

# Setting a National Poverty Line in Uzbekistan

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## Abstract

This report describes a proposal for defining a national poverty line in Uzbekistan and policy considerations for how such a line ought to be used. The approach uses the *cost of basic needs* method and describes an alternative of using the *poverty gap* concept to assess the effectiveness of social programs specifically focused on poverty reduction. The report demonstrates the proposed methods using household consumption and expenditure data from a survey launched by the State Statistics Committee of Uzbekistan in 2020. The results may be affected by the abnormal conditions surrounding the outbreak of COVID-19 in Uzbekistan. To address this concern, a re-assessment of the poverty line will be undertaken in December 2021 using data continuously collected in the interim. Official poverty rates for the period 2020-2021 will be reported in the first quarter of 2022.

## **Acknowledgements**

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## I. Introduction

In his January 2020 address to the Oliy Majlis (Parliament) of Uzbekistan, President Mirziyoyev announced preparations for a new strategy to identify and reduce poverty. The responsibility to develop the strategy was assigned to several government agencies, together to World Bank and the United Nations Development Program (UNDP).<sup>1</sup>

Following the President's speech, the Ministry of Economy was restructured to become the Ministry of Economic Development and Poverty Reduction (MoEDPR), taking on the role of the primary government partner tasked with defining the official poverty line and poverty reduction strategy. In June 2020, the Executive Office of the President announced the revision of the existing *minimum consumption basket*,<sup>2</sup> which is conceptually akin to a poverty line. The minimum consumption basket is the largest single component of the concept of the *subsistence minimum* which also includes fees and mandatory contributions and has been commonly used to anchor social policies for the low-income population in Uzbekistan.

This report provides joint recommendations from MoEDPR and the World Bank to define and measure monetary poverty in Uzbekistan using the *cost of basic needs* method. These recommendations are a key component of the National Poverty Reduction Strategy under development by a joint MoEDPR, UNDP, and World Bank technical team. The estimation procedure described in this report uses consumption and expenditure data from a modernized official Household Budget Survey launched by the State Statistical Committee of Uzbekistan in February 2020 with support from the World Bank. The survey was purposefully designed to facilitate the calculation of a poverty line and to continuously monitor poverty trends.

As the survey's launch coincided with the outbreak of COVID-19 in Uzbekistan, the initial poverty estimates resulting from the analysis of these data were elevated. In light of the highly abnormal situation, including the national lockdown measures implemented in April and May 2020, a re-assessment of the poverty line will be completed beginning in December 2021, and official poverty headcount estimates using the new poverty line will be published in the first quarter of 2022.

Poverty lines are most useful when they are fit-to-purpose; and given the diversity of poverty reduction programs around the world, there is no single international standard for how poverty lines are applied in public policy. The most typical objective in setting a poverty line is to identify the number and characteristics of people who have insufficient means to obtain the basic necessities of life. Often, this information is then used to guide programs that provide social support (alongside other complementary policies) to improve the wellbeing of poor people. However, globally there is a great variety of methods used to establish eligibility and benefit size in social programs within this broad

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<sup>1</sup> <https://mfa.uz/en/press/news/2020/01/23080/>

<sup>2</sup> <https://mfa.uz/en/press/news/2020/06/24236/>

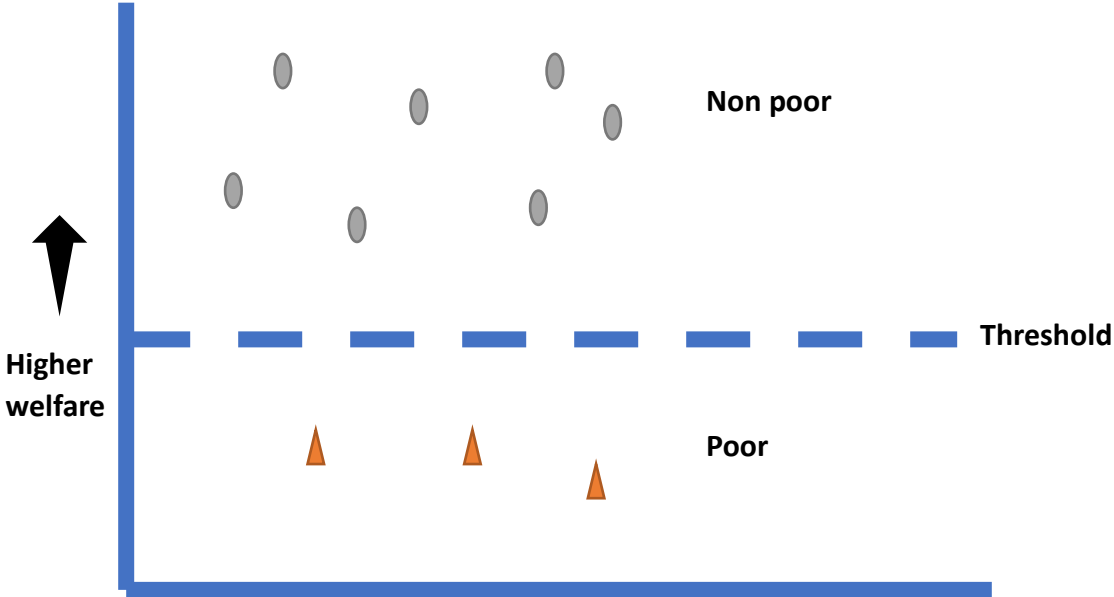
description. In many cases, social assistance programs are partially linked to a concept of poverty, but in many countries, this link is either indirect or there is no formal relationship.

The remainder of this section reviews basic concepts relevant to both global and national poverty lines, briefly describes recent practice in Uzbekistan, and provides an overview of the cost of basic needs approach. Section II describes the updated Household Budget Survey launched in 2020 and used in the analysis that follows. Section III describes the construction of a welfare indicator base on household consumption. Section IV describes the steps to estimating the poverty line and results based on the data available at this time. Section V reviews policy considerations and the legal context in Uzbekistan. Finally, section VI concludes, providing recommendations for establishing a poverty line, monitoring poverty over time, and using the poverty gap to evaluation the effectiveness of programs aimed at reducing poverty.

### I.I – Introduction to Poverty Lines

There are three essential concepts with respect to poverty measurement: a welfare measure, a poverty line, and poverty indexes. The *welfare measure* is the indicator that is used to derive a distribution of living standards (usually consumption expenditure or income). A *poverty line* is a threshold below which individuals are classified as poor. Finally, a *poverty index* is a summary statistic of poverty in the population (for instance, the poverty headcount ratio, commonly referred to as the “poverty rate”). Figure (1) provides a graphic representation of these concepts.

**Figure 1: Graphical Representation of Basic Poverty Measurement**



Globally, there are two common types of monetary poverty measures: (i) internationally comparable poverty measures and (ii) national poverty measures. As part of its mandate, the World Bank regularly

produces poverty estimates of (i), while most of this report is dedicated to an approach for estimating (ii). The global poverty estimates monitored by the World Bank are distinct and separate from those that are maintained by national governments, and the World Bank does not recommend that the international definitions be adopted as official national indicators. However, global poverty measures are useful for benchmarking purposes, and such comparisons are included in this report.

The motivation for having two sets of poverty indicators (global and national) is primarily due to issues of comparability. Typical national official poverty monitoring approaches consider local patterns of income or consumption and are often more appropriate for country-specific analysis. However, despite their many advantages, national official poverty measures are usually not directly comparable with the approaches used in other countries, in part because they are so tailored to the specific country context. Thus, comparisons across countries require a harmonized approach, such as that conducted by the World Bank.

An additional reason that the World Bank uses a stand-alone approach to measure internationally comparable poverty rates is to account for differences in the cost of living between countries. To address this issue, the World Bank leads the International Comparisons Program (ICP), a global effort to measure differences in the amount of goods and services a unit of one country's currency can purchase in another country. The ICP exercise applied in most published comparisons was completed in 2011.<sup>3</sup> However, Uzbekistan is one of the few countries that did not fully participate in the latest rounds of the ICP exercise. This poses challenges for estimating consistent poverty rates for Uzbekistan using the international poverty lines. Instead of being estimated directly, the standard PPP conversion factors for Uzbekistan are estimated using a cross-country regression technique. This approach yielded about 636 So'm to international USD in 2011 terms when first published. Recent updates to global PPP conversion factors resulted in a revision to 631 So'm to 2011 international USD.

