If one is using the comparison to target resources to poor regions or countries, then consistency is clearly desirable”*.

### 3. Definition of the Consumption Aggregate

The first step in the estimation of a poverty line entails the construction of the consumption aggregate. As discussed in Deaton and Zaidi (2002), the component of consumption can be aggregated into four main classes namely (i) food items, (ii) non food items, (iii) consumer durables, and (iv) housing.

In what follows, we describe how each of these subcomponents has been constructed. To conclude, we discuss how the nominal household expenditure has been deflated to account for price spatial and temporal variation and for household composition to obtain the value of real per capita consumption which will be used as the basis for poverty line definition in section 3.

#### Food Items

Values of food consumption used in the poverty analysis were calculated by multiplying food quantity and food price data obtained from the NRVA 2007/8.<sup>6</sup> The survey includes a very detailed food consumption section in which female respondents are asked about household consumption

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<sup>6</sup> Food quantity data are from the food consumption module (Section 15) of the Female Questionnaire.

(quantities/units consumed of) of 91 food items, organized into nine food groups, over the past 7 days<sup>7</sup>. Food consumption data include food both bought, home produced as well as food that might have been acquired by means of non-monetary transactions such as gifts and food aid.

Compared with the previous survey round in 2005, the number of food items covered in the NRVA 2007/08 was significantly increased thereby allowing a more precise estimation of consumption patterns. In particular, the changes in the consumption module of NRVA 2007/08 were designed to (i) account for seasonal produces, hence adapting instruments to the year-round nature of the survey; (ii) improve data quality by including greater variety of products and (iii) cover food items that do not contribute to caloric count but are nonetheless consumed by households (such as beverages and spices). Table 1 provides a detailed list of food items covered in the consumption module – with their caloric content – and highlights changes with respect to the previous survey round.

**Table 1: Food Items in NRVA 2007/08, NRVA 2005 and Caloric Intake**

| Food items 2007/08                     | NRVA 2005 | Kcal (per Kg)        |
|--|-----------|----------------------|
| <b>FOOD GROUP 1: Bread and Cereals</b> |           |                      |
| Rice                                   | YES       | 3630                 |
| Wheat flour                            | YES       | 3600                 |
| Purchased nan (pieces)                 | YES       | 3690                 |
| Barley                                 | YES       | 3270                 |
| Maize (corn)                           | YES       | 3630                 |
| Beans                                  | YES       | 3470                 |
| Mung                                   | YES       | 3610                 |
| Chick peas                             | YES       | 3570                 |
| Lentils                                | YES       | 3540                 |
| Pasta/ macaroni                        | NO        | 3790                 |
| Other bread and cereals                | NO        | (*)                  |
| <b>FOOD GROUP 2: Meat and Fish</b>     |           |                      |
| Beef                                   | YES       | 1240                 |
| Veal                                   | NO        | 1320                 |
| Mutton                                 | YES       | 2330 <sup>(**)</sup> |
| Goat                                   | YES       | 1570                 |
| Chicken                                | YES       | 1270                 |
| Liver                                  | YES       | 1340                 |
| Dried meat                             | YES       | 5020                 |
| Fish                                   | YES       | 430                  |
| Other Meat and fish                    | NO        | (*)                  |

<sup>7</sup> Food items are organized into 9 food groups, namely: (i) bread and cereals; (ii) meat and fish; (iii) milk, cheese and eggs; (iv) oil and fat; (v) vegetables; (vi) fruits and nuts; (vii) sugar and sweets; (viii) beverages, and (ix) spices.

| <b>FOOD GROUP 3: Milk, cheese and eggs</b> |     |      |
|--|-----|------|
| Milk (fresh)                               | YES | 780  |
| Milk (powdered)                            | NO  | 5070 |
| Yogurt                                     | YES | 590  |
| Curd (Chaka)                               | NO  | 1530 |
| Krut(dried)                                | YES | 2965 |
| Dogh                                       | YES | 140  |
| Ghee                                       | YES | 8730 |
| Butter                                     | YES | 6930 |
| Cheese                                     | YES | 3100 |
| Eggs (number)                              | YES | 1420 |
| Other dairy products                       | NO  | (*)  |
| <b>FOOD GROUP 4: Oils and fat</b>          |     |      |
| Vegetable oil, cotton oil, or sesame oil   | YES | 8840 |
| Animal fat                                 | YES | 9020 |
| Other oils/ fat                            | NO  | (*)  |
| <b>FOOD GROUP 5: Vegetables</b>            |     |      |
| Potato                                     | YES | 750  |
| Sweet potato                               | YES | 920  |
| Onion                                      | YES | 340  |
| Tomato                                     | YES | 180  |
| Okra                                       | YES | 390  |
| Spinach                                    | YES | 250  |
| Cauliflower                                | YES | 150  |
| Eggplant                                   | YES | 330  |
| Carrots                                    | YES | 370  |
| Pumpkin/ squash                            | NO  | 270  |
| Cucumber                                   | YES | 170  |
| Radish                                     | YES | 280  |
| Turnip                                     | YES | 230  |
| Cabbage                                    | YES | 160  |
| Leek                                       | YES | 440  |
| Broccoli                                   | YES | 200  |
| Hot pepper                                 | YES | 2870 |
| Wild leafy vegetables                      | YES | 190  |
| Coriander                                  | YES | 190  |
| Mint                                       | YES | 240  |
| Dried tomatoes                             | YES | 2590 |
| Dried vegetables                           | YES | 2860 |

