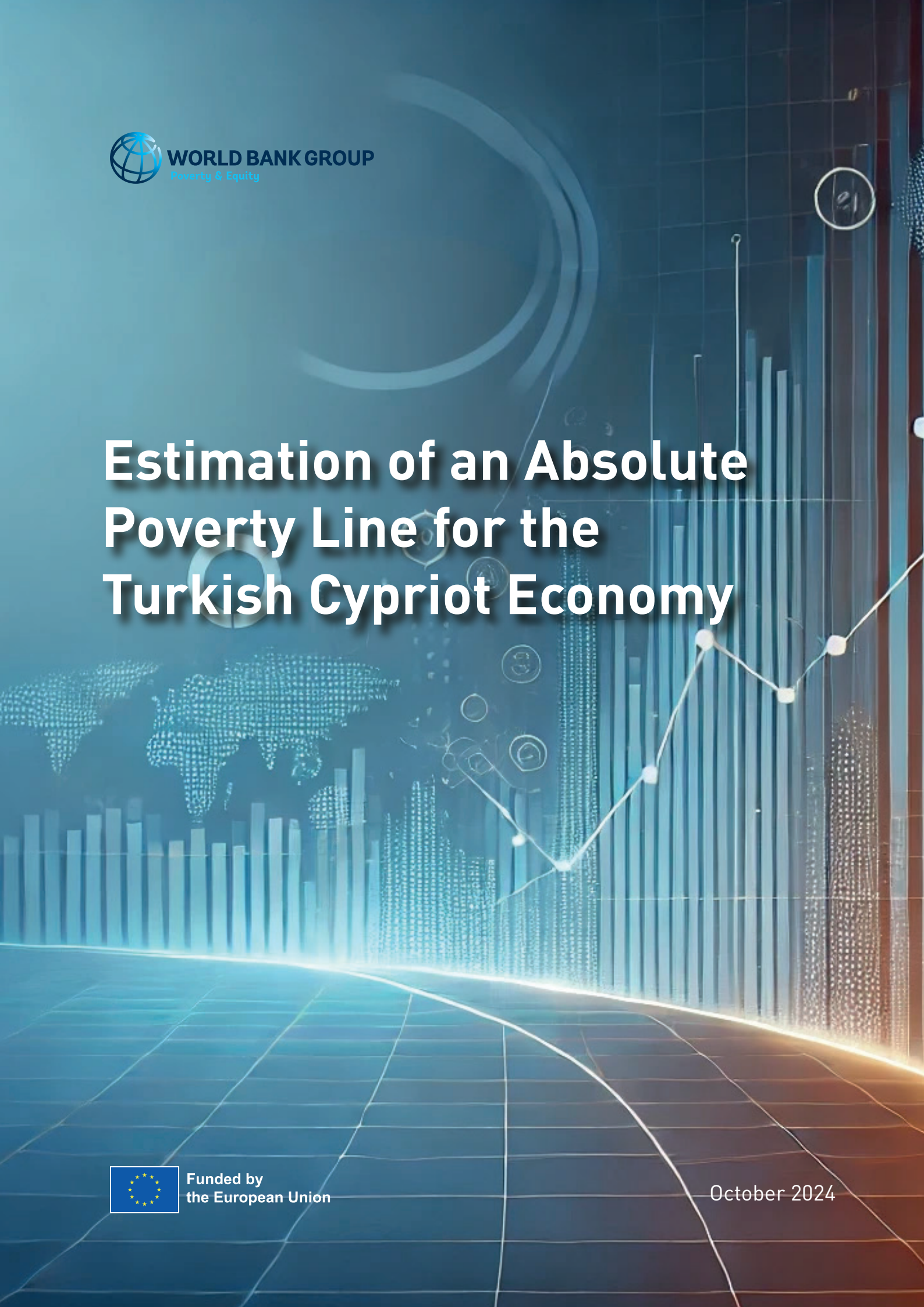


# Estimation of an Absolute Poverty Line for the Turkish Cypriot Economy

Funded by
the European Union

October 2024

WORLD BANK GROUP
Poverty & Equity

# ESTIMATION OF AN ABSOLUTE POVERTY LINE FOR THE TURKISH CYPRIOT ECONOMY

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**Document of the World Bank**

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# ABSTRACT

This note presents a proposal for defining a national poverty line in the Turkish Cypriot economy and policy considerations for how such a line ought to be used. It takes a cost of basic needs approach to define an absolute poverty line and compares poverty estimates from this method with a relative poverty approach using household income and expenditure data from the 2021/2022 Household Budget Survey. The relative poverty approach chosen here describes persons at in poverty as those living in a household below the risk-of-poverty threshold, which is set at 50% of the national median equivalized disposable, the officially poverty line in the Turkish Cypriot economy. According to the proposed poverty line, the poverty in the TCe was 25.6% percent in 2022. When compared with the official poverty rate, it is higher than the official poverty line in the TCe, at 14.4 percent. However, the CBN poverty rate is similar to the at risk of poverty rate (21.8 percent), a generally used poverty rate by the Eurostat which is set at 60% of the national median equivalized disposable.

# 1- INTRODUCTION

This note estimates an absolute poverty line for the Turkish Cypriot economy (TCe) using the Cost of Basic Needs (CBN) approach. Estimating a new poverty line under the CBN method involves a series of technical decisions that can significantly influence the results. This note provides methodological details, the poverty line estimates and includes a sensitivity analysis to examine how these decisions affect the outcomes. Additionally, the CBN-based poverty estimates are compared with a relative poverty measure, which is defined the risk-of-poverty threshold as 50% of the household median equivalized disposable income (after social transfers), the official poverty rate in the TCe.

Poverty lines can be determined using two primary methodologies: absolute and relative. Absolute poverty lines are defined by the minimum standards needed for physical and social well-being. Typically, an absolute poverty line is the threshold for the minimum consumption necessary to fulfill basic needs. The absolute poverty line is closely connected to social welfare policy because it assesses the minimum needs for a healthy life. The most widely accepted method for determining the absolute poverty threshold is the CBN approach. This methodology is extensively utilized by developing economies for measuring poverty (Ravallion, 2010).

In contrast, the relative poverty line measurement is predominantly used by developed economies, especially within the OECD countries. These countries prefer the relative approach because it evaluates deprivations in relation to the well-being of the majority of society. The relative poverty line is not only technically straightforward and easy to compute but also advantageous for cross-national comparisons, such as those conducted among European Union (EU) countries (Atkinson and Marlier, 2010). However, it is generally not used as the benchmark for social security provision in these countries. In the TCe, the 'Statistics Office' uses a relative poverty line as the official standard for measuring poverty.

For the TCe, the absolute poverty line is established based on the cost of achieving a basic standard of living through the CBN method. Given that food represents the largest portion of the consumption budget for the poor, the CBN poverty line is primarily determined by the cost of meeting specific food energy requirements, using diets that reflect those of the poor in the economy. Additional allowances for non-food essentials, such as electricity, housing, and clothing, are then included in the calculation. These non-food costs are typically estimated based on the spending patterns of those whose consumption is close to the food poverty line (Hentschel and Lanjouw, 2006).

This analysis is derived from the 2022 Household Budget Survey (HBS), which gathers data on food consumption based on a 7-day recall period for expenses. The survey captures information on food acquired through purchases, self-production, and gifts. According to the CBN approach, the estimated daily cost of a food basket in 2022 is 34 TL per person, with the poverty line set at 108.7 TL per person per day at 2022 prices. These estimates assume an average daily caloric requirement of 2254.4 kcal per person and focus on a reference population within the $10^{th}$ to $40^{th}$ percentile of consumption expenditure. When applying this poverty line to consumption data, the poverty headcount rate for the TCe in 2022 is estimated to be 25.6 percent. This rate is significantly higher than the 14.4 percent headcount rate obtained using a relative poverty measure, defined as 50 percent of median income. On the other hand, the rate is very close to the relative poverty rate defined as 60 percent of the median income (21.8 percent), a general line used in the European economies.

The remainder of this note is organized as follows: Section 2 describes absolute poverty line while Section 3 outlines the HBS and provides descriptive statistics. Section 4 explains the methodology used to construct welfare estimates from the HBS. Section 5 presents the poverty line estimates along with a sensitivity analysis. Section 6 offers recommendations and concludes the report.

## 2- ABSOLUTE POVERTY LINES

Absolute poverty lines are fixed thresholds that are used to determine whether individuals or households fall below a minimum standard of living. Three notable types of absolute poverty lines are the CBN approach, the normative food basket, and the international poverty lines defined by the World Bank.

The CBN approach calculates the poverty line based on the cost of a basket of goods and services that are deemed necessary for a minimum standard of living. This basket typically includes essential food items to meet basic nutritional requirements, as well as non-food items such as clothing, housing, and healthcare. The CBN approach ensures that the poverty line reflects the actual consumption patterns and prices in a specific context, making it highly relevant for local poverty assessments (Mancini and Vecchi, 2022). The method involves identifying a reference population and constructing a basket that covers a significant portion of their consumption, adjusted for regional and temporal price differences.

On the other hand, the normative food basket approach focuses on the cost of a basket of specific food items that meet the basic nutritional needs of individuals. The key difference between this and the CBN approach lies in how the basket is determined. The normative healthy diet basket is designed as an ideal consumption model for the poor over a month. There is no guarantee that the items in a normative basket will be consumed by a significant portion of the population if they do not align with local food habits (Herforth et al., 2022). Normative baskets, which use multiple criteria (such as caloric intake, protein intake, micronutrients, and percentage of protein from animal sources), often become ad hoc constructions that depend heavily on the expert who created them. Therefore, an empirical basket, based on the actual consumption patterns of people in the TCe, is used in this report.