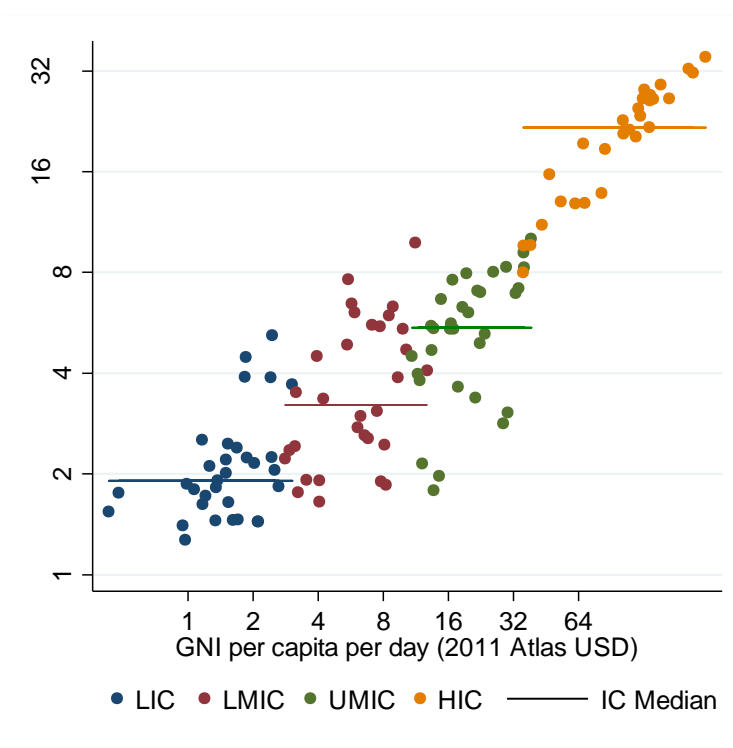
For the most recent ICP revision in 2011, the global extreme poverty line was estimated using the average national poverty lines of the poorest countries, converted into PPP terms. The result was a line set at \$1.90 a-day.<sup>4</sup> In addition, the World Bank has introduced income class poverty lines which facilitate comparisons between countries at similar stages of development. The income class poverty lines are defined for the lower middle-income and upper middle-income countries and are based on the national poverty lines of the countries in each group, just as was the case for the global extreme poverty line. As such, they provide a more appropriate threshold to measure poverty for countries in each income class. The lines are defined at \$3.2 (for lower middle-income countries) and \$5.5 (for upper middle-income countries). The welfare measures of income or consumption used are the same as those used for the international poverty line.

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<sup>3</sup> Another round of the process was completed in 2017, with results first published in 2020.

<sup>4</sup> More details on the updated lines from World Bank experts Francisco Ferreira, Dean Joliffe, and Espen Prydz, [at this link](#)

**Figure 2: Estimation of Supplemental Income-class Poverty Lines**



*Source: World Bank Staff Calculations*

However, most social programs in Uzbekistan do not define monetary values in per person daily terms. Rather, thresholds are usually expressed in monthly household or family terms. This complicates direct comparisons with the international poverty lines as household size varies systematically with a household’s “rank” in terms of consumption or income. Table (2) attempts to account for this factor by converting daily values into monthly terms while accounting for the average household size by decile of per capita consumption.

**Table 1: Household Line by Average Household Size (Monthly Terms)**

	HH Size	Food Share	1.9	3.2	5.5
Decile 1	6.43	71%	588,907	991,843	1,704,730
Decile 2	6.05	67%	549,300	925,137	1,590,080
Decile 3	5.66	68%	519,307	874,622	1,503,257
Decile 4	5.71	67%	500,462	842,884	1,448,707
Decile 5	5.65	66%	506,041	852,279	1,464,855
Decile 6	5.59	64%	495,851	835,117	1,435,357
Decile 7	5.55	62%	482,162	812,063	1,395,733
Decile 8	5.32	61%	462,589	779,097	1,339,073
Decile 9	4.98	56%	437,018	736,030	1,265,051
Decile 10	4.79	45%	394,321	664,120	1,141,456
National	5.64	64%	565,881	953,063	1,638,078

## I.II – Guiding Principles of Setting a National Poverty Line

National poverty lines are often crucial guides in designing social policies and monitoring living standards in a country. One of the most common approaches to setting poverty lines is the *cost of basic needs* method (Lipton & Ravallion 1995; Deaton and Zaidi, 2002). Poverty measures using this approach are absolute (see Table 2) and adjusted to provide consistent and comparable estimates across space and time. The core objective of the estimation procedure is to specify the of consumption amount (in terms of a monetary value) needed for an individual to acquire items required to meet their basic needs. In most countries, such approaches include the required value of both food and non-food components of a budget.

In the cost of basic needs approach, a minimum allocation for food that is consistent with common diets in the country is first chosen and anchored in minimum acceptable food-energy requirements. Food requirements are usually expressed in terms of calories. Allowances for non-food basic needs, such as electricity and clothing, are then added to the cost of a minimum food requirements. The latter component is typically estimated based on the non-food spending of people for whom consumption is near the food poverty line. Some countries use the food threshold (the first component of the national poverty line) to define the extreme poverty, while using the sum of food and non-food to define national poverty (for example Turkey or Tajikistan).

**Table 2: Key Concepts**

Absolute poverty line	The estimated minimum level of income or consumption needed to secure the necessities of life. Absolute poverty lines are fixed at a specific threshold in inflation-adjusted terms. Most definitions in current use provide an amount of money necessary to meet all basic needs such as food, clothing, and shelter.
Relative poverty line	The minimum level of income needed to cross a percentile threshold in the welfare distribution/aggregate. Estimates are often at least as high as an absolute minimum but are often higher. Relative poverty lines are commonly used to reflect a dimension of social inclusion into a poverty measure.
Minimum consumption basket	The cost of a basket of goods and services that meet the needs of the minimum level of living standards accepted by society (e.g. Latvia, Azerbaijan). Conceptually similar to what is defined as a poverty line in many countries. However, it is often based on a “normative” basket of goods that experts recommend households should consume. However, a normative basket may not reflect actual consumption behavior in society. A minimum consumption basket usually does not include a component to account for fees and contributions.
Minimum subsistence level	The income level which guarantees the consumption to meet minimum physical and social requirements. It usually includes a minimum basket of consumption goods, as well as a component for legally required fees and contributions. The concept has origins in the Soviet Union and closely relates to a definition of “monetary poverty” in countries where it exists. In some countries in the region,

	this is defined as being equal to the poverty line. In other cases, either the minimum consumption basket or subsistence minimum is used as an administrative unit (or index value) to set benefit amounts and/or as a threshold for eligibility (e.g. Slovakia, Kazakhstan)
Minimum wage	The lowest amount of money that employers can legally pay workers. In some countries this is set above the poverty line, but often not. The minimum wage is seldom defined as being equal to the national poverty line, as it is usually optimized for a different set of policy objectives.
Welfare aggregate	In monetary poverty analysis, the welfare aggregate is typically a measure of income or consumption expenditures. A nearly universal requirement for any empirical study of wellbeing is that individuals (or households) must be ranked using one or more such indicators of living standards.
Engels coefficient	Proportion of family income that is spent on food. This measure predictably falls in value on average as household consumption incomes rise.
Paasche index	A ratio that compares the total purchase cost of a specified bundle of current-period commodities (commodities valued at current prices in a specific location) with the value of those same commodities to a reference (usually the national average). When applied to poverty measurement, this ratio is used to account for spatial differences in the cost of living.
Population of Reference	a reference population that is relatively poor, used to compute the average cost of calories for household at or below the poverty line, and/or the average consumption of non-food goods and services.
Average kilocalorie requirement	A standard required dietary energy intake for a healthy, well-nourished population that allows for maintaining an adequate BMI at the population's usual level of energy expenditure.