|   |                      |      |
|---|----------------------|------|
| Pickled vegetables                                | NO                   | 430  |
| Green beans                                       | NO                   | 350  |
| Other vegetables                                  | NO                   | (*)  |
| <b>FOOD GROUP 6: Fruit and Nuts</b>               |                      |      |
| Apple   | YES                  | 490  |
| Grapes  | YES                  | 670  |
| Melon/ Watermelon                                 | YES                  | 270  |
| Peach   | YES                  | 460  |
| Dried Apricots                                    | YES <sup>(***)</sup> | 2960 |
| Orange/citrus                                     | YES                  | 330  |
| Plum  | YES                  | 460  |
| Pomegranate                                       | YES                  | 430  |
| Pear  | NO                   | 560  |
| Banana  | NO                   | 580  |
| Raisins   | YES                  | 2930 |
| Fresh mulberries                                  | YES                  | 690  |
| Dried mulberries                                  | YES                  | 3330 |
| Mangoes   |                      | 400  |
| Walnuts   | YES                  | 2770 |
| Pistachio   | YES                  | 3330 |
| Almonds   | YES                  | 2470 |
| Other Fruit                                       | YES                  | (*)  |
| <b>FOOD GROUP 7: Sugar and Sweets</b>             |                      |      |
| White sugar                                       | YES                  | 3860 |
| Brown sugar                                       | YES                  | 3800 |
| Honey   | YES                  | 3120 |
| Chocolates/ Candy/ Sherinigack                    | NO                   | 3860 |
| Black tea   | NO                   | 0    |
| Green tea   | NO                   | 0    |
| <b>FOOD GROUP 8: Beverages</b>                    |                      |      |
| Bottled/ canned beverages. mineral water (liters) | NO                   | 0    |
| Other Beverages                                   | NO                   | (*)  |
| <b>FOOD GROUP 9: Spices</b>                       |                      |      |
| Salt  | NO                   | 0    |
| Black pepper                                      | NO                   | 2370 |
| Ginger and garlic                                 | NO                   | 4710 |
| Tomato sauce                                      | NO                   | 420  |
| Mixed spices                                      | NO                   | 3000 |

|              |    |     |
|--------------|----|-----|
| Other spices | NO | (*) |
|--------------|----|-----|

Notes: (\*) No Caloric intake was assigned to the “Other” category in any food group; (\*\*) Caloric intake of lamb used as reference for mutton; (\*\*\*) NRVA 2005 distinguished between dried and fresh apricots, whereas NRVA 2007/08 only records dried apricots consumption. Calorie estimates are from FAO’s Food Composition Tables, based on edible portions.

Sources: NRVA 2005; 2007/08; Food Composition Tables for use in the Near East, Food and Agricultural Organization, United Nations, Rome and US Department of Agriculture, Human Nutrition Information Division, Hyattsville, MD. [online:] <http://www.fao.org/docrep/003/X6879E/X6879E00.htm>; USDA National Nutrient Database for Standard Reference, [online:] <http://www.nal.usda.gov/fnic/foodcomp/search/>

## Food Price Data

The nominal expenditure on food consumption was obtained combining food items’ consumption with price information coming from the District Price Survey (DPS) module which was administered in conjunction with the 2007/08 NRVA. More specifically, the DPS module covers the price of all food items in the consumption module and a few other items such as grains and fuels.

DPS data were collected during NRVA 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<sup>8</sup>.

Prices were matched to food consumption data by month, location and item. The month was identified using interview dates from both DPS and Male Shura instruments and following the Shamsi calendar, from Asad 1386 to Sunbula 1387. Markets and households were matched by district, using codes common to both DPS and Male Shura questionnaires. Since not all food items were available in all districts markets at all times of the year, missing elements were imputed as to obtain a complete price matrix. The imputation process filled in missing values using the first feasible proxy according to the following order: (i) median of the 20 nearest neighbors (weighted by inverse distance); (ii) province median of that month; (iii) national median of that month; (iv) median price of 20 neighboring districts of the quarter (weighted by inverse distance); (v) province median of that quarter; and (vi) national median of that quarter.

Prices of rice and wheat flour are weighted average of prices of domestic and imported varieties. Since the quality and price of imported versus domestically produced rice and wheat flour varieties differ significantly, it is important to apply appropriate prices to their consumption. As in the NRVA 2005’s, the DPS of NRVA 2007/8 collected information on prices of both domestic and imported varieties of rice and wheat flour. The NRVA 2007/8 questionnaire also asked households about the percentages of imported rice and imported wheat flour they consumed. These percentages were then used as weights in the computation of the average prices of rice and wheat.

<sup>8</sup> In the case that the community purchased food from a neighboring district, then DPS would be administered in that neighboring district.

## “Other” Food Items

For each of the nine food category, the survey instrument also allows for a residual - “other” - food category item<sup>9</sup>. While accounting for a negligible share in consumption, we decided to include all the “other” food categories in the estimation of food consumption to improve totals’ estimation precision. Lacking a price for these residual categories, we defined *proxy prices* for each “other” category to be the median by month and district of the prices of items in each food group. Table 2 provides a detailed description of the methodology and rationale for each proxy price definition.

## Food Away From Home

A final component of total food consumption is the total value of meals consumed outside the household<sup>10</sup> e.g. restaurants, prepared food purchased from the marketplace, etc... The NRVA 07/08 collects this information in Section 12 of the Male Household Questionnaire by asking “What has the household spent in the last 30 days for food & drinks consumed outside the home?”, and, accordingly, the total value of food away from home was used in the imputation of total food consumption<sup>11</sup>.

**Table 2: Rationale for proxy prices of "Other" items**

| Food items 2007                | Proxy price   | Rationale   |
|--------------------------------|---|---|
| <b>Other bread and cereals</b> | Median, excluding nan   | Prices of items in this group do not vary much, median prices of this group are between 20 to 60 Afs per kilogram.  |
| <b>Other Meat and fish</b>     | Median, excluding dried meat  | Prices of items in this group do not vary much, median prices of this group are between 100 to 180 Afs per kilogram.  |
| <b>Other dairy products</b>    | Median of lower price dairy products (dogh, milk, and yoghurt)<br>(a) | Prices of items in this group vary greatly from about Afs 10 per kilo for milk and yoghurt to Afs 2-300 for butter.   |
| <b>Other oils/ fat</b>         | Price exists  |   |
| <b>Other vegetables</b>        | Median of fresh vegetables  | Prices of items in this group do not vary much,   |
| <b>Other Fruit</b>             | Median of fresh fruits <sup>(b)</sup>                                 | Prices of items in this group are Prices of items in this group do not vary much  |
| <b>Other Beverages</b>         | Price of bottled/ canned beverages and mineral water                  | Other beverages would be juices, which is similar to “Bottled/ canned beverages and mineral water”. Teas are dried leaves, so, the prices would not be comparable to other beverages. |
| <b>Other spices</b>            | Price of mixed spice  |   |

**Notes:** (a) Regarding other dairy products price, the proxy price was calculated from the mean of low priced dairy products. As the NRVA questionnaire covered most of the main dairy products. The other dairy products in Afghanistan could be boiled diluted yogurt, colostrums and similar products. The household themselves are making some secondary products from the listed dairy products that they may not reported as 1<sup>st</sup> product and they put it as secondary products in the others list.