Finally, the World Bank defines international poverty lines to facilitate global comparisons of poverty. These lines are set at different thresholds to reflect varying levels of economic development:

- Extreme Poverty Line: $2.15 per capita per day in 2017 PPP (Purchasing Power Parity) terms.
- Lower-Middle-Income Country (LMIC) Poverty Line: $3.65 per capita per day.
- Upper-Middle-Income Country (UMIC) Poverty Line: $6.85 per capita per day.

These international poverty lines are derived as the median of the national poverty lines of low-income countries, ensuring that they are representative of the poverty standards in these regions (Jolliffe and al., 2022). The use of PPP adjustments allows for the comparison of poverty levels across countries by accounting for differences in price levels and currency exchange rates. However, the TCe has not participated in the International Comparison of Prices program. It is therefore impossible to use the UMIC international poverty line in the TCe. In the remainder of the report, the CBN approach is used to estimate an absolute poverty line for the TCe.

## 3- DATA DESCRIPTION

The HBS 2022 was conducted by the 'Statistics Office' of the TCe with technical support from the World Bank and financial support from the European Commission. The survey covered approximately 1,390 households between July 2021 and June 2022, collecting data on key dimensions of welfare. The data includes information in areas such as education, health,

**Table 1:** Sample Descriptive Statistics, TCe Household Budget Survey

| Residence | Observations | Household size | Weighted number of households | Weighted population |
|---|---|---|---|---|
| **Urban** | 736 | 3.49 | 66,954 | 194,641 |
| **Rural** | 655 | 3.58 | 60,528 | 173,098 |
| **Total** | **1,391** | **3.53** | **127,482** | **367,739** |

*Source:* Author's calculations by using the Household Budget Survey 2021/2022.

housing, employment, and poverty reduction. Households were selected through a random probabilistic sampling method, ensuring the survey's representativeness at the urban/rural levels. The data collection followed a cross-sectional methodology, with each selected household being interviewed once during the year.

The survey also gathered comprehensive information on the consumption patterns, income, and expenditures of households in the TCe, aiming to update the Consumer Price Index (CPI) basket and support the calculation of economic activity. Consumption expenditure was classified using the Classification of Individual Consumption According to Purpose (COICOP), an international standard employed by the Eurostat for budget surveys, structured into twelve major groups. In the HBS, food and non-food expenditures were recorded and coded with seven digits of the COICOP.

The interview period spanned the previous 12 months, gathering data on major expenses and income. At the start of each interview, households were asked a filtering question regarding whether they consumed a typical food item at the 5-digit COICOP classification. If the response was affirmative, more detailed questions were asked at the 7- or 9-digit COICOP level. Household food consumption expenditures for a 7-day period were recorded during each interview. The interview was conducted with the household member responsible for managing household consumption and expenditures, typically the person most involved in housekeeping and knowledgeable about food expenses. The survey captured data on household expenditures for food (both in cash and in kind). Non-food expenditures were documented on a quarterly, semi-annual, or annual basis, depending on the type of consumption item. Table 1 presents descriptive statistics from the 2022 HBS of the TCe.

## 4- DEFINING WELFARE

The first crucial step in estimating the poverty line and monitoring poverty over time is to establish a rigorous measure of welfare. 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:

$$\textit{Welfare indicator} = \frac{\textit{nominal household consumption}}{\textit{household size x spatial deflator x temporal CPI}}$$

### 4.1 Aggregation of Consumption Categories and Household Size

The household consumption aggregate is obtained from the HBS. The total household consumption can be divided into two broad categories: food and non-food consumption. As discussed earlier, the consumption module records information on food items from purchases, own-production, and gifts. For those items that the consumption expenditure and unit values are missing, they were assigned by the 'Statistics Office' by calculating the average price of the same item within the same month of interview. The total household expenditure on food is then calculated by

summing the expenditure from purchases and the imputed value of consumption from own-production and purchases for each individual items.

Data on non-food consumption items are also collected in several sections of the HBS, including education, health-related expenditure, utilities, and other non-food items. 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 instance, the recall period for food items is the last 7 days while for individual expenditures, restaurants and fuel it is monthly. Moreover, recall period is every quarter for clothing and annual for durables and hotels. To express these measures in comparable terms, all consumption is adjusted to monthly terms.

The nominal consumption aggregate can be expressed as the sum of these two consumption sub-aggregates, namely, food consumption and non-food consumption.

$$HC_h = FC_h + NFC_h$$

where HC = total consumption, FC = food consumption, and NFC = non-food consumption. The suffix *h* denotes the *h*-th household, with *h = 1, ..., H*. The food consumption is calculated by adding up the purchased food consumption and non-purchased (including own-production and gifts) food consumption,

$$FC_h = PFC_h + Q\_FCN_h \text{ x } UV_h$$

where PFC = purchased food consumption, Q_FCN = quantities of non-purchased food consumption (reported in the survey), and UV = Unit value (estimated by the 'Statistics Office').

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

$$NFC_h = NDC_h + DC_h$$

where = consumption on non-durable non-food goods and services, = the consumption flow out of durable goods owned by the household. As there is not sufficient information on calculating the consumption flow of durable goods, the total purchase value of the durable goods is included in the calculation.

Households size and composition vary across families, making a simple comparison of aggregate household consumption potentially misleading regarding the well-being of individuals within a household. The most common method to address this is to convert household consumption to individual consumption by dividing the household expenditures by the number of people in the household. An alternative approach involves using adult equivalence. For instance, the OECD scale assigns a weight of 1.0 for the first adult in a household, and a weight of 0.5 for each additional adult, and a weight of 0.3 for each child under 14 years (OECD, 2013). By design, the adult equivalence method tends to lower the estimated consumption needs of a household, with the effect being more pronounced in larger households. The World Bank typically uses a per capita approach to avoid making assumptions about intra-household consumption patterns and the consumption needs of children (who receive a lower weight in adult-equivalence scales). All estimates in this note are based on the unadjusted number of household members unless otherwise specified[1].

Once the welfare aggregate is constructed, it needs to be adjusted to enable valid inter-household comparisons of welfare. This adjustment involves both spatial and inter-temporal deflations to account for differences in prices that households encounter across different times and locations. This ensures that expenditures incurred by households interviewed in January can be meaningfully compared with those of households

1 The relative poverty measure uses an adult-equivalence scale approach.

interviewed in August, and likewise for comparisons between households living in villages and those in cities. Inter-temporal adjustments within the survey period are typically made using the official CPI, while spatial adjustments can be performed either by using location-specific prices from the CPI (if the CPI includes a spatial deflator) or by calculating unit values from the survey data[2]. The advantage of using CPI prices is that they include non-food items, which are usually not reported in household surveys.

## 4.2 Spatial Deflator

Calculating a measure of welfare in comparable terms requires to calculate a spatial deflator for each stratum[3] on the basis of the unit values of consumption reported in the survey. Geographically, TCe has a small landscape. It has five cities with very short travel distances among each of them. While the regional and urban/rural differences are expected to be small, a spatial deflator is generated by using the unit values from the survey. The Paasche index for the *h*-th household is defined as:

$$P_h = \frac{\sum_j p_j^h Q_j^h}{\sum_j p_j^0 Q_j^h}$$

where $p_j^o$ 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 consumed by the *h*-th household, and the cost of the same bundle as paid by a reference household (the "average household", indexed by 0). The Paasche price index for each household can be estimated and the spatial deflator for each stratum is the median value of the raw price index for each stratum. These spatial deflators are reported in Table 2 and each is applied to the monetary values of the consumption aggregate to express consumption in comparable terms. The food expenditure is used in the analysis since the unit value information for consumption expenditures are available only for the food consumption. Three spatial price indices are generated. The price index 1 calculates the price differences between urban and rural residentials only. The price index 2 estimates the differences in prices by using the variation in five cities in the TCe. Both price indices 1 and 2 have unit median values in terms of spatial price adjustment. Finally, the price index 3 measures the differences in cities with residential location. While many regions in the TCe have similar price levels, urban region in Kyrenia has a higher price level and urban areas in Morphou/Güzelyurt have lower price levels. Since the price index 3 provides more detailed information about price differentials in the TCe, the report uses price index 3 with median values for the analysis.

2 However, it is crucial to verify the coverage, as these prices are often collected only in urban areas. If the CPI lacks built-in spatial deflators, it cannot be used for spatial adjustment of the welfare aggregate.

3 A stratum is the urban or rural classification of a region. There are 11 strata in Kazakhstan based on 6 regions in Turkish Cypriot community. Apart from Trikomo/İskele which are classified as Rural. The remaining 5 regions are divided into urban and rural areas.

**Table 2:** Spatial deflation factor in the TCe

| | City | Residence | Mean | Median |
|---|---|---|---|---|
| Price index 1 | | Urban | 1.001 | 1.000 |
| | | Rural | 1.011 | 1.000 |
| Price Index 2 | Famagusta | | 0.984 | 1.000 |
| | Kyrenia | | 1.057 | 1.000 |
| | Morphou | | 0.992 | 1.000 |
| | Lefka/Lefke | | 1.031 | 1.000 |
| | Nicosia | | 1.008 | 1.000 |
| | Trikomo | | 1.002 | 1.000 |
| Price Index 3 | Famagusta | Urban | 0.985 | 1.000 |
| | | Rural | 0.983 | 1.000 |
| | Kyrenia | Urban | 1.045 | 1.011 |
| | | Rural | 1.065 | 1.000 |
| | Morphou | Urban | 0.967 | 0.967 |
| | | Rural | 1.019 | 1.000 |
| | Lefka/Lefke | Urban | 1.045 | 1.000 |
| | | Rural | 1.027 | 1.000 |
| | Nicosia | Urban | 1.004 | 1.000 |
| | | Rural | 1.027 | 1.000 |
| | Trikomo/İskele | Rural | 1.002 | 1.000 |

*Source:* Author's calculations by using HBS 2022.
*Note:* Estimates based on food consumption only.