There are several key principles that are commonly followed when setting a poverty line:

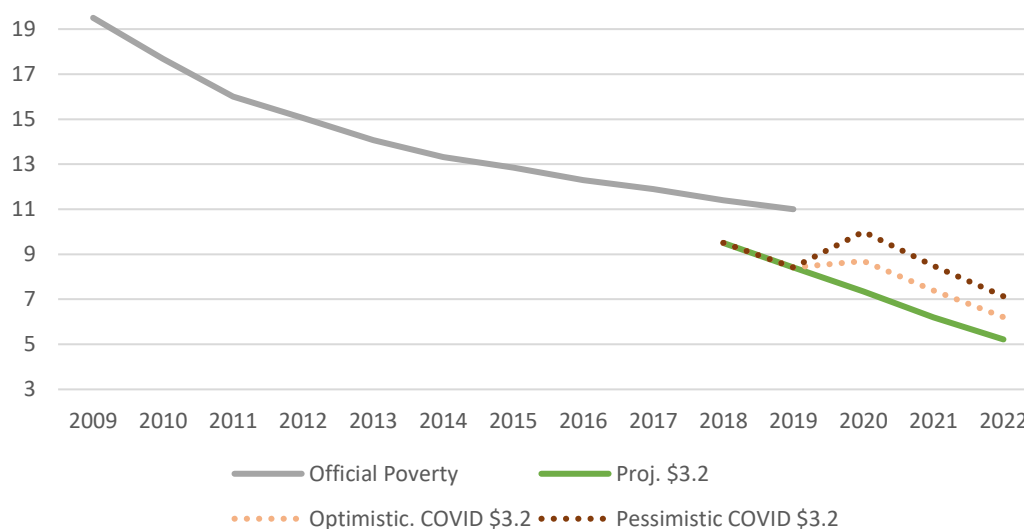
- (1) The choice of the national poverty measure should be fit for purpose: it should be useful for achieving the policy objectives for which it is designed.
- (2) National poverty lines should be constructed and updated such that they represent the same level of utility (or welfare, or well-being) throughout time and space. This is typically accomplished using spatial price deflation (accounting for differences in the cost of living) and temporal deflation (accounting for changes in consumer prices over time).
- (3) The choice of the reference utility level to anchor the poverty line must be justified in terms of social relevance, supported by empirical evidence, and a sound theoretical basis.
- (4) The poverty line must be consistent with the welfare indicator to which the poverty line is applied. Poverty measurement requires a combination of the poverty line with information on the distribution of consumption expenditures, ideally in the same survey instrument.

### I.III – Poverty in Uzbekistan

Uzbekistan achieved slow but steady poverty reduction over the last two decades. World Bank estimates suggest that the most extreme forms of poverty<sup>5</sup> have fallen to negligible levels. Nonetheless, the pace of poverty reduction has been sluggish for a country of Uzbekistan’s income level and growth record. Furthermore, more ambitious thresholds for how poverty is defined – such that the minimum socially acceptable level of wellbeing increases together with the country’s overall prosperity – are appropriate as Uzbekistan’s economy expands.

Using the Government’s official national definition of the low-income population, the poverty rate fell from nearly 28 percent in 2000 to 11 percent in 2019, with the pace of progress gradually slowing over time (Figure 3). Documentation of the approach used indicates that it was determined following scientific recommendations on minimum consumption volumes and list of food needed to preserve human health and ensure vital activity (a “normative basket”), and actual consumption volume of food. A norm of 2100 average kilocalories per person was applied. Socio-economic and demographic factors such as sex, age, the size, and structure of families, were also reflected in the process of identifying a minimum consumption amount. Measured instead against the customary World Bank threshold for lower-middle income countries (US\$3.2 per person per day in PPP terms), Uzbekistan’s poverty rate in 2018 stood at 9.5 percent.<sup>6</sup>

**Figure 3: Projected Poverty Rates Following the COVID-19 Outbreak**



<sup>5</sup> Measured at US\$1.9 per person per day in 2011 PPP in terms of consumption.

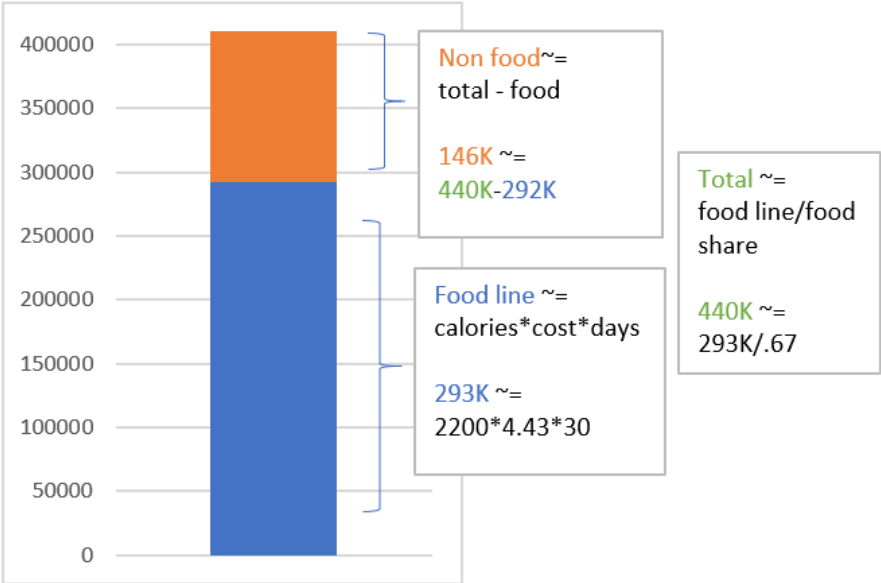
<sup>6</sup> In 2018, the poverty rate using the UMIC line (5.5 per person per day) – appropriate for the income level the country aspires to achieve by 2030—stood at 36.5 percent of the population.

But projected progress in poverty reduction came to a sudden stop in early 2020 during the COVID-19 outbreak. Projections measured against the LMIC line suggest that the number of people living in poverty has likely risen by between 450,000 and 880,000 during the pandemic. Most of the population in Uzbekistan subsists near the poverty line, and many were at high risk of falling below it during the crisis. Monthly survey monitoring of the population during the pandemic has found that more than half of the population said they did not have financial savings, and 40 percent that they could not pay an emergency expense of 100,000 So'm. As the impacts of the outbreak have laid bare, livelihoods remained fragile, and most of the population was vulnerable to shocks and falling into poverty.

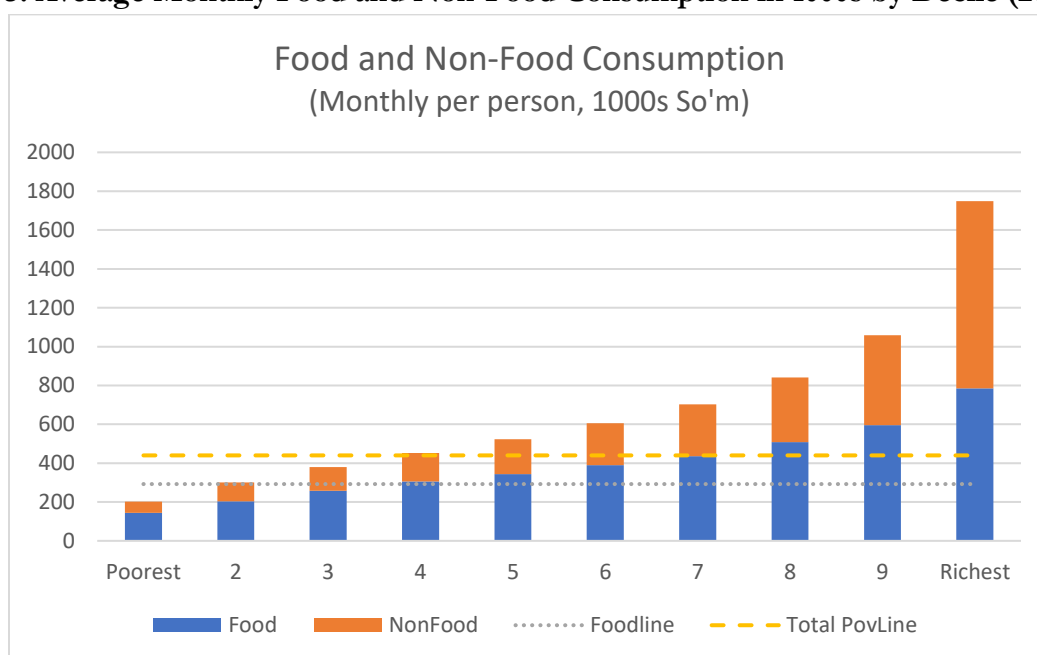
**I.IV – Preview of a New Poverty Line**

analysis that follows provides results for several estimates of interest, including an estimate of average national annual per capita consumption (measured in 2020, and adjusted to December 2021 terms), a daily minimum food calorie cost of 9749 and a total poverty line of 14,619 so'm per day per person (438,580 so'm per month – calculated with an average of 30 days) using an estimate of an average per capita kilocalorie requirement of 2200. This estimate used a population of reference that includes between the 5<sup>th</sup> and the 30<sup>th</sup> percentile of consumption expenditure. For practical simplicity, the line will be rounded up to 440,000 so'm, and set in December 2021 terms.

**Figure 4: Component Summary of the National Poverty Line in December 2021**



**Figure 5: Average Monthly Food and Non-Food Consumption in 1000s by Decile (2020)**



*Notes: Excluding imputed rent*

The following sections provide a description of the data, the approach used to calculate the consumption aggregate used to measure welfare, details on the estimation of the poverty line, and additional detail on results.

## II – Data Description

In 2019, the State Committee on Statistics launched a comprehensive modernization effort of the national Household Budget Survey (HBS), with support from the World Bank. Changes include transferring the mode of data collection to a Computer Assisted Personal Interview (CAPI) format, changing from a diary to a list approach to record consumption and expenditure, expanding the subject coverage to include additional measures of wellbeing, and increasing the planned size of the household sample. Adopting the CAPI-based format considerably increased the speed of data collection and quality of the information obtained.