(b) Other fruits are referred to fresh fruits. As there are many types of fruits in Afghanistan that mentioning all of them in the food consumption and price data need lots of space and most of the fruit varieties are seasonal and available in small localities. Therefore, median price of fresh fruits was used as proxy for price of other fruits.

<sup>9</sup> The questions to collect consumption data on “other” food items were first introduced in the current 2007/08 NRVA round.

<sup>10</sup> The inclusion of food away from home in the estimation of the consumption aggregate is consistent with the standard practice and with guidelines given by Deaton and Zaidi (2002).

<sup>11</sup> Being part of the household expenditures module, this question collected only values and not quantities. Lacking data on quantities and of a detailed description of the kind of food consumed, no calories will be imputed.

**Table 3: Shares of food group to total food consumption by real PCE quintile (in percentages)**

| PCE quintile               | 1          | 2          | 3          | 4          | 5          | Total      |
|----------------------------|------------|------------|------------|------------|------------|------------|
| <b>Bread and cereals</b>   | 56         | 52         | 47         | 42         | 33         | 43         |
| <b>Meat and fish</b>       | 6          | 9          | 12         | 15         | 18         | 14         |
| <b>Dairy products</b>      | 10         | 10         | 10         | 10         | 9          | 10         |
| <b>Oils/ fat</b>           | 9          | 8          | 8          | 7          | 6          | 7          |
| <b>Vegetables</b>          | 8          | 8          | 8          | 9          | 9          | 9          |
| <b>Fruit</b>               | 2          | 3          | 5          | 8          | 13         | 8          |
| <b>Sugar and candy</b>     | 3          | 4          | 4          | 4          | 3          | 4          |
| <b>Beverages</b>           | 3          | 3          | 3          | 3          | 3          | 3          |
| <b>Spices</b>              | 1          | 1          | 2          | 1          | 2          | 2          |
| <b>Food away from home</b> | 1          | 1          | 2          | 2          | 4          | 2          |
| <b>"Other" food items</b>  | 0.4        | 0.2        | 0.3        | 0.5        | 0.7        | 0.5        |
| <b>Total food</b>          | <b>100</b> | <b>100</b> | <b>100</b> | <b>100</b> | <b>100</b> | <b>100</b> |

Table 3 disaggregates food expenditure by food-item group and by quintiles of the per-capita distribution of food expenditure (in real terms). As expected, the share of staple foods (bread and cereals) to total food expenditure declines the higher the overall value of food consumption, and it is matched by an opposite increase in relatively more nutrient-rich food such as meat and fish and fruits.<sup>12</sup> A similar progressive trend in consumption is found for the “food away from home” category whose share to total food expenditure doubles when moving from the first to the fifth quintile of the distribution. To conclude, the consumption of “other” foods vis-à-vis total food expenditure is also confirmed to be of very small magnitude and not correlated with food consumption quintiles which again confirm the residual nature of these items’ consumption.

## Non Food Items

Total expenditure on non-food items was constructed by aggregating expenditures on goods and services from various section of the NRVA. Differently from food consumption, the non-food aggregate covers a wide and heterogeneous set of items such as expenditure on energy, medical services, education, transportation and clothing. Energy expenditures<sup>13</sup> were obtained from Section 2 - Housing and utilities - while other items were from section 12 - Household Expenditures<sup>14</sup> - and from Section 16 (answered by female respondents). Expenditures such as medical expenses, education, transportation and clothing were reported on an annual basis, and converted into monthly values. Energy expenditures

<sup>12</sup> Interestingly, and in line with this general finding, D’Souza and Jolliffe (2010) find that the decline over time of the real per-capita food consumption associated to the 2007/08 food price crisis was mainly driven by households trading off food quality for quantity by substituting more expensive and nutrient rich foods with staple foods.

<sup>13</sup> Energy expenditures cover all sources: electricity, gas, oil, firewood, charcoal, coal, straw, ping, and manure.

<sup>14</sup> Both questions on energy and household expenditures are administered in the Male Household Questionnaire.

cover all sources: electricity, gas, oil, firewood, charcoal, coal, straw, ping, and manure. Table 4 provides a list of non-food items covered in NRVA 2007/08.

**Table 4: Non-food items in NRVA 2007/08 and NRVA 2005.**

| <b>Non Food items NRVA 2007/08</b>                           | <b>NRVA 2005</b>                             |
|--|--|
| <b>Monthly non-food expenditures</b>                         |  |
| Food & drinks consumed outside the home                      | Food & drinks consumed outside the home      |
| Cigarettes   | Tobacco                                      |
| Tobacco/ snuff   |  |
| Matches  | Soap, detergent, household items             |
| Laundry powder/ detergents, cleaning supplies                |  |
| Soap (hand, toiletry)  |  |
| Shampoo  |  |
| Toothpaste   |  |
| Transportation fare - bus and taxis                          | Transportation, fuel (vehicle, non-business) |
| Fuel for car/ motor bike (do not include business vehicles)  |  |
| <b>Yearly non-food expenditures</b>                          |  |
| Medicines  | Medical items and drug costs                 |
| Doctor's fees  | Payment for medical services/doctor fees     |
| Hospital fee/ laboratory fee / X-rays/ operations/ radiology |  |
| Education fees (tuition for school, college, university)     | Education/school fees                        |
| Textbooks  |  |
| Pen/ Pencil and notebooks (school supplies)                  |  |
| Other stationery   |  |
| Men's clothing (excluding shoes)                             | Clothing/shoes                               |
| Women's clothing (excluding shoes)                           |  |
| Children's clothing (including school uniforms)              |  |
| Men's shoes  |  |
| Women's shoes  |  |
| Children's shoes   |  |
| <b>Household energy expenditures</b>                         |  |
| Electricity  | Electricity                                  |
| Gas  | Non-electricity lighting                     |
| Fuel Oil   | Cooking                                      |
| Firewood   | Heating                                      |
| Charcoal   |  |
| Coal   |  |
| Straw, Ping, Manure  |  |

Following standard practice, the non-food aggregate does not include certain categories of expenditures such as weddings, celebrations, donations, talisman and other miscellaneous expenditures. These excluded expenditures can be grouped into three categories: (1) lumpy expenditures, (2) investment expenditures, and (3) expenditures not related to household well being.