## 4.3 Temporal Deflator

While the spatial deflator was close to unity in the TCe in 2022, the temporal deflator poses a significant challenge. The inflation rate during the survey period was approximately 106 percent. Table 3 illustrates that the CPI increased substantially with significant variation across different consumption categories. For example, the CPI for food rose by 119 percent during the survey period, while prices in transportation and entertainment saw the highest increase, by 153 and 144 percent, respectively, among all consumption items. On the other hand, the price index for education, communication and health increased less than 50 percent within the same period, 37 percent, 44 percent and 46 percent, respectively.

Such differences in prices require adjustments, otherwise using nominal consumption expenditure figures will overestimate the consumption of people interviewed in the last period of the survey compared to those interviewed at the beginning. This report accounts for inflation by applying the CPI published by the 'Statistics Office'. In particular, the CPI is a Laspeyres Price Index where the cost of a group of commodities at current prices, dividing this by the cost of the same group of commodities at base period prices (Amendola et al., 2023). This means that the base period index number is always 100. Periods with higher prices have index numbers greater than 100. The formula for calculating a Laspeyres index is,

**Table 3:** Consumer Price Index in the TCe, by components July 2021-June 2022

| | Jul-21 | Aug-21 | Sep-21 | Oct-21 | Nov-21 | Dec-21 | Jan-22 | Feb-22 | Mar-22 | Apr-22 | May-22 | Jun-22 | % change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CPI** | 241.4 | 247.5 | 252.7 | 260.8 | 275.2 | 316.9 | 334.3 | 358.1 | 404.8 | 42.3 | 453.5 | 496.8 | 106% |
| **Food** | 256.6 | 271.3 | 275.8 | 283.0 | 305.0 | 360.2 | 383.7 | 418.0 | 456.9 | 496.7 | 528.9 | 555.1 | 119% |
| **Alcoholic beverages** | 218.6 | 218.8 | 218.8 | 219.5 | 222.9 | 239.6 | 252.2 | 265.5 | 284.7 | 333.5 | 340.0 | 342.3 | 57% |
| **Clothing** | 215.0 | 211.8 | 208.6 | 230.7 | 252.7 | 269.8 | 283.1 | 279.3 | 275.4 | 303.7 | 330.9 | 355.1 | 65% |
| **Housing** | 212.6 | 212.9 | 216.9 | 222.3 | 232.4 | 253.7 | 289.1 | 298.9 | 382.4 | 405.4 | 393.1 | 416.3 | 96% |
| **Furnishing** | 333.1 | 334.6 | 340.0 | 364.0 | 377.1 | 440.3 | 484.6 | 497.7 | 542.7 | 568.8 | 624.4 | 666.7 | 100% |
| **Health** | 287.4 | 290.2 | 292.5 | 301.8 | 310.3 | 331.2 | 329.6 | 375.3 | 388.3 | 393.9 | 406.3 | 419.0 | 46% |
| **Transportation** | 271.6 | 274.1 | 273.7 | 289.7 | 318.8 | 394.4 | 415.4 | 442.8 | 525.3 | 546.7 | 565.8 | 688.4 | 153% |
| **Communication** | 160.1 | 163.8 | 164.5 | 169.0 | 180.3 | 213.3 | 211.5 | 213.6 | 218.6 | 219.7 | 221.8 | 231.3 | 44% |
| **Entertainment** | 198.5 | 199.8 | 201.5 | 203.5 | 207.5 | 231.8 | 235.0 | 301.5 | 361.8 | 365.0 | 449.5 | 483.9 | 144% |
| **Education** | 240.1 | 239.0 | 270.0 | 274.1 | 280.6 | 308.5 | 305.4 | 307.4 | 312.8 | 313.8 | 315.9 | 328.5 | 37% |
| **Restaurants** | 246.8 | 276.6 | 284.8 | 283.0 | 284.7 | 339.3 | 340.6 | 351.8 | 386.1 | 404.8 | 503.0 | 579.8 | 35% |
| **Miscellaneous** | 232.8 | 233.2 | 237.0 | 245.3 | 259.3 | 275.9 | 298.9 | 317.6 | 346.2 | 354.8 | 360.8 | 388.9 | 67% |

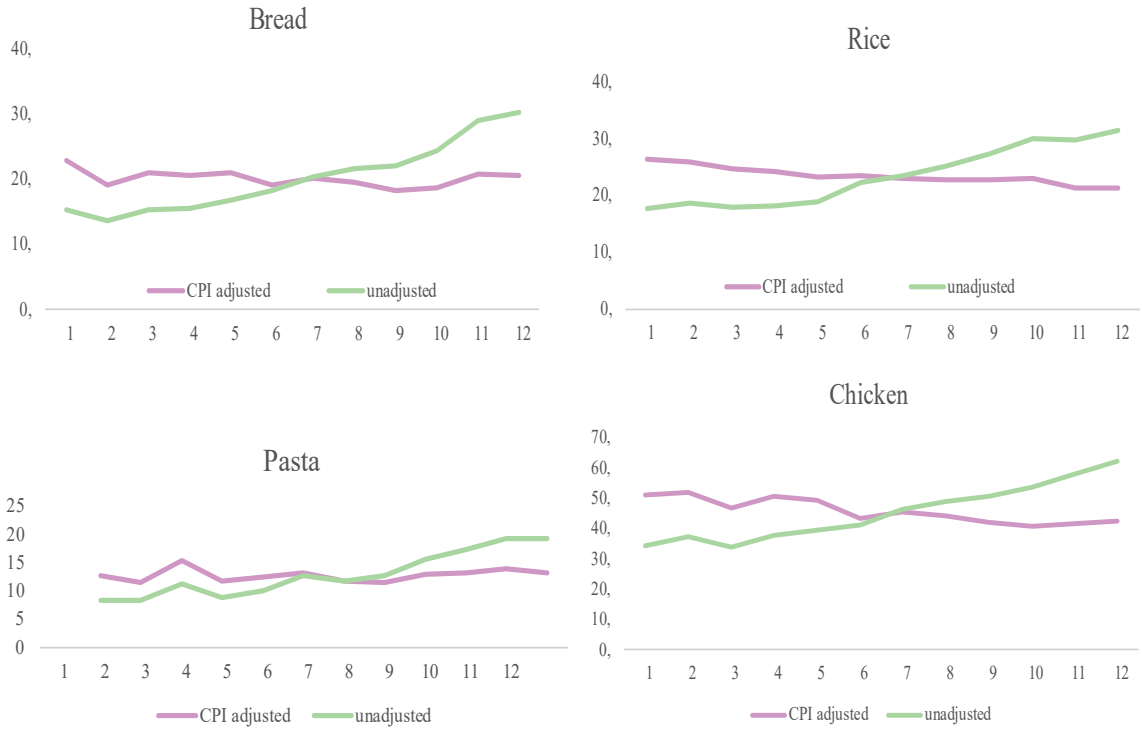
*Source:* TCc 'Statistics Office'

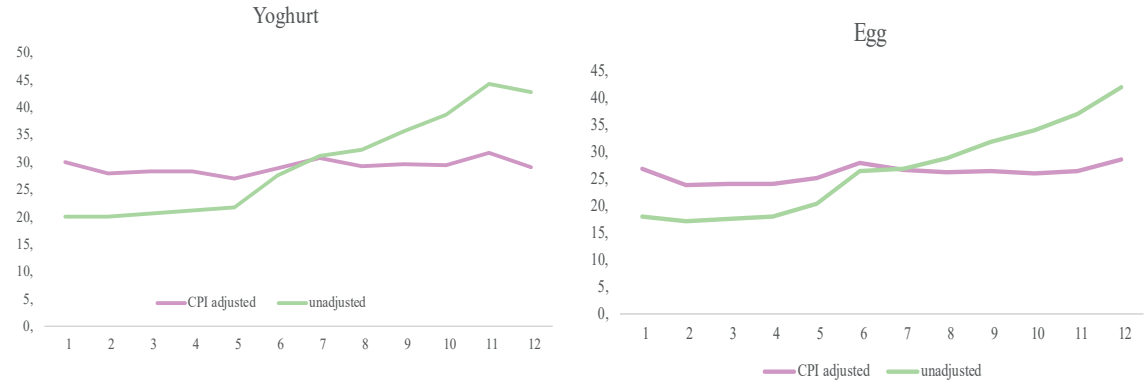
$$I_L = \left( \frac{\sum P_{it} Q_{i0}}{\sum P_{i0} Q_{i0}} \right)$$

where $P_{i0}$ is the price of commodity I at time 0; $Q_{i0}$ is the quantity of commodity I at time 0; and $P_{it}$ is the price of commodity I at time t.

The temporal adjustment applied to unit values for each consumption item, and it is also applied to total household consumption expenditure. The table below shows the unit values of some items before and under the temporal adjustment. The unit values in each case normalized during the survey period by using the CPI, where the raw unit value for bread increased from 15.3TL in July 2021 to 30.4TL in June 2022. The temporal adjustment harmonizes the unit value for bread within the survey period between 22.8TL in July 2021 and 20.7TL in June 2022. Similar pattern is also observed in other consumption items including rice, pasta, chicken, yoghurt and eggs.