### II.I – Household Budget Survey Sample Design

The sample design of the HBS proceeded following a standard stratified two-stage approach. There are 27 relevant strata in Uzbekistan (regions crossed by rural/urban areas). The sample allocated to each stratum was decided following an analysis of the sampling error identified in the baseline of a similar survey conducted in 2018 called the Listening to the Citizens of Uzbekistan. Subsequently, sample stratification was optimized to minimize the expected loss of precision expressed in terms of the relative standard error of per capita consumption.

In the first stage of the sample, clusters (called *mahallas* in Uzbekistan) were randomly sampled with probability proportionate to size. The sample frame for the HBS was based on mahalla administrative records for 2018. Use of this frame provided the most accurate and up-to-date information on the geographic distribution of population across Uzbekistan at that time and allowed for the most precise formulation of an optimal sample design. Table 3 provide an overview of the details for the sample frame.

**Table 3: Distribution of Population in 2018 Mahalla Frame by Administrative Area, Rural and Urban Stratum**

Province	Total Mahallas	Urban	%	Village/Rural	%	Population
Karakalpakstan	412	163	39.56	249	60.44	1873629
Andijan	876	383	43.72	493	56.28	3010957
Bukhara	540	205	37.96	335	62.04	1874534
Jizzakh	287	138	48.08	149	51.92	1329838
Kashkadarya	726	329	45.32	397	54.68	3130222
Navoi	304	136	44.74	168	55.26	989509
Namangan	770	416	54.03	354	45.97	2651005
Samarkand	1089	405	37.19	684	62.81	3747573
Syrdarya	222	94	42.34	128	57.66	817071
Surkhandarya	712	238	33.43	474	66.57	2516636
Tashkent	998	440	44.09	558	55.91	2881180
Fergana	993	453	45.62	540	54.38	3522087
Khorezm	499	171	34.27	328	65.73	1818182
City of Tashkent	505	505	100.00		0.00	2476280
National	8933	4076	45.63	4857	54.37	32638703

From this list of sampled clusters, the second stage was conducted using simple random sample from the official registered population in each mahalla. Using this approach, the modernized HBS survey was first launched by the Statistics Committee in February 2020, and at the end of the year, 5,396 households had been interviewed using the modern design.

## II.II –Descriptive Statistics

Table 5 describes the available HBS sample for 2020, which include 2725 households located in rural areas, and 2671 households located in urban areas. Sample weights were calculated based on the design described in the previous section. The implied population totals of these weights are also reported in Table 5.

**Table 5: Sample Descriptive Statistics 2020**

Region/Oblast	Rural	Urban	Total	Weighted HH Size	Implied National HH (thousands)	Implied National Population (thousands)
Andijan	184	233	417	5.93	527	3126
Bukhara	111	240	351	5.52	349	1924
Fergana	272	198	470	5.56	675	3752
Jizzakh	147	131	278	5.84	237	1382
Karakalpakstan	155	187	342	5.56	342	1900
Kashkadarya	203	245	448	5.65	581	3279
Khorezm	118	225	343	5.98	312	1867
Namangan	236	164	400	5.89	477	2810
Navoi	118	163	281	4.59	217	998
Samarkand	198	298	496	5.44	713	3877
Surkhandarya	145	249	394	5.97	440	2628
Syrdarya	108	143	251	5.77	147	847
Tashkent-City	481	0	481	5.25	490	2573
Tashkent-Region	249	195	444	5.48	537	2942
Total	2725	2671	5396	5.62	6031	33905

The HBS survey included a comprehensive consumption and expenditure module following the COICOP classification standard (divided into 12 primary sections). Reported food items were matched with a calorie equivalence concordance to convert where needed. In the data file, each consumption section under COICOP is listed separately, as well as a more general aggregate that reflects all forms of consumption included in the COICOP categories. After quality review, 5,217 households were used to estimate the new poverty line.

### III – Defining Welfare

The first essential component to estimate the poverty line and to monitor poverty over time is a measure of welfare. There are two common measures used for these purposes: i) consumption expenditure and ii) income. Consumption/expenditure is often preferred in countries where a significant share of household welfare is derived from own production. This is often particularly significant in countries with large rural populations and considerable agricultural activity, as is the case in Uzbekistan. Thus, the following approach focuses on consumption-based measures of welfare, though the Household Budget Survey also includes information on incomes for complementary welfare analysis and validation.

#### III.I – Aggregation of Consumption Categories and Household Size

The per capita aggregate is calculated using the number of household members (hhsiz). An alternative measure uses adult equivalence. A common adult equivalence conversion assigns the first adult in a household a weight of 1, every additional adult a weight of .5, and .3 to children under the age of 14.

This distinction is important in several comparisons described here. By construction, the adult equivalence measure will reduce required household consumption to some extent, and the effect will be more pronounced in larger households. The World Bank commonly uses per capita approaches to avoid over-reliance on assumptions about intra-household consumption patterns, and consumption requirements among children (who receive less weight in adult-equivalence scale approaches). All estimates in this note use the unmodified number of household members unless otherwise noted.

### III.II – Spatial Deflator

The first step to calculating a measure of welfare in comparable terms is to calculate a spatial deflator for each stratum (27 total – region/rural/urban) based on the unit values of consumption reported in the survey. The Paasche index for the  $b$ -th household is defined as:

$$\text{Equation 1} \quad P_h = \frac{\sum_j p_j^h Q_j^h}{\sum_j p_j^0 Q_j^h}$$

where  $p_j^0$  is the price of commodity  $j$  for the reference group 0. The index is the ratio between the cost of a bundle of goods and services purchased by the  $b$ -th household, and the cost of the same bundle as paid by a reference household (the “average household”, indexed by 0). From Equation 2 we obtain:

$$\text{Equation 3} \quad P_h = \left[ \sum_j \left( \frac{p_j^h}{p_j^0} \right)^{-1} w_j^h \right]^{-1}$$

where  $w_j^h$  is the budget share of household  $b$  for commodity  $j$ , and  $p_j^h/p_j^0$  is the relative price of the  $j$ -th item.

The household budget survey provides information on expenditures and purchased quantities for both food and (a selection of) non-food items. Unit values can therefore be calculated as:

$$\text{Equation 4} \quad uv_j^h = \frac{x_j^h}{Q_j^h(\text{pur})}$$

where  $x_j^h$  is the expenditure of household  $b$  on commodity  $j$ .

Before estimating unit values, outliers in the distribution of unit values are winsorized at the 95<sup>th</sup> percentile. Any observation that falls outside the interval is replaced with the value of the 95<sup>th</sup> percentile.

Based on the winsorized unit values, the ratio of price relativities  $p_j^h/p_j^0$  is estimated as:

Equation 4

$$\left(\frac{p_j^h}{p_j^0}\right) = \frac{uv_j^h}{uv_j^0}$$

where  $uv_j^0$  is the national average unit value of commodity  $j$ . Note that the  $j$ -th unit value  $uv_j^h$  can be missing even if the actual consumption of commodity  $j$  is strictly positive (self-production, running down the stocks, gifts received, etc.). In these cases, missing values are imputed according to the following hierarchical procedure:

$$uv_j^h = \begin{cases} uv_j^h & \text{if } uv_j^h \text{ is not missing} \\ E[uv_j^h | region, area] & \text{if } uv_j^h \text{ is missing} \\ E[uv_j^h | region] & \text{if } E[uv_j^h | region] \text{ is from } n < 26^7 \\ E[uv_j^h | area] & \text{if } E[uv_j^h | area] \text{ is from } n < 26 \end{cases}$$

where  $E[uv_j^h | H]$  denotes the average of  $uv_j^h$  over the reference group  $H$ .

The budget shares  $w_j^h$  needed to estimate the spatial-price index are calculated as:

Equation 5

$$w_j^h = \frac{\widehat{THE}_h^j}{\sum_j \widehat{THE}_h^j}$$

where  $\sum_j \widehat{THE}_h^j$  is the total household expenditure on all items  $j$  included in the Paasche price index. With the results from Equation and Equation , the raw Paasche price index for each household (Equation 3) can be estimated. Before using the index, first we estimate the average for each region and area combination, and then normalize each of the 27 price indexes by the national average.

Equation 6

$$P_{27} = \frac{AVG(P_h | strata)}{AVG(P_h)}$$

The results of this approach yield a value for the spatial deflator for each region, for rural and urban areas separately. Each is applied to the monetary values of the consumption aggregate to express consumption in real terms. Table 6 reports the values of these estimates.