Examples of lumpy expenditures are once-in-a-lifetime events such as weddings, funerals, and Haj as well as annual celebrations. Purchases of durable goods such as cars and TVs are also considered lumpy and hence not included in the non-food items aggregate but treated separately. In fact, while all households will spend on these large items at some stage of their lifetime, only few of them will incur in such expenditures during the course of the NRVA survey. Accordingly, these expenditures were not included as such because they would lead to an artificially high level of inequality. Instead of using expenditure, durable goods have been included in the consumption aggregate for their “use value”. The methodology will be explained in detail in the next subsection.

Housing construction expenditures were not included because they are considered an investment and not as consumption. Fines, debt payments and charitable donations were similarly excluded as they do not contribute directly household welfare. The inclusion of debt payments would lead to a double counting of expenditures – once for the goods consumed from the loan and then again the repayment. Regarding the exclusion of charitable gifts to other households, it might be argued that these transfers may yield welfare to the giving households as well. Nevertheless, their inclusion would again result in double counting because conceptually the same items would show up in the consumption of receiving households. On the other hand, it should be noted that we included expenditures on talismans (*Tahwiz/Shoyest*) because they were considered a part of the expenditures on health, through traditional medicine.

## Consumer Durables

The direct inclusion of lumpy household expenditures on durable goods in the consumption aggregates might lead biased results. A more appropriate approach would rather be to include the “value of services” that a household receives from the possession of all its durable goods and not just the expenses on those purchased during the survey recall period. A standard approach is to estimate and use the so called “rental equivalent” or “user cost” of durable goods. This user cost can be thought of as comprising two components: (i) the opportunity cost of funds tied up in the durable good; and (ii) time depreciation (in some rare cases, appreciation) of the good itself. The imputation of the “user costs” of household durables is generally done on the basis of data on date of purchase and cost of acquisition, combined with assumptions about the lifetime of the good and depreciation rates.<sup>15</sup>

A detailed inventory of durable goods can be obtained from the asset module (Section 5) of the Male Household Questionnaire. Data in this section include items such as refrigerator, stove/ gas balloon, sewing machine, iron, radio/tape recorder, TV, VCR/DVD player, satellite phone, bicycle, motorcycle, car, tractor, thresher, mobile phones, carpets (*khalin*), *gilim*, blankets, and kitchen utensils.

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<sup>15</sup> This procedure is described in detail in Deaton and Zaidi (2000).

In this exercise, we assumed the life of assets to be 10 years (with a flat-line depreciation of 10 percent per year), and an interest rate 4 percent, implying the effective discount rate used of 14 percent. Calculation results showed that an average household had a “use value” of 439 Afs per month for their durable goods, which accounted for 2.5 percent of total household expenditures.

## Housing

Housing is an important part of household expenditures, especially in urban areas. In an ideal world, housing expenditure should be included to capture the service that households enjoy from their dwelling. This item is usually captured by reported rent or – if a household does not report rent (for instance, if a household owns the house it lives in) – an imputed rent estimated statistically, using existing rent information and dwelling’s characteristics.

In NRVA 2005, only 4.5 percent of households (less than 1 percent in rural areas) reported the value of their rents, which made it impossible to statistically impute rents for the non-reporting majority of households and led to the exclusion of housing from the consumption aggregate. The revision and improvement of 2007/8 NRVA survey instruments brought to including several new questions meant to directly capture the value of the dwelling thereby potentially allowing for a greater precision in rent estimation. Eventually, a sizeable number of households reported housing values and the quality of information available turned out to be very good. As many as 7,819 out of 20,576 households in the sample reported valid housing values, which accounts for about 48 percent of urban households and 38 percent of rural households.<sup>16</sup> Moreover, all 961 households that paid rent also reported self-evaluated dwelling values allowing the use of this subsample to validate the estimated rental values.<sup>17</sup> In order to obtain a measure of the rental values of housing, we first estimated a Hedonic pricing model to impute missing in the subjectively reported housing values. In a second step, we converted the housing value to monthly rent. Detailed methodology and sensitivity analysis are described in what follows.

### Hedonic Model of housing value

A hedonic model decomposes the price of an item into its determinants. In this case, for example, the hedonic model for housing relates housing price to factors such as size, location, construction materials. To account for potential heterogeneity in the underlying pricing model, we estimated separate regression for three dwelling groups, namely: urban, rural, and tents.<sup>18</sup> Determinants – together with their sample averages – are described in Table 5 and these variables were regressed on self-reported housing values using a log-linear model.<sup>19</sup> Having estimated the housing model for the entire sample of

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<sup>16</sup> Note that the survey questionnaire requires interviewers to fill with “888” if the respondent does not know the housing value. We assume the following values--8, 88, 888, 388, 488, 848, 688, 868, 880, 884, 886, 898—to be mis-scans of 888. These values were recoded to missing.

<sup>17</sup> As it will be discussed in next sections, the self reported housing values are sensible and vary within a credible range.

<sup>18</sup> It should be noted that the rural dwellings group included Kuchi communities who lives in permanent dwellings in rural areas.

<sup>19</sup> Model specifications of were selected using a stepwise method to iteratively find significant determinants. As a sensitivity analysis two alternative models were considered, namely : a linear – OLS model - on level of housing values, and a Least absolute deviations (LAD) estimation on level of housing values. Both alternatives underperformed the chosen log-linear OLS model selected.

households reporting subjective housing value, housing values were predicted for the remaining part of the sample.<sup>20</sup>

**Table 5: Average house characteristics**

| Dwelling characteristics        | Urban dwelling | Rural dwelling | Tents |
|---------------------------------|----------------|----------------|-------|
| Number of rooms                 | 3.9            | 3.3            | 1.5   |
| Access through footpath (%)     | 14             | 31             | 27    |
| Access through paved Road (%)   | 30             | 3              | 1     |
| Built 5 -< 10 years ago (%)     | 10             | 15             | --    |
| Traditional covered latrine (%) | 73             | 58             | 2     |
| Flush latrine (%)               | 13             | 0              | 0     |
| Fired brick/stone wall (%)      | 17             | 6              |       |
| Concrete wall (%)               | 5              | 0              |       |
| Mud bricks/ mud wall (%)        | 77             | 89             |       |

Note: Means are not weighted

### Converting Housing Value to Monthly Rent

In order to convert predicted housing values to monthly rents, we first rescaled housing values from shared dwellings and then applied the appropriate depreciation and interest rates.