**Figure 1:** Temporal adjustment for food items, by using the Consumer Price Index






*Source:* Author's calculations by using the HBS 2022.

Another option would be to calculate the price index by using the unit values within the survey. However, the unit values are only available for food items. To adjust the consumption expenditure on non-food items, one needs to rely on the CPI. Table 4 reports the temporal price change indices by using different alternatives, including unit value adjustment, adjustment with overall CPI and adjustment with food CPI only. Since the difference between the within survey temporal index and CPI are similar, the CPI is used as temporal adjustment index for all consumption groups including food consumption.

**Table 4:** Price index in the TCe, July 2021-June 2022

| | | Within survey | | 'Statistics Office' | |
|---|---|---|---|---|---|
| Survey month | Calendar month | Mean | Median | CPI | CPI food |
| 1 | July, 2021 | 0.720 | 0.694 | 241.4 | 253.6 |
| 2 | August, 2021 | 0.772 | 0.724 | 247.5 | 271.3 |
| 3 | September, 2021 | 0.782 | 0.778 | 252.7 | 275.8 |
| 4 | October, 2021 | 0.792 | 0.775 | 260.8 | 283.0 |
| 5 | November, 2021 | 0.850 | 0.833 | 275.2 | 305.0 |
| 6 | December, 2021 | 0.935 | 0.917 | 316.9 | 360.2 |
| 7 | January, 2022 | 1.002 | 1.000 | 334.3 | 383.7 |
| 8 | February, 2022 | 1.114 | 1.063 | 358.1 | 418.0 |
| 9 | March, 2022 | 1.163 | 1.125 | 404.8 | 456.9 |
| 10 | April, 2022 | 1.262 | 1.200 | 425.3 | 496.7 |
| 11 | May, 2022 | 1.353 | 1.298 | 453.5 | 528.9 |
| 12 | June, 2022 | 1.444 | 1.400 | 496.8 | 555.1 |
| | Ratio | 2.01 | 2.02 | 2.06 | 2.19 |

*Source:* Author's calculations by using the HBS 2022.

After adjustments, the household consumption aggregate is comparable across households in the survey. The consumption expenditure pattern among households in the TCe is presented in Table 5. Overall, households consume the largest share of their consumption on food, with 20.2 percent. Consumption on rent, transportation and durables also have a significant share among all households. In total, households spend 57.4 percent of their consumption on food, rent, transportation and durables. There is also a significant variation across households when they are ranked according to their consumption expenditure. The poorest 20 percent of households spend 29 percent on food, 15.9 percent on rent and 11.3 percent on transportation.

## 5- METHODOLOGY OF ESTIMATION OF POVERTY LINE

The CBN method was used to determine a consumption-based poverty line for the TCe (Box 1). The CBN methodology defines poor households as those who cannot afford a bundle of goods that is deemed sufficient to satisfy basic needs. Basic needs were defined as access to both adequate nutrition and basic non-food items (Burki et al., 1981). This basket represents the amount of goods and services that are needed to maintain a minimum standard of living. In sum, the poverty line consists of two components: (*i*) the food poverty line, which is estimated based on the monetary value of a minimum basket of food; and (*ii*) the estimated cost of non-food goods and services.

**Table 5:** Distribution of consumption expenditure by quintile

| | Overall | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 |
|---|---|---|---|---|---|---|
| **Food** | 20.2% | 29.0% | 26.5% | 22.6% | 22.5% | 15.3% |
| **Cigarettes** | 2.8% | 4.2% | 3.7% | 3.0% | 2.9% | 2.3% |
| **Clothing** | 3.5% | 2.5% | 3.0% | 2.7% | 3.5% | 4.1% |
| **Housing** | 6.5% | 9.2% | 8.7% | 7.7% | 6.7% | 4.9% |
| **Goods** | 2.7% | 2.8% | 2.6% | 2.4% | 2.3% | 3.1% |
| **Transportation** | 10.5% | 11.3% | 11.6% | 13.3% | 11.1% | 8.7% |
| **Communication** | 2.6% | 4.2% | 3.5% | 3.4% | 2.7% | 1.9% |
| **Entertainment** | 2.0% | 1.5% | 1.7% | 1.7% | 2.1% | 2.2% |
| **Education** | 6.2% | 1.7% | 3.3% | 6.1% | 5.4% | 8.2% |
| **Restaurant** | 4.4% | 1.6% | 2.5% | 3.8% | 3.8% | 5.8% |
| **Other** | 7.5% | 7.6% | 8.8% | 9.1% | 8.0% | 6.3% |
| **Health** | 4.5% | 4.6% | 4.3% | 4.2% | 5.4% | 4.2% |
| **Durables** | 11.6% | 3.8% | 5.2% | 5.7% | 7.9% | 18.5% |
| **Rent** | 15.1% | 15.9% | 14.6% | 14.2% | 15.8% | 15.0% |

*Source:* Author's calculations by using the HBS 2022.

**Box 1:** Overview of the steps for determining the CBN poverty line

***Step 1***: Set the caloric nutritional requirement depending on equivalence scale (per capita or per adult equivalence).

***Step 2:*** Set the reference population for defining the composition of food basket.

***Step 3***: Calculate the total cost of achieving the pre-set caloric nutritional requirement according to consumption patterns of a reference population.

***Step 4***: Estimate the required non-food expenditure for a reference group of households and add the cost of basic non-food needs to arrive at the total poverty line.

## 5.1 Setting the food poverty line

The first step in estimating of CBN poverty line is estimation of the food poverty line, also referred as the extreme poverty line. The following steps were implemented to come up with the final food poverty line based on 2022 HBS data.

### 5.1.1 Setting the minimum dietary requirement

The minimum dietary requirement can vary according to socioeconomic context. While 2,100 kilocalories (kcal) per capita per day are considered adequate to meet the energy needs for maintaining a healthy lifestyle and carry out light physical activity of an average person, an average minimum dietary requirement is calculated for the TCe by using Table 6. According to the following table and demographic characteristics of the TCe population, the average minimum dietary requirement is 2,254.4 kcal per day per capita. This is used as the minimum energy requirement in determining the food basket used to construct the food poverty line in this report.

**Table 6:** Calorie requirements by age and gender

| | Daily calories | | | Daily calories | |
|---|---|---|---|---|---|
| Age | Male | Female | Age | Male | Female |
| < 2 | 1000 | 1000 | 16-18 | 3000 | 2200 |
| 3 | 1400 | 1300 | 19-25 | 2900 | 2300 |
| 4-5 | 1500 | 1500 | 26-30 | 2800 | 2200 |
| 6 | 1700 | 1500 | 31-35 | 2800 | 2100 |
| 7-8 | 1700 | 1700 | 36-45 | 2700 | 2100 |
| 9 | 1900 | 1700 | 46-50 | 2600 | 2100 |
| 10 | 1900 | 1900 | 51-55 | 2600 | 2000 |
| 11 | 2100 | 1900 | 56-60 | 2400 | 2000 |
| 12-13 | 2300 | 2100 | 61-65 | 2400 | 1800 |
| 14 | 2600 | 2200 | 66+ | 2000 | 1800 |
| 15 | 2800 | 2200 | Lactating Woman | | 2700 |

*Source:* Food and Agriculture Organization of the United Nations (FAO)

For each food product, we acquired data on the caloric content according to the unit of measurement specified in the survey. It is important to note that, in meeting the caloric requirements, we have excluded alcoholic beverages and food consumed outside the home, as these items are not included in the food group based on the COICOP classification.

### 5.1.2 Defining the reference population

A variety of food baskets can supply the same caloric value of 2,254.4 Kcal, yet their costs can differ greatly. The preferred method involves utilizing survey data to construct a basket that mirrors the typical dietary patterns of people. More precisely, our focus is on the dietary habits of individuals whose consumption expenditure aligns with the households around the poverty line.

In this analysis the reference population to set the food consumption pattern is the population of people in the group is meant to capture the food consumption patterns for a relevant, relatively low-income population. The decision was made to use the deciles 2-4 of per capita consumption as a reference population. The food basket of this of meeting the food energy requirement is estimated by calculating the price per calorie that reflected the consumption patterns of households in reference group. The aim is not to recommend a reference point for creating an official minimum food basket for the economy, but rather to estimate the food poverty line based on cost per calorie in a reference population. The estimated per capita food poverty line in the TCe is then the cost of 2,254.4 Kcal basket according to consumption patterns of reference population.

Table 7 represents the cost of 2,254.4 Kcal food consumption depending on choice of reference population. The cost of 2,254.4 Kcal varies from 29.9 TL in first decile to 43.95 TL in the top decile in survey period median prices estimated from the HBS. Expectedly, the cost of calories consumed by the households are positively corelated with the income of households. Households with higher consumption expenditure are likely to spend more on calories. Among the reference group, the average cost of daily food basket is around 34.2 TL in 2022 prices.

**Table 7:** Cost of 2,254 Kcal basket for various reference populations

| Deciles | Cost of 2,254 Kcal using food items constituting 99.9 percent of total food consumption in daily TL |
|---|---|
| 1 | 29.6 |
| 2 | 31.3 |
| 3 | 34.0 |
| 4 | 36.2 |
| 5 | 35.3 |
| 6 | 36.9 |
| 7 | 38.8 |
| 8 | 40.7 |
| 9 | 40.1 |
| 10 | 43.7 |
| All deciles | 36.6 |
| Deciles 2,3,4 | 33.8 |

*Source:* Author's calculations by using the HBS 2022.