**Table 6: Spatial Deflation Factor**

	Urban	Rural
Andijan	0.972	0.958
Bukhara	1.001	0.971
Fergana	0.945	0.946

<sup>7</sup> This includes cases where  $n = 0$  (without observations or missing).

Jizzakh	0.965	0.946
Karakalpakstan	0.888	0.878
Kashkadarya	1.043	1.013
Khorezm	0.920	0.907
Namangan	0.963	0.905
Navoi	1.046	1.023
Samarkand	0.940	0.907
Surkhandarya	0.900	0.963
Syrdarya	0.957	0.913
Tashkent-City	1.144	
Tashkent-Region	1.041	0.974

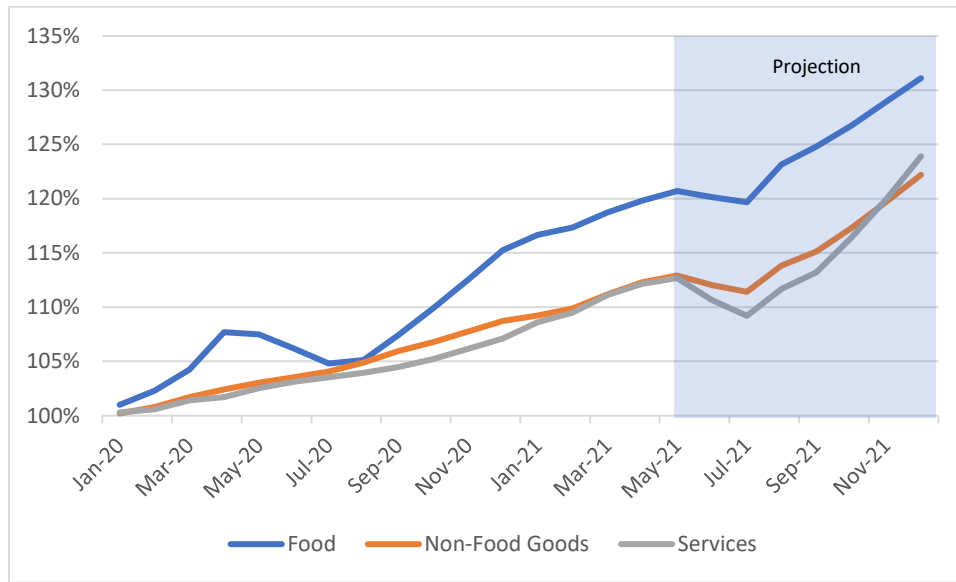
*Notes: Estimates exclude owner-occupied housing*

### **III.IV – Temporal deflator**

The basket of goods consumed by low income people differs remarkably from that of the national average. The national consumer price index (CPI) for Uzbekistan weights food at 42.5 percent of the consumption basket. In contrast, low income people near the poverty line described in this analysis allocated about 67 percent of their budget (excluding the imputed value of housing) to food. This difference in budget allocations can lead to meaningful departures (in both directions) in the changes in cost of living over time experienced by low-income people in comparison to the national average.

In 2020, the cost of food rose more quickly than overall inflation as measured in the CPI (figure 6). The food component of CPI had risen by 21 percent as of April 2021 (over January the previous year) while non-food goods and services had risen by about 13 percent each. Projections based on previous trends suggest that the divergence between food and non-food/services would remain large through the end of 2021.

**Figure 6: Change in Price by Component**



To account for these differences in consumption patterns and the resulting implications for the cost of living, a new price index was defined which reweighted the components of the CPI to match the consumption patterns of low-income households. This resulting in the following “poverty price index” weights.

**Table 4: Weights for Poverty Price Index vs. Consumer Price Index**

	Poor	All
Food Share	0.67	0.43
Nonfood	0.20	0.35
Services	0.13	0.23
Total	1.00	1.00

For measuring poverty and reporting the poverty line, an index with these new weights is used to deflate/inflate the poverty measure to the appropriate period.

### III.IV – Welfare Indicator

The welfare indicator used in the remainder of this report is the summation of all consumption goods, adjusted by household size and the cost of living in the stratum in which the household is located:

$$Welfare\ indicator = \frac{nominal\ household\ consumption}{household\ size \times spatial\ deflator}$$

The household food consumption aggregate is obtained from section 9 of the HBS questionnaire, which asks respondents to recall their consumption and expenditure of food items over the previous seven days in a list format. The first step in this process is to extract prices from expenditures listed in the section. Because not all food is both purchased and consumed in the same seven-day period, the prices paid by the household are assigned to only that portion of the goods that are recorded as having been consumed in over the seven-day window. For goods that were consumed but not purchased, the prevailing unit values for the good in the strata setting of the stratum is used instead. In the small number of cases in which a unit value is not available at the stratum, regional average unit values are used instead. The total household expenditure on food is then calculated by summing the individual items.

Data on non-food consumption items are also collected in several sections of the HBS, including education, health-related, utilities, and other non-items listed in section 10. Reference periods vary in these sections of survey questionnaire due to variation in the typical frequency of expenditure and consumption of the items listed. For education, questions on expenditure largely refer to the last academic year. For utilities, questions refer to the preceding month, as billing cycles are typically monthly in Uzbekistan. To express these measures in comparable terms, all consumption is adjusted to annual terms.

The nominal consumption aggregate can be expressed as the sum of these two consumption sub-aggregates, namely, food consumption and non-food consumption. Notation, convenient for later use, is as follows:

$$THC_h = FHC_h + NFHC_h$$

where:

THC = total household consumption,  
 FHC = food household consumption, and  
 NFHC = non-food household consumption.

The suffix  $h$  denotes the  $h$ -th household, with  $h = 1, \dots, H$ .

$$FHC_h = PFHC_h + Q\_NP\_FHCN_h \times UV_h$$

where:

PFHC = purchased food household consumption,  
 Q\\_NP\\_FHCN = quantities of non-purchased food household consumption, and  
 UV = Unit value assigned to each household product combination.

The suffix  $h$  denotes the  $h$ -th household, with  $h = 1, \dots, H$ .

Household consumption for non-food items is usually defined as the sum of the two sub-aggregates:

$$NFHC_h = NFC_h + DURABLES_h$$

where:

$NFHC_h$  = consumption on non-durable non-food goods and services,

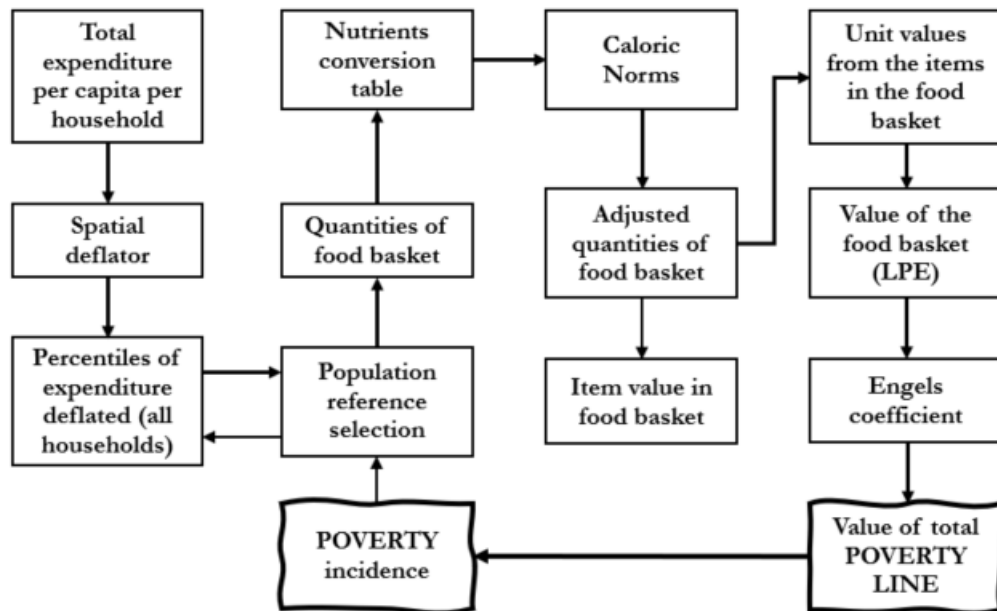
$DURABLES_h$  = the consumption flow out of durable goods owned by the household.

One issue in Uzbekistan (and indeed, most former Soviet countries) is the rarity of households that rent their dwelling. These circumstances complicate the inclusion of imputed rent in the welfare aggregate. As a result, housing value is excluded from the estimates that follow, however, please see Seitz (2020) for additional details on housing costs in Uzbekistan and considerations on rent imputation. It is important to note that because of this choice, estimated total consumption and expenditure is lower in this case than for those countries that use otherwise comparable methods but also include imputed rental values in the consumption aggregate.