Living in shared dwellings is a quite common situation in Afghanistan. According to NRVA data, about 19 percent (4,000) of households reported to share at least one room with another household. For these households, the values of housing service received – while keeping house characteristics constant – is assumed to be less than what the household would enjoy if it had the entire house to itself. Households in shared dwellings were identified from question 17 in Section 2 of the Male Household Questionnaire, which asked if “Any of the rooms shared with another household?” The NRVA also collected the number of rooms that the households shared with other families. This proportion was used to compute the rescale factor (RF) according to the following formula:

$$RF = \frac{\text{total \# of rooms}}{(\text{total \# of rooms} + \# \text{ shared rooms})}$$

<sup>20</sup> Predicted values were used regardless of whether households reported actual housing values or not for consistency reasons. Housing values of 69 households for which some of housing characteristics were missing were further imputed using the PSU’s median housing value.

Following the same logic used for consumer durables, the housing value was converted to a monthly rent by imposing a relationship based on interest and depreciation rates. In this case, we used the value of depreciation rate of 1.5 percent and interest rate of 4 percent. As shown in Table 5, while different alternatives were considered, the discount rate of 5.5 provides the best approximation to the actual value reported by the subsample of households renting their dwelling in urban areas.<sup>21 22</sup>

## Analysis of the Consumption Aggregate

The consumption aggregate is finally obtained adding up expenditure on food and non food items, together with user values of consumer durables and housing<sup>23</sup>.

The relative importance of each of these classes as it varies by quintiles of the (real) per capita total expenditure distribution is show in Table 6. In general, as one would expect from Engel’s law,<sup>24</sup> the share of food items to the total tends to decline for quintiles higher up in the total expenditure distribution. As it is further discussed in the section on defining the poverty line, variations in the composition of the consumption aggregate along the distribution of total expenditure imply that the composition of the consumption bundle defining basic needs should be estimated on a subsample of “relatively poor” households.

**Table 6: Share of consumption aggregate components, by real PCE quintile (in percentages)**

| Quintile             | Food      | Non-food  | Durables | Housing  |
|----------------------|-----------|-----------|----------|----------|
| <b>1st (poorest)</b> | 66        | 25        | 2        | 7        |
| <b>2</b>             | 64        | 27        | 2        | 7        |
| <b>3</b>             | 61        | 30        | 3        | 7        |
| <b>4</b>             | 57        | 31        | 3        | 9        |
| <b>5th (richest)</b> | 49        | 33        | 4        | 13       |
| <b>All</b>           | <b>59</b> | <b>29</b> | <b>3</b> | <b>8</b> |

<sup>21</sup> Lacking a developed rental market for rural areas, the consistency between estimated and actual rents in urban areas was deemed to be the appropriate robustness check.

<sup>22</sup> It should be noted that we used actual reported rents when available and used the predicted rents when household did not report rent. Since actual reported rents were the only actual data existed, we tried to make the most use of it. The predicted rents are shown to be very consistent with actual rents. The regression of housing value on rent shows that, among households that actually reported rents, the predicted housing values are very well correlated with actual rents.

<sup>23</sup> For the remaining of this note we will simply refer to the non-food component of the consumption aggregate as to the non-food (consumption) aggregate.

<sup>24</sup> Engel's law is not at all a law, but an empirical *observation* in economics that as income rises, the *proportion* of income spent on food falls, even if the *level* of food expenditure on food rises.

## Household Size Adjustment

The ultimate object of poverty analysis is to assess individual welfare. However, in most of the cases, it is not possible to gather data on individual consumption whereas this information is easily available at the household level. To account for differences in household size and composition, it is necessary to move from total household expenditure and to assign a measure of welfare to each household member.

In the case of Afghanistan, for transparency reasons, consistency with previous poverty analysis and given the absence of a well-defined equivalence scale, household expenditure was converted into per-capita terms using the household size as a deflator.<sup>25</sup>

## Price Adjustment

One of the advantages of the Cost of Basic Needs approach is that it allows one to anchor poverty to a fixed level of welfare, and consequently allows for poverty comparisons. However, households living in different locations may pay different prices for similar goods, and similarly households could have to pay different prices for the same exact goods at different points in time. When comparing standards of living across locations or over time using fixed measure of welfare, such differences in the cost of living need to be taken into account.

Besides taking into account for spatial differentials, adjusting for price variation over time is particularly critical in the case of the NRVA 2007/08 whose year-round fielding coincided with the food-price crisis. As food prices rose much faster than non-food prices, different indexes were used for food and non-food items. Food price data were obtained from the DPS, while CPI was used for non-food prices.

A price index aggregates the price of a large number of individual goods and services into a single number. For a temporal and spatial price index, households from different areas and surveyed in different points in time are grouped into distinct sets, and a price index is constructed for each of the area-time pairs. After much discussion and debate for the case of the NRVA 2007/08, food prices used for constructing the index are averages within each quarter and within each of the 14 regions described in Table 7.<sup>26</sup> These prices are then normalized with respect to a base to obtain a unique price index that can be used to deflate nominal aggregates over the entire sample. In our case the base for the index was prices in the urban – Central region in the first quarter of the survey (fall 2007).

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<sup>25</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>26</sup> The definition of the 14 regions used for constructing food price index matches NRVA sampling frame's stratification and differentiates between urban and rural areas. Kuchi PSUs were matched with rural households in the respective region. Quarters were defined using the Shamsi calendar as follows: *1<sup>st</sup> quarter*: Asad – Aqrab 1386; *2<sup>nd</sup> quarter*: Qaws – Dawa 1386; *3<sup>rd</sup> quarter*: Hoot 1386 – Sawar 1387; and *4<sup>th</sup> quarter*: Jawza – Sunbula 1387.