Table 8 presents the distribution of daily calorie intake per capita by deciles. According to Ravallion's approach, there is a significant correlation between household welfare and calorie intake, thus using the caloric threshold to anchor both the food and total poverty lines. The results show that daily per capita calorie increases significantly by decile under three different welfare indicators. Each specification indicates that the lowest two deciles consume around 1,400 to 1,900 kcal while the higher deciles consume around 3,200 to 4,300 kcals.

the N items with the highest shares. And a third approach is to choose a percent X and include the minimum number of items with the highest shares such that their cumulative consumption share is at least X percent (where X usually is chosen as something between 95 and 100 percent). It should be noted that as long as the cumulative share of the included items is large enough, dropping of items with very small consumption shares does not significantly affect the overall basket cost with a fixed caloric value. The Figure 2 presents

**Table 8:** Average calorie per day per capita, by decile

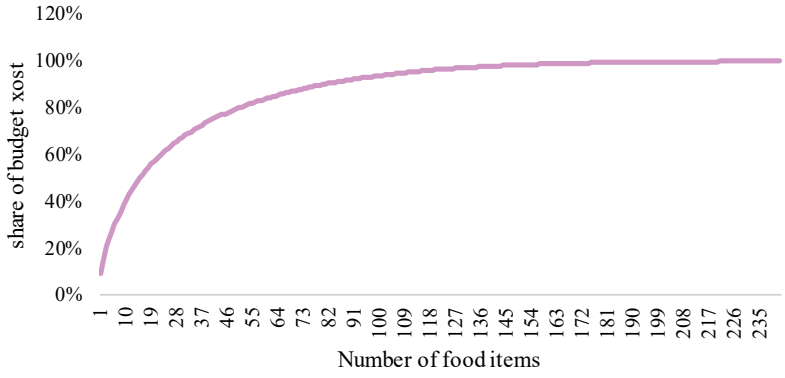
| | Overall consumption | Consumption excluding durables | Consumption excluding durables, rent and health |
|---|---|---|---|
| Decile 1 | 1,508 | 1,507 | 1,419 |
| Decile 2 | 1,876 | 1,906 | 1,922 |
| Decile 3 | 1,971 | 1,943 | 1,959 |
| Decile 4 | 2,164 | 2,184 | 2,219 |
| Decile 5 | 2,393 | 2,280 | 2,375 |
| Decile 6 | 2,580 | 2,513 | 2,525 |
| Decile 7 | 2,871 | 2,927 | 2,758 |
| Decile 8 | 3,188 | 3,159 | 2,958 |
| Decile 9 | 3,277 | 3,289 | 3,497 |
| Decile 10 | 4,114 | 4,251 | 4,307 |
| Total | 2,591 | 2,591 | 2,591 |

### 5.1.3 Calculating the food poverty line

The poverty line is composed of the cost of the main food items consumed by the reference population, including non-alcoholic beverages, to achieve 2,254 kcal per day per capita. According to the survey, the total number of food items and non-alcoholic beverages (at CPICOP 7-digit level) consumed by the reference population (deciles 2-4) is more than 300. Naturally these items have different consumption shares. The following question arises based on which criteria should these food items be included in or excluded from the food basket. One approach is to include all the items with their respective shares. Another approach is to choose a number N and include

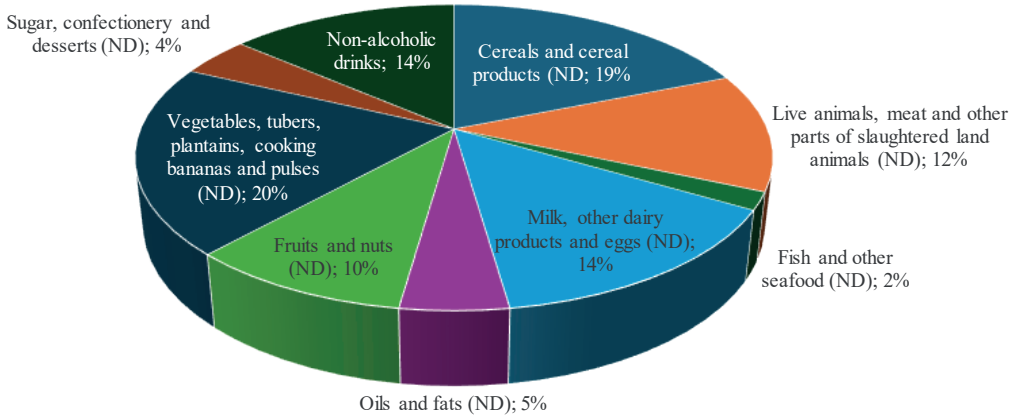
the relationship between the number of food items included in the minimum food basket and the cost of the 2,254 Kcal basket. It shows that up to approximately 160 items the cost of the basket is significantly dependent on the number of items included. The dependency decreases with inclusion of more items. This means including items with a cumulative share of 99.9 percent, that is, the top 162 food items, is a good potential approach for determining the composition of the food basket. Thus, the food poverty line is the monetary value of the 2,254.4 Kcal food basket of 162 food items constituting a cumulative 99.9 percent of the total food consumption in the reference population (deciles 2-4). That value is estimated to be at 108.7 TL per capita per day.

**Figure 2:** Cost of 2,254.4 Kcal food basket of the reference population (deciles 2-4) by number of items




*Source:* Author's calculations by using the HBS 2022.

**Figure 3:** The composition of food poverty line, share of costs by food groups




*Source:* Author's calculations by using the HBS 2022.
ND = Non-Durable

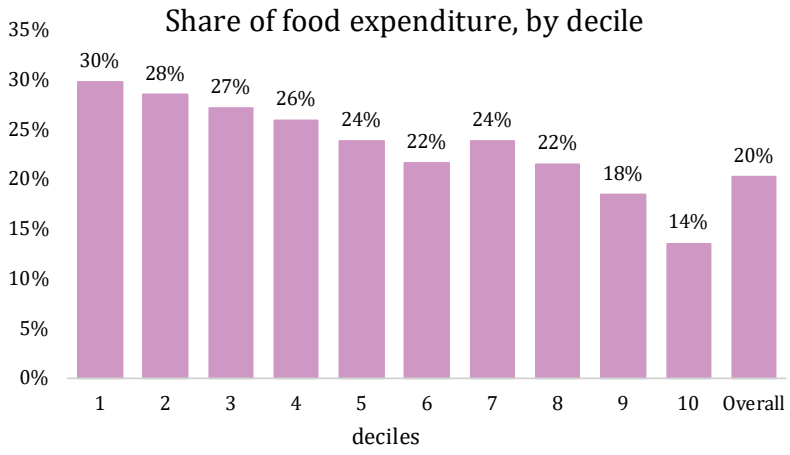
The composition of the basket in terms of cost is summarized in Figure 3. The highest cost of the basket is from vegetables (20 percent), cereals (19 percent), milk and dairy (14 percent), non-alcoholic drinks (14 percent) and meat (12 percent). The detailed itemized composition of 2,254 Kcal basket of reference population by cost and caloric values is presented in Table 11 in the Annex.

## 5.2 Setting the absolute poverty line

### 5.2.1 Calculating the non-food allowance

The allowance for non-food consumption expenditure is estimated based on observed consumption habits by using the 2022 HBS. Absolute poverty line is estimated using Ravallion's upper and lower bound methods (Ravallion, 1998). For the lower bound method, households whose total consumption per capita was close to the food poverty line were selected as the reference group (i.e., households with consumption per capita within the interval: food line, food line +/- 20 percent of food line). For the upper bound method, households whose food per capita was close to the food poverty line were selected as the reference group (i.e., households with food consumption per capita within the interval: food line, food line +/- 10 percent of food line).

**Figure 4:** Average food shares by consumption deciles, HBS 2022




*Source:* Author's calculations by using the HBS 2022.

One approach is to estimate the Engel's coefficient - the share of food expenditure out of total expenditure (Ravallion, 1998). Based on HBS 2022 data, poor households spent a higher share of their consumption on food (e.g., households in the first consumption decile spent about 31 percent of their consumption on food) than more well-off households (e.g., households in consumption decile 10 spent 16 percent of their consumption on food) Figure 4. The food shares are estimated as the average of food shares of households in each decile.

Alternatively, non-parametric model is employed in this report to estimate the non-food allowances for constructing the absolute poverty line. For instance, to determine the lower poverty line, we calculate the mean total expenditure of households whose total spending falls within a narrow range around the food poverty line. The same method is applied to estimate the upper poverty line, with the distinction that it involves calculating the non-food spending of households near the point where total food spending equals the food poverty line. According to the estimations the lower bound for the poverty line is 1,880 TL per month per capita in 2022 prices while the upper bound is 4,733 TL per month per capita in 2022 prices. To set the absolute poverty line for the TCe, we take the simple average of lower and upper poverty lines. According to this, the poverty line for the TCe is 3,306 TL per month per capita in 2022 prices.

## 5.3 Poverty statistics

According to the CBN approach, the estimated daily cost of a food basket in 2022 is 34 TL per person, with the poverty line set at 108 TL per person per day at 2022 prices. These estimates assume an average daily caloric requirement of 2,254.4 kcal per person and focus on a reference population within the 10$^{th}$ to 40$^{th}$ percentile of consumption expenditure. The monthly poverty line is set at 3,306 in 2022 prices. When applying this poverty line to consumption data, the poverty headcount rate for the TCe in 2022 is estimated to be 25.6 percent.

The 'Statistics Office' monitors poverty in the TCe by using the relative poverty methodology followed by the Eurostat. Unlike other EU economies, the TCe uses the Household Budget Survey to monitor poverty and inequality indicators rather than the EU Survey of Income and Living Conditions (SILC). The absolute poverty rate established in this report is significantly higher than the 14.4 percent headcount rate obtained using a relative poverty measure, defined as 50 percent of median income. However, the rate is close to the relative poverty rate defined as 60 percent of the median income (21.8 percent), a general line used in the European economies as at risk of poverty rate.