#### IV – Poverty Line Estimation

Diagram 1 provides a stylized description of the procedures followed to define the poverty line based on the cost of basic needs method outlined above. Following estimation of total consumption expenditure per household and the spatial deflator, analysis of the population of reference is conducted (reported in sensitivity analyses below). Food consumption is converted into calorie equivalents. The cost of the food basket is established based on the average cost per food calorie among the population of reference. The Engels coefficient is then used to adjust the line to account for average non-food consumption.

Diagram 1 Costs of Basic Needs Method



## IV.I – Food Component

Once a spatially adjusted consumption aggregate has been created according to the procedure outline in the previous section (THC/spatial deflator), the following step is to convert food consumption into calorie equivalents. The calorie equivalents of the basic foods included in the survey instrument are taken from the FAO conversation tables and converted into the units used in the questionnaire. The equivalents are then matched by hand to the categories included in the HBS survey to estimate the average cost per food calorie within the reference group. However, not all food items are included in the estimation, primarily because some food types are not considered to meaningfully contribute to nutrition. Excluded items include sugary drinks, candy and chocolate, ice cream, and alcoholic beverages. Unit prices for food items are adjusted for stratum-level cost differences, in an identical process to that described in Section 3. The average daily caloric intake per household and per capita is provided in Table 7.

**Table 7: Reported Consumption and Reported Caloric Equivalent Per Capita 2020, by Decile**

Decile	Food	Std. Error	Non-Food	Std. Error	Calorie intake (pc/day)	Std. Error
1	4699	63	1913	49	1213	27
2	6668	70	3231	69	1680	31
3	8500	88	3978	87	1961	34
4	10037	106	4861	105	2277	37
5	11273	125	5937	125	2426	37
6	12790	145	7125	146	2664	44
7	14347	178	8753	172	2826	42
8	16723	242	10926	243	3191	51
9	19590	314	15209	308	3500	70
10	23820	497	33651	1187	4312	341

The average kilocalorie requirement (AKR) used for Uzbekistan’s neighboring counties is often between 2000 to around 2300 Kcal/day. In the past, an average kilocalorie requirement of 2100 has been used. For the estimation described here, this norm was increased to 2200.

The first stage of measuring the poverty line consists of measuring the monetary equivalent of the food poverty line. Converting the consumption of food items into calorie equivalents results is obtained in the following manner.

Equation 5

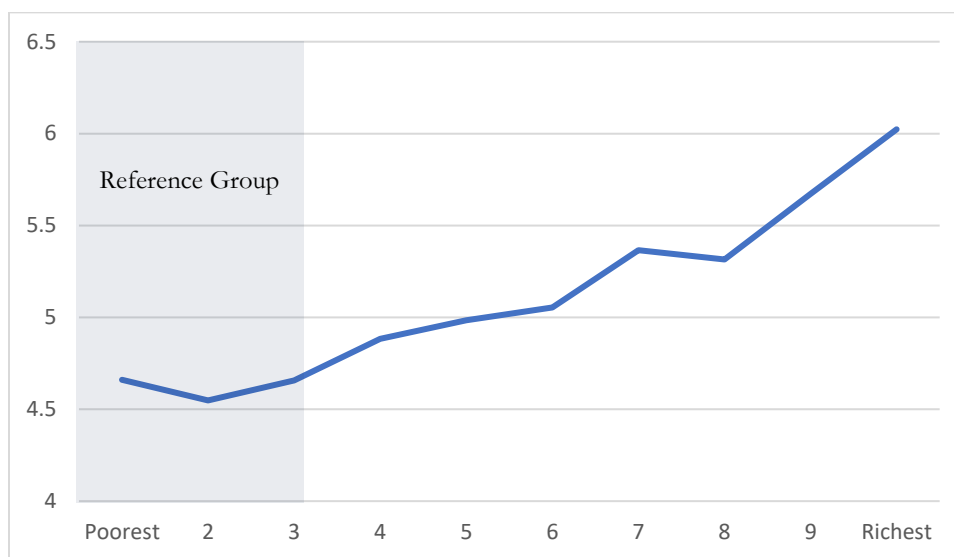
$$1Kcal_h = \frac{\sum_j FEXP_{jh}}{\sum_j KCAL_{jh}}$$

where  $FEXP_{jh}$  is the food expenditure of household  $b$  on food item  $j$  (deflated using the Paasche price index), and  $KCAL_{jh}$  are the kilocalories consumed by household  $b$  from food item  $j$ . The term  $FEXP_{jh}$  is estimated as part of the consumption aggregate calculations, and  $KCAL_{jh}$  is defined as:

$$\text{Equation 6} \quad KCAL_{jh} = \left( \frac{FEXP_{jh}}{UV_{jh}} \right) * KCONT_j$$

where  $UV_{jh}$  is the unit value estimated during the Paasche price index for food item  $i$  and household  $b$ , and  $KCONT_j$  is the calorie content for each food item  $j$ .

**Figure 7: Cost per kilocalorie (So'm) by decile of consumption per capita (December 2021 terms)**



The final unit calorie cost is based on a sub-set of households or a reference population. To estimate the food part of the poverty line, the reference population includes only poor households, and excludes those at the bottom of the distribution. For the estimates below, the default selected is households in percentiles 5-30, though additional sensitivity analysis is included later in this section.

## IV.II – Non-food Component

$$\text{Equation 10} \quad Z_L = Z_F / ENGELS_{RG}$$

where  $Z_f$  is the food poverty line value and  $ENGELS_{RG}$  is the mean Engels coefficient for households in the reference group, defined as households with total consumption within 500 So'm of the food poverty line (above or below).

An alternative method of assigning the poverty line is to add the mean expenditure of non-food items for the reference group to the food line. This approach can be expressed:

$$\text{Equation 11} \quad Z_L = Z_F + MEAN_{RG}$$

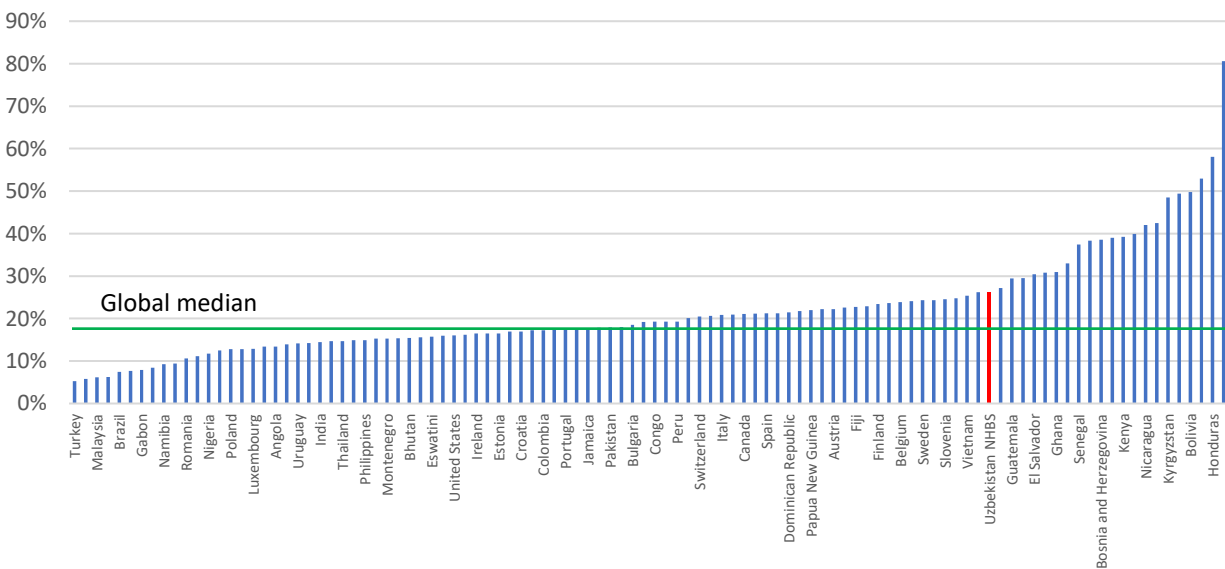
Where  $MEAN_{RG}$  is the value of median daily non-food expenditure per capita in the PoR.

### IV.III – International Benchmarking

By international standards, the lines calculated in both approaches are rather high. For lower middle-income countries like Uzbekistan, the median value of the national poverty is \$3.2 per person per day in terms of 2011 purchasing power parity, and at \$5.5 among upper middle-income countries. Converted using official CPI data and the official estimated PPP conversion factor (631 So'm per international USD in 2011), the line is equivalent to approximately \$7.45 in 2011PPP.