**Table 7: List of regions and provinces for spatial aggregation**

| Region              | NRVA Domain  | Spatial Aggregation Areas (SAA) | Provinces                                       |
|---------------------|--------------|---------------------------------|---|
| <b>Central</b>      | <i>Urban</i> | 1                               | Kabul, Kapisa, Parwan, Wardak, Logar, Panj Sher |
|                     | <i>Rural</i> | 2                               |   |
| <b>South</b>        | <i>Rural</i> | 3                               | Ghazni, Paktika, Paktya, Khost                  |
| <b>East</b>         | <i>Urban</i> | 4                               | Nangarhar, Kunarha, Laghman, Nuristan           |
|                     | <i>Rural</i> | 5                               |   |
| <b>North East</b>   | <i>Urban</i> | 6                               | Badakhshstan, Takhar, Baghlan, Kunduz           |
|                     | <i>Rural</i> | 7                               |   |
| <b>North</b>        | <i>Urban</i> | 8                               | Samangan, Balkh, Jawzjan, Sar-I-Poul, Faryab    |
|                     | <i>Rural</i> | 9                               |   |
| <b>West</b>         | <i>Urban</i> | 10                              | Badghis, Herat, Farah                           |
|                     | <i>Rural</i> | 11                              |   |
| <b>South West</b>   | <i>Urban</i> | 12                              | Nimroz, Helmand, Kandahar, Zabul, Uruzgan       |
|                     | <i>Rural</i> | 13                              |   |
| <b>West Central</b> | <i>Rural</i> | 14                              | Ghor, Bamyán, Daikundi                          |

### Food Price Adjustment

The food price index chosen for adjusting food consumption is a *Laspeyres price index*<sup>27</sup> at the SAA (spatial aggregation area) -quarter level.<sup>28</sup> The Laspeyres indeed compares prices in each region-quarter unit (1) with a base reference (0) according to the formula:

$$P_{LS}^1 = \sum_{i=1}^n w_i^0 \frac{p_i^1}{p_i^0}$$

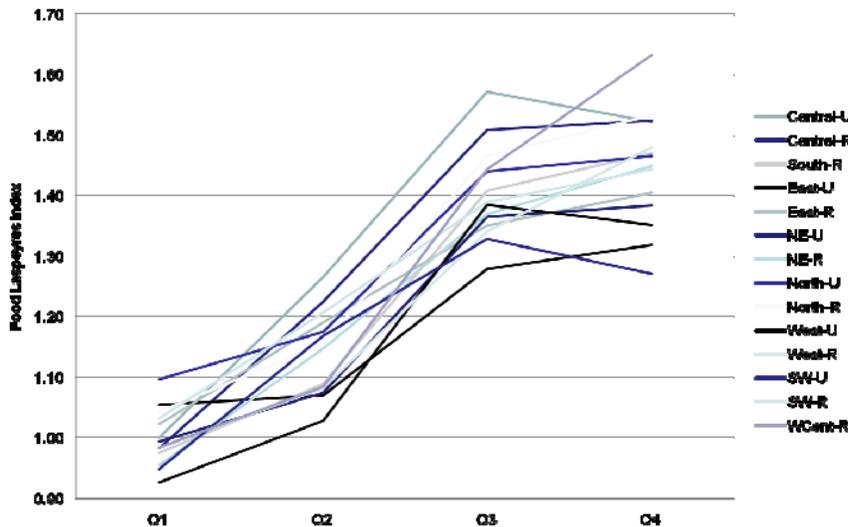
<sup>27</sup> See for reference Deaton and Tarozzi (2000) and Deaton, Friedman and Alatas (2004).

<sup>28</sup> The index is calculated at the region-quarter level to average out the noise and variation in the district price data, as well as to reduce the reliance on imputed prices (to replace missing prices for certain items in some districts and months). Constructing price indices at a lower level of disaggregation – for example at province level or by month – is made difficult by the fact that information on prices of certain items are missing for some cells. Moreover, the price index by region-month showed too much inter-months variation (e.g. increasing 10 percent one month, decreasing the next, increasing following this). We believed the level of fluctuations observed from the monthly data was due to sampling and small cell sizes, and exaggerated the true price fluctuations. We opted to use quarterly aggregates to increase the number of price observations in each cell and smooth out some of the small sample noise. The choice of the disaggregation level differs from 2005 price index calculation which was based on provincial data, taking advantage of the limited temporal variation registered during the short fielding of the survey.

where  $p_i^1$  is the mean unit price of item  $i$  for the region-quarter 1,  $p_i^0$  is the mean unit price of item  $i$  at the national level for quarter 1, and  $w_i^0$  is the national average budget share for item  $i$ . This price index is calculated by using a reference basket consumed by the relatively poor households, i.e. using a subsample of the second to fifth deciles of the real per capita consumption distribution.

In order to identify what the relatively poor consume, we follow a two-step procedure. In the first step, a preliminary price index is obtained sorting households according to their nominal per capita expenditure, sub-sampling all households within the 20-50<sup>th</sup> percentiles of each region distribution.<sup>29</sup> From this subsample, the expenditure shares for every food item consumed were used to form the preliminary reference bundle. The cost of the bundle for each region quarter (with quantity weights given by the expenditure shares) was then computed and its value deflated using the reference cost of the (same) reference bundle at national quarter 1 prices. Once this first approximation of the price index has been obtained, the index itself was used in a second step to deflate nominal per-capita consumption and repeat the resorting of households to extract the subsample of relatively poor households and re-compute the “final” price index<sup>30</sup>.

Figure 1: Food price index



<sup>29</sup> In other words, 30 percent of households in each region belong to the sub-sample used to select the reference bundle consumed by relatively poor households. By selecting 30 percent within each region, we ensure that the variation of consumption patterns across regions is represented in the reference bundle.

<sup>30</sup> This resorting of the data gives a slightly different set of ‘relatively poor’ households and also a slightly different expenditure share weights for the reference bundle of food items.

Table 8: Sample size (households) for estimation of poverty line

| Region        | Quarter |     |     |     | Year-round sample                 |                                      |
|---------------|---------|-----|-----|-----|-----------------------------------|--------------------------------------|
|               | 1       | 2   | 3   | 4   | Food bundle<br>(20-50th percent ) | Non-food share<br>(20 percent Total) |
| Central-Urban | 336     | 216 | 408 | 384 | 403                               | 269                                  |
| Central-Rural | 536     | 392 | 472 | 784 | 655                               | 437                                  |
| South-Rural   | 472     | 424 | 488 | 728 | 634                               | 422                                  |
| East-Urban    | 64      | 32  | 64  | 80  | 72                                | 48                                   |
| East-Rural    | 352     | 560 | 512 | 552 | 593                               | 395                                  |
| NE-Urban      | 160     | 104 | 184 | 272 | 216                               | 144                                  |
| NE-Rural      | 608     | 496 | 680 | 712 | 749                               | 499                                  |
| North-Urban   | 184     | 168 | 216 | 280 | 254                               | 170                                  |
| North-Rural   | 512     | 464 | 408 | 816 | 660                               | 440                                  |
| West-Urban    | 80      | 48  | 136 | 136 | 120                               | 80                                   |
| West-Rural    | 504     | 360 | 600 | 656 | 636                               | 424                                  |
| SW-Urban      | 104     | 112 | 168 | 144 | 158                               | 106                                  |
| SW-Rural      | 560     | 384 | 528 | 712 | 655                               | 437                                  |
| WCental-Rural | 288     | 192 | 360 | 384 | 367                               | 245                                  |