**Box 2:** Poverty measurement.

The main poverty measures estimated in this report include the poverty headcount index or P(0), poverty gap index or (P1), and the poverty severity index or P(2), which can be presented in a single formula:

$$P(\alpha) = \frac{1}{n}\sum_{i=1}^{n}\left[\max\left(\frac{z - c_i}{z}, 0\right)\right]^{\alpha}$$

where α =0,1,2, is a parameter; z is the poverty line; $c_i$ is consumption of individual i; and n is the total number of individuals.

The fraction of individuals below the poverty line is measured by setting α equal to 0, P(0), or obtaining the poverty headcount index.

On average, how far the population is below the poverty line, including the poor (with actual distance) and the non-poor (assumed with zero distance), is measured by setting α equal to 1 resulting in P(1) or the poverty gap index. P(1) can also be defined in the following way:

$$P(1) = P(0) * (Average \;\; Deficit)$$

where the average deficit is measured as a percentage of the poverty line by which the average consumption of the poor falls short of the poverty line.

Finally, setting α is equal to 2 results in P(2) or the severity of poverty index which gives an indication of inequality in the consumption of the poor.

The following Table 9 presents the poverty statistics in the TCe. The results are compared to the two relative poverty measures that are used by the Eurostat. The poverty rate is higher in urban settlements than in rural settlements in the TCe according to the estimations.

**Table 9:** Poverty Statistics

| | Poverty line daily per capita | Poverty line monthly per capita | Poverty Incidence |
|---|---|---|---|
| TCe | 108 TL | 3,306 TL | 25.6 percent |

*Source:* Author's calculations by using the HBS 2022.

Moreover, Table 9 presents the poverty headcount rate based on a relative poverty measure (60% of median income). Poverty rate using this approach (12.4%) is higher than the CBN approach (3.9%). As economies become richer, absolute measures have less significance as sometimes zero or very small proportion of the population will have consumption below the level that makes it impossible for them to meet basic needs. Thus, as countries become richer, they move towards more relative measures of poverty, where poverty is defined by being below a certain cutoff point in relation to the overall distribution of income or consumption in a country.

**Table 10:** Poverty headcount based on 60% of median income: adult equivalent and per capita

| Region | Headcount poverty - 60% of median income | Headcount poverty - 50% of median income | Headcount poverty rate - CBN poverty line |
|---|---|---|---|
| TCe | 21.8 percent | 14.4 percent | 25.6 percent |

*Source:* Author's calculations by using the HBS 2022.

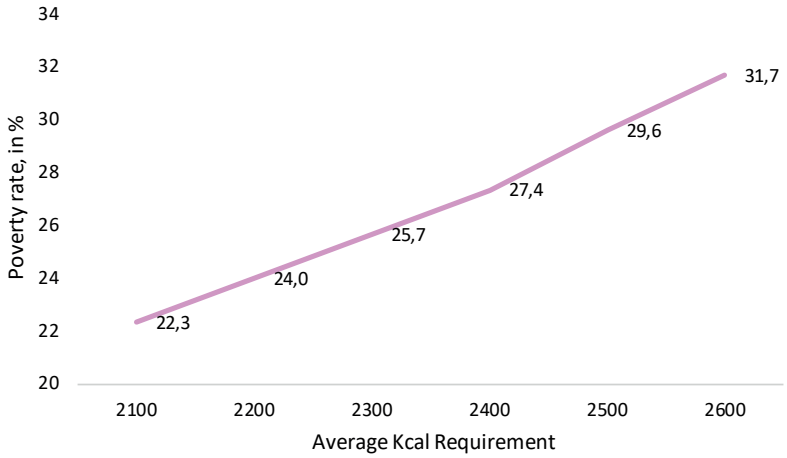
## 5.4 Sensitivity Analysis

The estimation of the poverty line is influenced by several choice variables, which subsequently impact the estimated poverty rate. Two such variables are the average kilocalorie requirement and the definition of the reference population. The incremental effects of changing these variables on the resulting poverty rate are illustrated in Figures 5 and 6.

It is standard procedure to ensure that the poverty rate increases linearly with an increase in the average kilocalorie requirement. Figure 5 demonstrates that this is indeed the case based on the Household Budget Survey (HBS) data, showing no significant discontinuities that would result in substantial differences in the poverty rate.

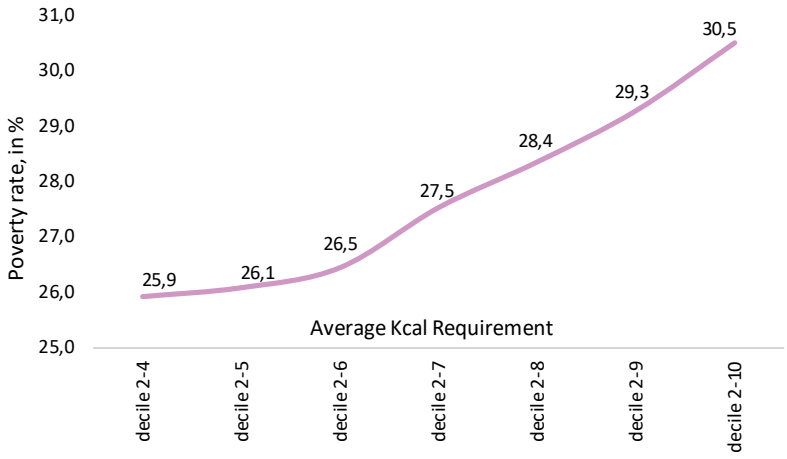
The selection of the reference population is also a critical decision when constructing the absolute poverty line. Figure 6 indicates that the poverty rate increases as higher deciles are included in the reference population. Choosing a reference group from the 10$^{th}$ to 40$^{th}$ percentile results in only marginal differences in the resulting poverty rate.

**Figure 5:** Sensitivity of Poverty Rate to Average Kcal Requirement, overall poverty rate




*Source:* Author's calculations by using the HBS 2022.

**Figure 6:** Sensitivity of Poverty Rate to Reference Group, overall poverty rate




*Source:* Author's calculations by using the HBS 2022.

Another important decision is about the inclusion of durables in the welfare aggregate. The durable goods are usually purchased in a year but used over time which suggests that the use of the durable good is the relevant component of the welfare (Deaton and Zaidi, 2002). Moreover, durable goods can cause artificial hikes in the consumption aggregate in a specific year. We estimated the poverty line by eclosing the durable goods from the consumption aggregate. According to the results, the poverty for the CBN approach is 3,104 TL per capita per month in 2022 prices. According to this line, the poverty rate is 25.44 percent in the TCe which is very close to the poverty rate estimated with the inclusion of the durable goods.

In addition, health expenditure can also create artificial hikes in the welfare aggregate (Mancini and Vecchi, 2022). Another welfare aggregate can be created by excluding durables, health expenditure and rent from the household welfare. According to the results, the poverty for the CBN approach is 2,534 TL per capita per month in 2022 prices. According to this line, the poverty rate is 28.1 percent in the TCe.

## 6- RECOMMENDATIONS AND CONCLUSION

This report presents the estimation of an absolute poverty line for the Turkish Cypriot community using the Cost of Basic Needs (CBN) approach. The analysis confirms that food expenditures remain the most significant component of household budgets for low-income families, with the daily food basket estimated at approximately 34 TL per person. The poverty line, which includes both food and non-food expenses, is set at 108.7 TL per person per day at 2022 prices. The estimated poverty rate for the community in 2022, based on this absolute poverty line, stands at 25.6%, significantly higher than the relative poverty rate defined as 50% of median income.

The sensitivity analysis demonstrated that adjustments in kilocalorie requirements or reference groups did not cause significant shifts in the overall poverty rate, suggesting robustness in the CBN approach. The spatial and temporal deflators were necessary adjustments due to inflation and price variations across the region, and they confirmed the significant impact of rising prices on poverty levels.

Adopting an absolute poverty line based on the CBN approach provides a more accurate framework for assessing poverty and formulating policies in the TC economy. The proposed recommendations will ensure that poverty reduction efforts are both strategically targeted and sustainable over the long term. While measuring poverty requires significant efforts and resources, including collecting consumption and income surveys directly from households and analyzing the data, it has several benefits to understand the dynamics of living standards:

Identifying poor people: A credible measure of poverty is essential for drawing the attention of policymakers to the living conditions of the poor. Without such measurement, the poor can easily be overlooked in political and economic discussions. Therefore, the TC 'administration' is encouraged to closely monitor the poor population by conducting more frequently the poverty indicators.

Targeting interventions: Accurate poverty measurement is crucial for identifying and assisting those in need. A detailed poverty profile, which includes data on geography, community characteristics, and household attributes, helps in directing development resources to the most impoverished areas and designing effective poverty reduction strategies.

Monitoring and evaluating policies: Measuring poverty allows for the prediction and evaluation of the impacts of policies and programs aimed at helping the poor. This process involves monitoring the effects of interventions and comparing outcomes with control groups to improve program design and eliminate ineffective initiatives.