For another comparison, the median country has a national poverty line equivalent to about 19 percent of GDP per capita.<sup>8</sup> The poverty line estimated using the HBS is much higher. The new HBS yields a poverty line at about 26 percent of per capita GDP,<sup>9</sup> which would place Uzbekistan in about the 79<sup>th</sup> percentile of countries by this measure (figure 8).

**Figure 8: National Poverty Line vs. GDP Per Capita**



Note: Data from authors' calculations and Jolliffe, D., & Prydz, E. B. (2016), excluding GDP per capita of less than \$2000 PPP 2011

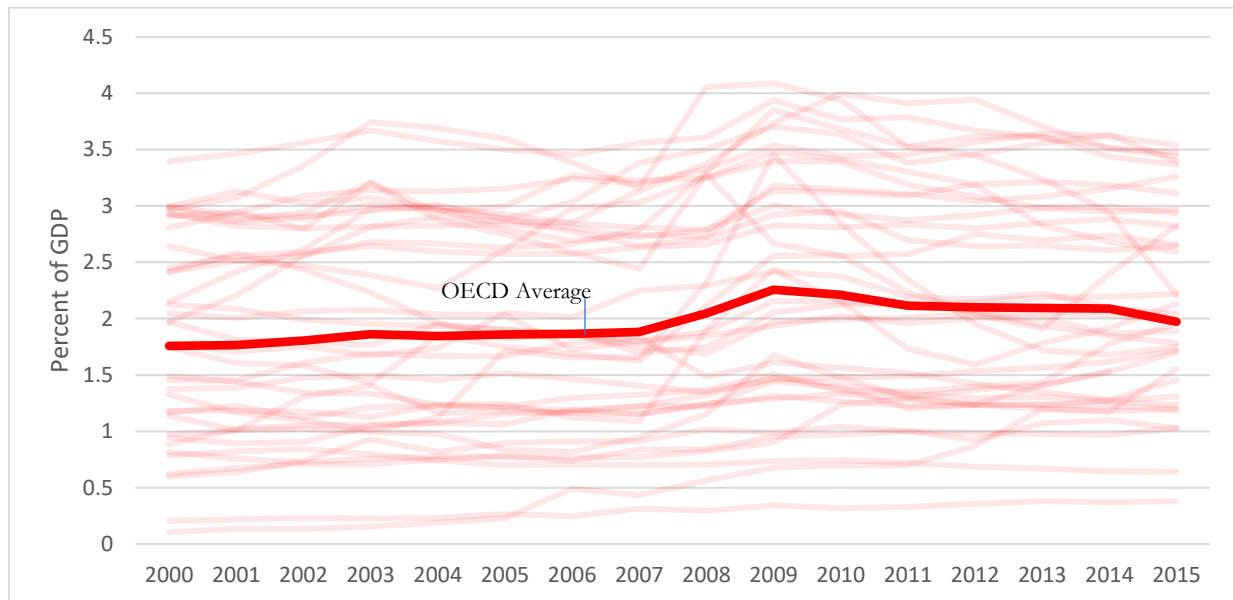
<sup>8</sup> We exclude countries with per capita GDP of less than \$2000 PPP2011, due to low-income country outliers.

<sup>9</sup> This calculation uses the production method for GDP. An alternative measure reported by State Statistics Committee is the "use" approach, which yields roughly 30 percent using the new HBS line.

## V – Policy Considerations

All existing low-income allowances combined in Uzbekistan amounted to roughly 0.4 percent of GDP in 2019, which is lower than any OECD country other than Turkey.

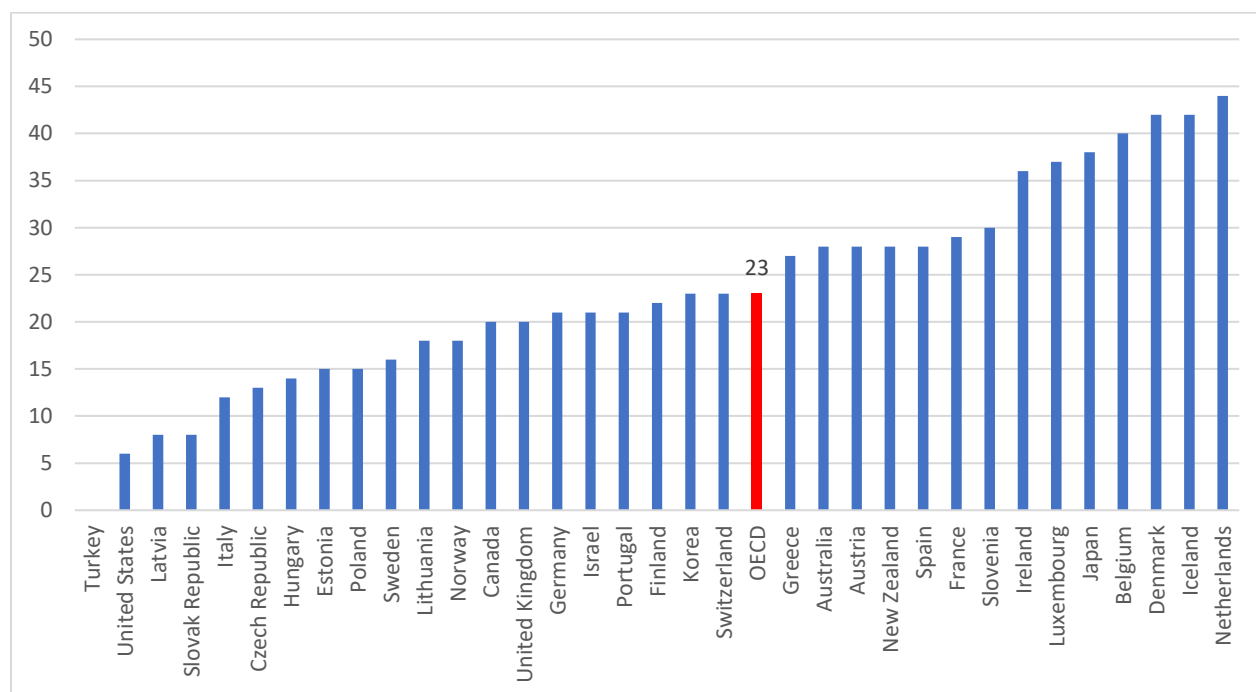
**Figure 9: Family Benefits Public Spending as a Share of GDP in OECD Countries**



Source: OECD.Stat, extracted September 2020

Another relevant benchmark for benefit programs could be the European Union’s primary comparable measure of wellbeing in member countries, a concept of called the *at risk of poverty* rate and defined in relative terms as 60 percent of the median income in the country. Though the measure is not exactly comparable, in no EU member state are guaranteed minimum income benefits defined as precisely this value, nor are they typically close to it. The average guaranteed minimum income level in OECD countries for a single person is about 23 percent of the median income, ranging from 0 in Turkey to 44 percent in the Netherlands (Figure 10). In most cases, social programs in OECD countries aim to push people in need above these thresholds, and in no case do they compensate poor people with transfers exactly equal to the guaranteed minimum threshold.

**Figure 10: Guaranteed Minimum income % of Median 2019 Disposable Income in OECD**



Source: OECD.Stat, extracted September 2020

Existing social assistance programs in Uzbekistan can be grouped into two types. The first are low-income allowances which are means-tested (conditional on family income being below a fixed eligibility threshold), expressed in per capita terms, and currently set as a share of the minimum wage. A second type of support follows the design of social insurance programs – including old-age, disability, and survivors’ allowances – but these programs intervene only in instances of people not having made any contributions, or not reaching the minimal level of contributions over their working life. By design, support provided through the second type of schemes comes with lower amounts and stricter criteria than pensions based on contributions.<sup>10</sup> For example, the old-age allowance is provided only if people do not have other income sources.

The de jure eligibility criteria for all low-income benefit programs are the same: 52.7 percent of the minimum wage. At the time of this writing, this equates to a per capita monthly eligibility threshold of 394,000 So’m, or approximately 1.62 million so’m per family on average.<sup>11</sup> One should note, however, that in some cases eligibility in one type of allowance leaves a family ineligible for other allowances. In 2021 approximately 1.2 million families received low-income allowances in an average month, equating to coverage of slightly less than five million people.