### Non-Food Price Adjustment

Unlike food consumption where we have unit prices from the DPS, we do not have unit price data for non-food items, which complicates the construction of the non-food price index.<sup>31</sup> Moreover, the inflation differential between food and non-food items makes the use of the food price index unsuitable to correct for temporal differences in non-food consumption. Accordingly, price adjustment of non-food consumption was obtained relying on the CPI provided by the Central Statistics Organization (CSO). For our purpose, the CPI index has the advantage of being based on a basket with similar items as those considered in NRVA's non-food aggregate. However, a drawback of CPI data is that they were collected only from 6 major urban areas, thereby making the index unsuited to capture spatial price differences. As a result, only the temporal element from the CPI was used to deflate nominal non-food prices back to fall 2007<sup>32</sup>.

## 4. Definition of the Poverty Line

Setting the poverty line is the goal of the methodological process described in this note. The poverty line consists of two components – the food poverty line and an allowance to account for basic non-food needs. The consumption aggregate obtained following the steps previously described is the basis for

<sup>31</sup> Moreover, NRVA instruments collect total expenditure on non-food items as opposed to the number of unit-services consumed.

<sup>32</sup> The temporal deflator obtained from the non-food CPI is 1 for quarter 1; 1.03 for quarter 2; 1.025 for quarter 3; and 1.076 in quarter 4.

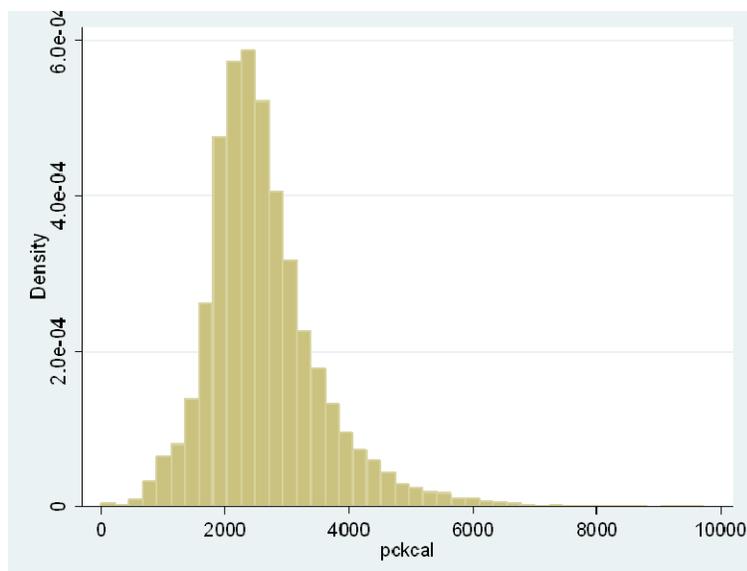
measuring wellbeing, whereas the poverty line is the benchmark for assessing whether an individual can attain a minimum required level of wellbeing. In other terms, if the per-capita level of real expenditure is less than the poverty line, the individual will be deemed to be poor.

### Food Poverty Line

The definition of the food poverty line follows a nutrition-based approach anchoring the minimum level of welfare to a caloric intake of 2100 Kilocalories.

As a first step, households' food consumption was converted to kilocalories (Table 1 provides calorie conversions for each food item)<sup>33</sup>. Food items, whose consumption was recorded in number of pieces such as eggs and bread, were similarly converted to weight measurement with the same conversion scale.<sup>34</sup> The conversion table was enhanced to accommodate the expanded food questionnaire of the NRVA 2007/08<sup>35</sup>. Figure 2 displays the per capita caloric distribution. According to NRVA 2007/08 data, the estimated median per capita consumption level at the national level is 2,440 kilocalories per day.

Figure 2: Distribution of per-capita caloric consumption



As a second step, the cost-of-basic-needs (CBN) method is used to estimate the level of per capita consumption expenditure at which the nutritional requirements are met. In doing so, the same reference consumption bundle used for the construction of the Laspeyres index i.e. the average quantity of all items consumed by the relatively poor households – households within the 2-5<sup>th</sup> deciles – in each

<sup>33</sup> Table 1 reflects some minor corrections to calorie conversion factors used for the 2005 NRVA data. The notes to Table 1 provide source citations for the calorie conversion, heretofore missing from previous NRVA analysis.

<sup>34</sup> An egg is assigned weight of 50 grams and a piece of bread is assigned a standard weight of 200 grams.

<sup>35</sup> It should be noted that food consumption items in the “other” categories were not included in the caloric intake calculation.

region. This reference bundle contains 2,441 calories. We then estimate the cost of obtaining 2,100 calories (the benchmark determined to be the per capita minimum caloric requirement to meet basic needs) if those calories were obtained following the same consumption patterns as found in the reference food bundle. More formally, letting  $p_i$ ,  $q_i$  and  $C_i$  be prices<sup>36</sup>, quantities and calories intakes of individual  $i$  in the reference group, the food poverty line is defined as follows:

$$PL^F = 2,100 * \left( \frac{\sum_i p_i * q_i}{\sum_i C_i} \right) = 690 \text{ Afgh.}$$

The estimated cost of this scaled food bundle is 690 Afghani per capita, per month when costed in terms of quarter 1 (fall 2007), region 1 (Central, urban) prices. In real terms, the cost of the food poverty line is the same for everyone whereas it differs across regions and over quarters in nominal terms.

### Non-Food Component of the Poverty Line

In addition to food needs, a certain level of non-food expenditures is essential to sustain the minimum living standards of the poor. However, setting up a non-food poverty line is not as straightforward as that of a food poverty line because there is no readily definable need for nonfood expenditures, such as minimum caloric intake for food needs.