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# Annex

## Detailed composition of food poverty line

**Table 11:** Composition of 2,254.4 Kcal Basket in deciles 2-4

| Items in the basket | Calorie intake | Budget share |
|---|---|---|
| Bread | 427.3 | 9.9% |
| Sunflower oil | 234.8 | 2.7% |
| Pasta | 122.9 | 1.3% |
| Poultry Chicken | 98.2 | 6.2% |
| Rice | 89.0 | 1.8% |
| Granulated sugar | 81.6 | 0.9% |
| Wheat flour | 74.6 | 0.8% |
| Olive oil | 73.9 | 1.2% |
| Potato | 66.1 | 2.5% |
| Cheese Other (Halim, Nor, Gouda, etc.) | 47.4 | 3.6% |
| Chicken egg | 43.7 | 2.4% |
| Bulgur | 40.5 | 0.6% |
| Flour and Other Cereals Other | 40.2 | 0.4% |
| Fresh Milk (daily milk, raw milk) | 36.5 | 2.4% |
| Cola | 32.4 | 1.2% |
| Banana | 29.4 | 1.7% |
| Dry Onion (Fresh Vegetable) (Yellow, White, Red) | 29.0 | 1.5% |
| Biscuit | 28.3 | 1.3% |
| Yoghurt | 24.0 | 3.3% |
| Noodle | 22.7 | 0.3% |
| Lentil | 22.5 | 0.5% |
| Orange (Fresh) | 22.0 | 1.0% |
| Beef (Fresh) | 21.3 | 2.9% |
| Coffee | 20.9 | 3.5% |
| Apple | 19.4 | 1.6% |
| Haricot bean | 17.7 | 0.4% |
| Chips (potatoes), etc. (Pringles, Lays etc.) | 17.5 | 0.9% |
| Margarine | 16.6 | 0.3% |
| Mayonnaise | 16.6 | 0.3% |
| Storable Milk Other | 15.1 | 0.9% |
| Chickpea | 14.6 | 0.3% |
| Tea | 14.6 | 1.7% |
| Cracker (Salted Biscuit) | 14.1 | 0.5% |
| Tomato (Fresh Vegetable) | 13.3 | 3.4% |
| Tangerine (Fresh) | 13.0 | 0.6% |
| Tablet, Bar etc. Chocolate | 12.9 | 1.0% |
| Low Fat (Diet) Milk | 12.8 | 1.1% |

| | | |
|---|---|---|
| Ice cream | 11.5 | 0.8% |
| Watermelon | 11.4 | 0.8% |
| Lamb meat | 11.3 | 1.7% |
| Wafer | 11.3 | 0.5% |
| Walnut | 11.0 | 0.5% |
| Butter Breakfast | 10.7 | 0.6% |
| Cheese Feta Cheese | 10.3 | 0.9% |
| Patty | 10.0 | 0.8% |
| Sunflower seeds | 9.1 | 0.2% |
| Carrot (Fresh Vegetable) | 9.1 | 0.5% |
| Ready Fruit and Vegetable Juices (Orange, Apple, Tomato etc.) | 9.1 | 0.7% |
| Mixed Nuts | 8.1 | 0.4% |
| Tomato paste | 7.8 | 0.7% |
| Molasses | 7.4 | 0.4% |
| Cheese Cheddar Cheese | 7.2 | 0.5% |
| Olive | 6.2 | 0.8% |
| Cake | 5.9 | 0.4% |
| Honey | 5.8 | 0.6% |
| Jam | 5.8 | 0.3% |
| Other Legumes | 5.4 | 0.1% |
| Fresh Fish | 5.4 | 1.5% |
| Cucumber (Fresh Vegetable) | 5.2 | 1.2% |
| Pepper Charleston (Fresh Vegetable) | 5.0 | 1.1% |
| Almond | 4.9 | 0.4% |
| Other Fruit and Vegetable Juices (smoothy, detox fruit and vegetable juices, etc.) | 4.5 | 0.1% |
| Turkish style fermented sausage (sucuk) | 4.5 | 0.4% |
| Peanut | 4.1 | 0.1% |
| Pomegranate (Fresh) | 3.8 | 0.2% |
| Pear | 3.6 | 0.4% |
| Lemon (Fresh) | 3.6 | 0.2% |
| Cookie | 3.4 | 0.2% |
| Buttermilk (Ayran) | 3.3 | 0.4% |
| Mutton | 3.2 | 0.5% |
| Frozen Poultry | 3.2 | 0.2% |
| Soda Fruity | 3.2 | 0.2% |
| Lettuce (Fresh Vegetable) | 3.0 | 0.6% |
| Eggplant (Fresh Vegetable) | 3.0 | 0.5% |
| Muffin | 3.0 | 0.3% |
| Grapes (Fresh) | 2.9 | 0.4% |
| Tarhana (Homemade) | 2.8 | 0.3% |
| Melon | 2.8 | 0.2% |

| | | |
|---|---|---|
| Garlic Dry (Head) (Fresh Vegetable) | 2.5 | 0.4% |
| Salami | 2.4 | 0.2% |
| Cereals | 2.2 | 0.1% |
| Other Fats and Oils | 2.2 | 0.0% |
| Parsley (Fresh Vegetable) | 2.2 | 0.6% |
| Canned or Processed Ready Meat Products | 2.2 | 0.3% |
| Cooked (Ready) Meat Dishes | 2.1 | 0.2% |
| Spinach (Fresh Vegetable) | 2.0 | 0.4% |
| Canned Fish (Tuna) | 2.0 | 0.5% |
| Mint (Fresh Vegetable) | 2.0 | 0.3% |
| Ice tea | 2.0 | 0.1% |
| Wheat | 1.9 | 0.0% |
| Baby Food (Powder Mixture) | 1.8 | 0.2% |
| Cabbage White (Fresh Vegetable) (Grape) | 1.8 | 0.2% |
| Green Onion (Fresh Vegetable) | 1.8 | 0.3% |
| Hazelnut | 1.8 | 0.1% |
| Cauliflower (Cauliflower) (Fresh Vegetable) | 1.6 | 0.2% |
| Fresh/wet and Dry Cake | 1.6 | 0.1% |
| Instant Coffee (Nescafe etc.) | 1.5 | 0.3% |
| Sausage | 1.3 | 0.1% |
| Grisini, Breadcrumbs, Krik-Krak, Rusks etc. | 1.2 | 0.0% |
| Beans (Fresh Vegetable) | 1.2 | 0.3% |
| Dried fig | 1.2 | 0.1% |
| Cheese Cream Cheese | 1.1 | 0.1% |
| Bacon | 1.1 | 0.1% |
| Raisins | 1.1 | 0.1% |
| Broccoli (Fresh Vegetable) | 1.1 | 0.2% |
| Offal | 1.1 | 0.1% |
| Pepper Red (Fresh Vegetable) | 1.1 | 0.2% |
| Frozen Bakery Products (manti, pizza, etc.) | 1.0 | 0.1% |
| Zucchini (Fresh Vegetable) | 1.0 | 0.2% |
| Broad Beans (Fresh Vegetable) | 1.0 | 0.1% |
| Butter Edible | 1.0 | 0.0% |
| Lamb Frozen | 0.9 | 0.1% |
| Leek (Fresh Vegetable) | 0.8 | 0.1% |
| Strawberry (Fresh) | 0.7 | 0.2% |
| Grapefruit (Fresh) | 0.7 | 0.0% |
| Artichoke (Fresh Vegetable) | 0.7 | 0.2% |
| Vinegar | 0.7 | 0.3% |
| Bell Pepper (Fresh Vegetable) | 0.7 | 0.2% |
| Other Cheese Types | 0.7 | 0.0% |
| Nectarine /Fresh) | 0.6 | 0.1% |
| Pistachios | 0.6 | 0.1% |

| | | |
|---|---|---|
| Okra (Fresh Vegetable) | 0.6 | 0.1% |
| Peach (Fresh) | 0.6 | 0.1% |
| Freshly Squeezed Fruit and Vegetable Juices | 0.6 | 0.0% |
| Grape Leaf (Vine Leaf) (Fresh Vegetable) | 0.6 | 0.1% |
| Other Nuts, Dried Fruits and Nuts | 0.6 | 0.0% |
| Pickle | 0.6 | 0.3% |
| Black Cabbage (Fresh Vegetable) | 0.6 | 0.1% |
| Pepper (Gin Pepper, Ornamental Pepper etc.) (Fresh Vegetable) | 0.5 | 0.2% |
| Loquat (Fresh) | 0.5 | 0.1% |
| Arugula/Rocket (Fresh Vegetable) | 0.5 | 0.2% |
| Home / Mechanical Dumplings | 0.5 | 0.1% |
| Goat meat | 0.5 | 0.2% |
| Roasted chickpea | 0.5 | 0.1% |
| Beef Frozen | 0.5 | 0.1% |
| Kiwi (Fresh) | 0.4 | 0.1% |
| Cream (Milk Cream) | 0.4 | 0.0% |
| Garlic Green (Fresh Vegetable) | 0.4 | 0.1% |
| Green Pepper (Fresh Vegetable) | 0.4 | 0.1% |
| Apricot (Fresh) | 0.4 | 0.1% |
| Mushroom (Fresh Vegetable) | 0.4 | 0.3% |
| Figs (Fresh) | 0.4 | 0.1% |
| Plants and Herbal Tea Bag | 0.4 | 0.1% |
| Cowpea (Fresh Vegetable) | 0.4 | 0.1% |
| Peas (Frozen Vegetable) | 0.4 | 0.1% |
| Cherry (Fresh) | 0.3 | 0.1% |
| Cocoa | 0.3 | 0.0% |
| Celery (Fresh Vegetable) | 0.3 | 0.2% |
| Avocado (Fresh) | 0.2 | 0.0% |
| Capricorn Meat | 0.2 | 0.1% |
| Dill (Fresh Vegetable) | 0.2 | 0.1% |
| kohlrabi (Fresh Vegetable) | 0.2 | 0.0% |
| Chard (Fresh Vegetable) | 0.1 | 0.1% |
| Aysberg (Iceberg, Atom-Ball Lettuce) (Fresh Vegetable) | 0.1 | 0.0% |
| Golandro | 0.1 | 0.1% |
| Purslane (Fresh Vegetable) | 0.1 | 0.1% |
| Asparagus (Ayrelli) (Fresh Vegetable) | 0.1 | 0.1% |
| Molohiya | 0.1 | 0.1% |
| Pumpkin Flower (Fresh Vegetables) | 0.0 | 0.1% |
| Water | 0.0 | 0.0% |
| Mineral Water and Soda (Including Fruit) | 0.0 | 0.0% |
| Soda Plain | 0.0 | 0.0% |