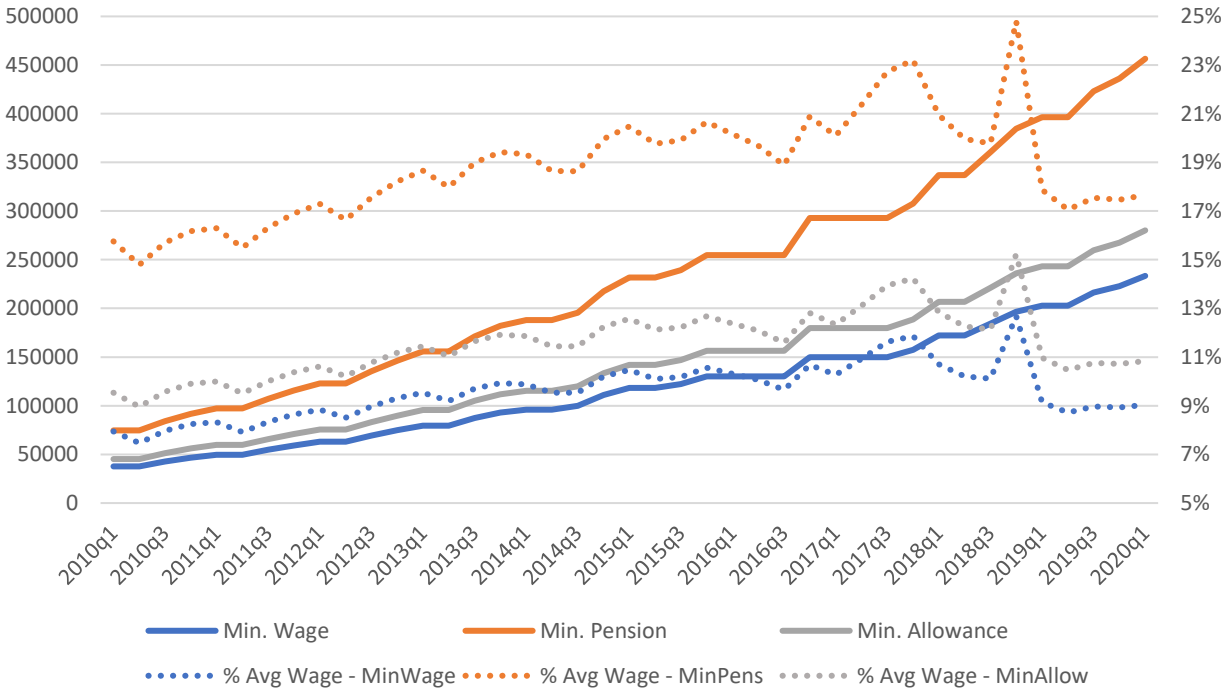
<sup>10</sup> Moreover, while the old-age pension is provided at the age of 60 and 55 for men and women, respectively, the old-age allowance is granted at the age of 65 and 60.

<sup>11</sup> The threshold calculation changed from 1.5 from среднемесячного минимального размера заработной платы (МРЗП) (currently about 223,000 So’m)– to 52,7% среднемесячного минимального размера оплаты труда (МПОТ) за последние три месяца. They both in English are min wage. МПОТ was 747,300 at the time of this writing

The main social assistance programs operate first by determining if a family eligible for a low-income allowance. Families may apply to three types of programs, and although a family can only receive support in a single program, they may be potentially eligible for more than one, leading to complexity in administration and “shopping” for the highest benefit. Eligibility is based on whether there is a child less than 2 years old (child care allowance), whether there are children between the age of 2 and 13 and their number (children allowances), or whether the household faces specific difficult circumstances or specific challenges, such as disability (financial assistance). In such cases the level of support can vary from 145,000 so’m for families with only one child between the age of 2 and 13, to 434,000 for families with children under 2, and up to 653,000 so’m for complex cases.<sup>12</sup> Crucially, for some programs the amount of support does not depend on the number of household members, it is a fixed amount per family.

Expressed as a share of in similar terms to figures 9 and 10, figure 11 provides the minimum values for programs in Uzbekistan from 2010 to the first quarter of 2020. These estimates highlight a trajectory of rising payment generosity up to about 2019, at which point benefit amounts fell and have since remained relatively flat.

**Figure 11: Minimum Values of Public Transfer Programs in Uzbekistan (Nominal)**



Source: Ministry of Finance, State Statistics Committee

As is implicit in statistics presented in figure 10, the process of setting benefit amounts for programs specifically targeting poor people varies substantially across countries. In many, benefit amounts are

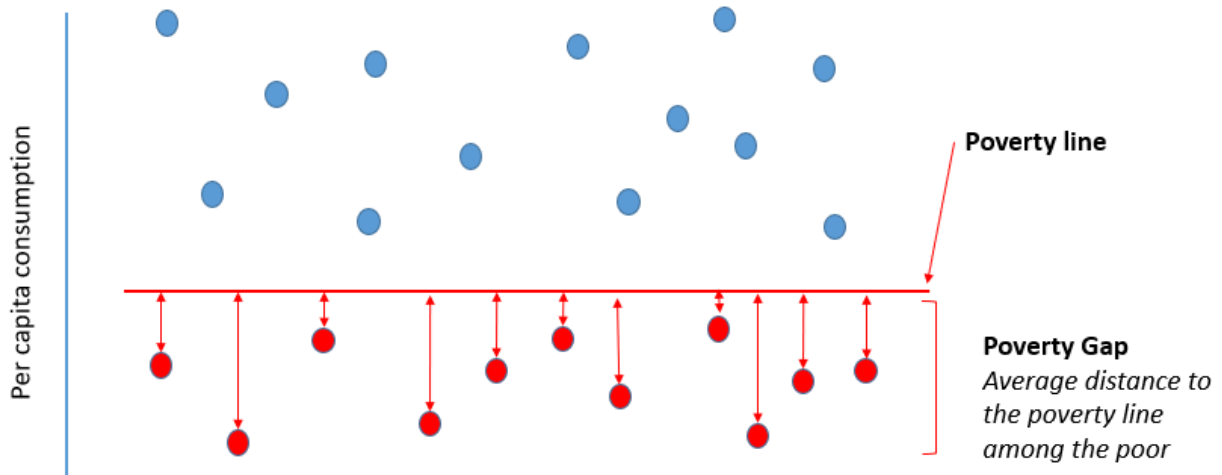
<sup>12</sup> In practice, the highest amount is very rarely awarded.

set periodically, and updated using a political process rather than a data-driven one. Such approaches are globally relatively less common, as they lack automaticity and may not be optimized for poverty reduction.

More common are programs that automatically update the value of benefits using a data-driven formula or index method. Such approaches can be relatively simple and automatically account for rising cost of living. However, the starting value of such programs may be arbitrary, and the measure is potentially imperfectly responsive to changes in conditions of poor people (either in terms of improvement or deterioration).

Finally, some countries update benefit amounts automatically using a poverty benchmark, such as the poverty gap. An illustration of the poverty gap concept is provided in figure (12). The advantages of linking benefits in such an approach include that it is anchored in a clear poverty reduction framework and is responsive to economic conditions among poor people (including price levels).

**Figure 12: Visualization of the Poverty Gap Concept**



However, benefits based on the poverty gap may be insufficient for beneficiaries living in severe deprivation and without income in any other form. Thus, it is important to note that the poverty gap method is typically used specifically for poverty reduction programs. It is seldom used to calculate benefit amounts for programs targeting people who are otherwise assumed to have no other source of income, such as pensioners and disabled people. The approach also requires frequent survey data of high quality.

## **VI – Conclusions and Recommendations**

The analysis described in this report provides details on using the cost of basic needs approach to estimate a poverty line or (minimum consumption basket) for Uzbekistan based on recently collected Household Budget Survey Data. The results suggest an estimate of slightly less than 440,000 per person per month (in December 2021 terms).

The report demonstrates the proposed method using household consumption and expenditure data from a survey launched by the State Statistics Committee of Uzbekistan in 2020. These estimates are affected by the abnormal situation surrounding the COVID-19 pandemic, and the poverty rates estimated in this period therefore may not generalize to subsequent periods. A re-assessment of the poverty line will begin in December 2021. Complete estimates using the new poverty line are scheduled to be published in the first quarter of 2022.

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## Annex A Sample Details of the Household Budget Survey

### L2CU 2018 Intra-Cluster Correlation Coefficients by Province

Region	Population	Households	Mean Cons	$\rho$
Andijan	2965265	609141	3395537.2	0.037
Bukhara	1873269	376147	4568883.4	0.033
City of Tashkent	2445657	557991	5918026.7	0.061
Fergana	3585271	729525	4325792.9	0.001
Jizzakh	1315006	273658	5108534.2	0.014
Karakalpakstan	1854685	352353	3145215.5	0.005
Kashkadarya	3148092	603974	4966943.8	0.001
Khorezm	1789697	321682	4056225.9	0.035
Namangan	2615800	490649	4694057.8	0.029
Navoi	971088	205192	4584729.8	0.047
Samarkand	3603996	693221	4139753.3	0.043
Surkhandarya	2470315	453188	3642505.2	0.047
Syrdarya	805152	164818	3398069.4	0.071
Tashkent	2895731	593990	4835302.3	0.061
Total	32,339,024	6,425,527		