The approach followed is to estimate the non-food allowance for the subset of households in each region whose per capita food expenditure is relatively close to the poverty line<sup>37</sup>. The logic behind this definition follows from the argument that non-food expenditure for these households can be considered as reflecting basic nonfood needs. The premise is that any unnecessary spending on non-food items would prevent such households from obtaining sufficient food to meet the minimum caloric requirement. The subsample of households used for non-food allowance estimation was selected with the twofold 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 particular we defined the relevant subsample by selecting 10 percent of the sample above and 10 percent of the sample below the poverty line. For example, if a particular region has 500 households, we select 50 households with food expenditures just under the food poverty line, and 50 households with food expenditures just above the food poverty line.<sup>38</sup> This approach is illustrated in Figure 3.

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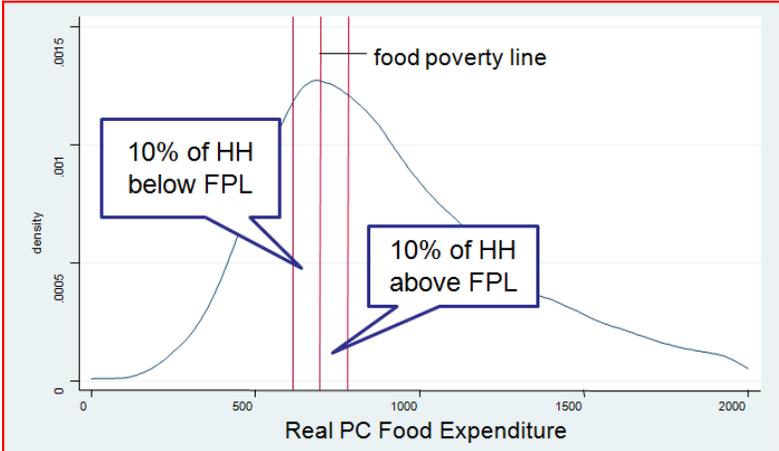
<sup>36</sup> Real prices obtained using the Laspeyres index.

<sup>37</sup> To account for the large differences in the costs, and presumably needs, of non-food consumption across regions, we estimate region-specific non-food allowances to supplement the food poverty line.

<sup>38</sup> This approach is in contrast to sub-sampling based on those households whose food expenditures are +/- some percent in value of the food poverty line. The weaknesses of this approach are two-fold: the strategy does not ensure a fixed, minimum sample size, and the strategy will frequently result in an unbalanced sample with more households above the food poverty line than below it. The unbalanced nature of the subsample is due to the empirical regularity that the food poverty line typically lies to the left of the mass point of the distribution of food

The non-food allowance is then estimated as the median value of non-food expenditures for this 20 percent subsample of households around the poverty line.

Figure 3: Reference sample for non-food allowance estimation



### Setting the National Poverty Line

The overall poverty line is the sum of the food poverty line and the non-food allowance. A household is defined as poor if the total value of per capita consumption is less than the poverty line.

The overall poverty rate for Afghanistan is 36 percent of the total population, which corresponds to approximately 9 million Afghans who are not able to meet their basic needs (

Table 9). While 36 percent of the population cannot meet basic consumption needs, there are many more people who are highly susceptible to becoming poor.

Figure 4 (Pen’s parade) illustrates this idea by revealing that the (inverse) cumulative density function of consumption is very flat around the poverty line. To read this figure, note that the solid horizontal line reflects the value of the poverty threshold. This is the amount of Afghans per person per day needed to meet minimum basic needs. This line intersects the density function at 36 percent, revealing that 36 percent of the population consumes at a level below the poverty threshold. The dashed line above the poverty threshold is set at a value 20 percent greater than the poverty line and intersects the density

consumption. Or, in other words, the slope of the food consumption distribution tends to be positive where the food poverty line intersects (meaning more mass immediately to the right of the food poverty line).

function at 53 percent. This indicates that more than half of the population is consuming at a level of less than 120 percent of the poverty line. One small, negative shock has the potential to move many individuals into poverty.

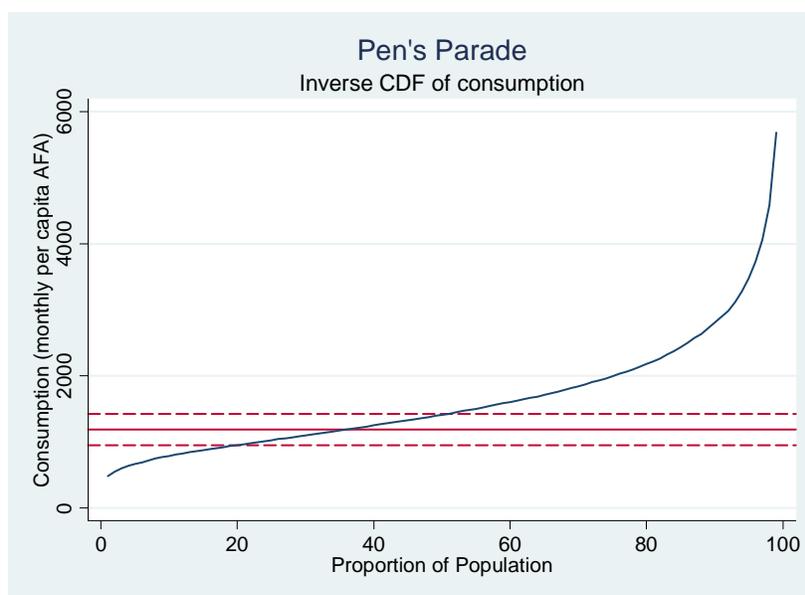
**Table 9: Poverty in Afghanistan, 2007-08**

| Poverty Indicators     | Estimate | Std. Err. | [95 percent C. I.] |       |
|------------------------|----------|-----------|--------------------|-------|
| Poverty Headcount rate | 36       | 0.58      | 34.85              | 37.11 |
| Poverty Gap            | 7.9      | 0.18      | 7.58               | 8.28  |
| Poverty Gap Squared    | 2.6      | 0.08      | 2.44               | 2.75  |

*Note:* Individual-level weights used, standard errors corrected for complex sample design.<sup>39</sup>

*Source:* IRoA and WB (2010)

**Figure 4: Pen's parade**



*Source:* IRoA, WB (2010)

<sup>39</sup> Howes and Lanjouw (1998) present evidence that estimated standard errors for poverty indices can have large biases when false assumptions are made on the nature of the sample design. An example from Jolliffe, Datt and Sharma (2004) shows that in the case of poverty indices for Egypt, failing to adjust for the characteristics of the sample design would result in an underestimate of the correct standard errors by 187 to 212 percent.

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