**Table 12:** Non- standard units conversion factors

| COICOP CODE | Name English | measurement unit | Conversion_factor_to_KG |
|---|---|---|---|
| 0114603 | Instant Milk Desserts | ADET (each) | 0.2 |
| 0114701 | Chicken egg | ADET (each) | 0.05 |
| 0114702 | Egg Quail / Duck | ADET (each) | 0.037 |
| 0116502 | Avocado (Fresh) | ADET (each) | 0.14 |
| 0116701 | Pineapple (Fresh) | ADET (each) | 0.91 |
| 0116703 | Coconut (Fresh) | ADET (each) | 0.397 |
| 0116713 | Mango (Fresh) | ADET (each) | 0.29 |
| 0117124 | Lettuce (Fresh Vegetable) | ADET (each) | 0.5 |
| 0117304 | Pumpkin (Fresh Vegetable) | ADET (each) | 4.5 |
| 0117341 | kohlrabi (Fresh Vegetable) | ADET (each) | 0.35 |
| 0117402 | Artichoke (Fresh Vegetable) | ADET (each) | 0.125 |
| 0117404 | Celery (Fresh Vegetable) | ADET (each) | 0.2 |
| 0117415 | Artichoke (Frozen Vegetable) | ADET (each) | 0.125 |
| 0117104 | Aysberg (Iceberg, Atom-Ball Lettuce) (Fresh Vegetable) | BAĞ (bunch) | 0.5 |
| 0117106 | Dill (Fresh Vegetable) | BAĞ (bunch) | 0.12 |
| 0117107 | Samphire (Fresh Vegetables) | BAĞ (bunch) | 0.095 |
| 0117109 | Basil (Fresh Vegetable) | BAĞ (bunch) | 0.025 |
| 0117111 | Gömeç (Local) (Fresh Vegetables) | BAĞ (bunch) | 1 |
| 0117114 | Nettle (fresh food) | BAĞ (bunch) | 1 |
| 0117115 | Spinach (Fresh Vegetable) | BAĞ (bunch) | 0.35 |
| 0117116 | Pumpkin Flower (Fresh Vegetables) | BAĞ (bunch) | 0.15 |
| 0117119 | Thyme (Fresh Vegetable) | BAĞ (bunch) | 0.06 |
| 0117122 | Curly (Fresh Vegetable) | BAĞ (bunch) | 0.9 |
| 0117125 | Parsley (Fresh Vegetable) | BAĞ (bunch) | 0.15 |
| 0117126 | Mint (Fresh Vegetable) | BAĞ (bunch) | 0.175 |
| 0117127 | Beet Leaf (Fresh Vegetable) | BAĞ (bunch) | 0.15 |
| 0117128 | Chard (Fresh Vegetable) | BAĞ (bunch) | 0.13 |
| 0117129 | Leek (Fresh Vegetable) | BAĞ (bunch) | 0.2 |
| 0117131 | Arugula/Rocket (Fresh Vegetable) | BAĞ (bunch) | 0.15 |
| 0117133 | Purslane (Fresh Vegetable) | BAĞ (bunch) | 0.124 |
| 0117137 | Cress (Fresh Vegetable) | BAĞ (bunch) | 0.15 |
| 0117140 | Green Onion (Fresh Vegetable) | BAĞ (bunch) | 0.35 |
| 0117143 | Spinach (Frozen Vegetable) | BAĞ (bunch) | 0.45 |
| 0117144 | Leek (Pıratsa) (Frozen Vegetable) | BAĞ (bunch) | 0.45 |
| 0117148 | Radish Grass (Fresh vegetable) | BAĞ (bunch) | 0.2 |
| 0117154 | Coriander (Fresh Vegetable) | BAĞ (bunch) | 0.075 |
| 0117155 | Molohiya | BAĞ (bunch) | 0.25 |
| 0117156 | Luvana | BAĞ (bunch) | 0.15 |

| | | | |
|---|---|---|---|
| 0117157 | Polka Dot | BAĞ (bunch) | 0.15 |
| 0117158 | Golandro | BAĞ (bunch) | 0.075 |
| 0117197 | Local Fresh Vegetables Other | BAĞ (bunch) | 0.2 |
| 0117198 | Fresh Vegetables Other | BAĞ (bunch) | 0.2 |
| 0117406 | Asparagus (Ayrelli) (Fresh Vegetable) | BAĞ (bunch) | 0.35 |
| 0117411 | Radish White (Fresh Vegetable) | BAĞ (bunch) | 0.2 |
| 0117412 | Radish Red (Fresh Vegetable) | BAĞ (bunch) | 0.2 |
| 0117413 | Radish Black (Fresh Vegetable) | BAĞ (bunch) | 0.2 |
| 0119201 | Spices | BAĞ (bunch) | 0.005 |

**Table 13:** List of durable items reported in the survey

| | Number of observations | % share | cumulative % share | mean value |
|---|---|---|---|---|
| Telephone and Telefax Equipment | 254 | 8.47 | 71.15 | 5,565 |
| Prescription Glasses | 242 | 8.07 | 55.07 | 1,664 |
| Carpet | 177 | 5.9 | 23.32 | 794 |
| Spare Parts and Accessories for Telephone | 164 | 5.47 | 76.62 | 592 |
| Second-hand motor cars | 147 | 4.9 | 61.94 | 90,982 |
| Watch | 130 | 4.34 | 99.83 | 1,505 |
| Vacuum Cleaner | 114 | 3.8 | 42.86 | 2,114 |
| Imitation Jewelry | 114 | 3.8 | 95.5 | 304 |
| Television | 95 | 3.17 | 80.02 | 5,852 |
| Air Conditioner | 87 | 2.9 | 36.69 | 8,358 |
| Computer (including tablet) | 84 | 2.8 | 86.02 | 7,320 |
| TV Broadcasting Costs | 79 | 2.64 | 82.66 | 1,538 |
| Washing Machine | 73 | 2.43 | 30.25 | 4,854 |
| Gold Jewelry | 73 | 2.43 | 90.46 | 6,076 |
| Refrigerator | 63 | 2.1 | 26.62 | 6,178 |
| Water Purifier | 50 | 1.67 | 44.66 | 4,043 |
| Water Dispenser | 47 | 1.57 | 46.33 | 1,412 |
| Single Chair | 40 | 1.33 | 4.27 | 711 |
| Table-Chair Set | 38 | 1.27 | 2.74 | 3,792 |
| Contact Lens | 38 | 1.27 | 56.34 | 822 |
| Silver Jewelry | 37 | 1.23 | 91.69 | 816 |
| Armchair | 36 | 1.2 | 10.77 | 5,517 |
| Dish Washer | 36 | 1.2 | 31.45 | 4,989 |
| Bed (Double) | 34 | 1.13 | 7.57 | 5,841 |
| Coffee Table | 33 | 1.1 | 12.27 | 925 |
| Single Table | 31 | 1.03 | 1.47 | 927 |
| Living Room Set | 31 | 1.03 | 8.97 | 14,874 |
| Runner | 31 | 1.03 | 24.35 | 438 |
| Oven (Electric) | 31 | 1.03 | 32.86 | 2,540 |

| | | | | |
|---|---|---|---|---|
| Television Stand | 27 | 0.9 | 13.18 | 2,945 |
| Mirror | 27 | 0.9 | 16.44 | 750 |
| Deep Freezer | 26 | 0.87 | 27.65 | 5,199 |
| Stove | 26 | 0.87 | 37.56 | 2,132 |
| Water Heater | 23 | 0.77 | 38.36 | 1,373 |
| Bed (Single) | 21 | 0.7 | 6.44 | 3,970 |
| Shoe Rack | 19 | 0.63 | 15.01 | 1,157 |
| Oven Stove | 17 | 0.57 | 33.72 | 4,547 |
| Bedroom Set | 16 | 0.53 | 5.27 | 13,501 |
| Study Desk | 16 | 0.53 | 13.71 | 759 |
| New motor cars | 16 | 0.53 | 57.04 | 498,918 |
| Computer Equipment | 15 | 0.5 | 86.69 | 1,461 |
| Wardrobe | 14 | 0.47 | 5.74 | 7,145 |
| Bicycles | 14 | 0.47 | 62.68 | 2,679 |
| Kitchen Cabinet | 13 | 0.43 | 0.43 | 13,539 |
| Musical instruments | 13 | 0.43 | 87.53 | 686 |
| Bookcase | 12 | 0.4 | 11.17 | 1,835 |
| Other Kids Toys | 12 | 0.4 | 88.03 | 488 |
| Washers Dryers | 11 | 0.37 | 31.82 | 4,534 |
| Motorized Garden Tools | 11 | 0.37 | 46.7 | 4,375 |
| Kitchen Countertops | 10 | 0.33 | 4.6 | 5,944 |
| Dining Room Sets | 9 | 0.3 | 9.27 | 11,036 |
| Sofas and Sofa Beds | 9 | 0.3 | 9.57 | 2,556 |
| Baby and Children's Furniture | 9 | 0.3 | 15.31 | 5,715 |
| Flower Pots | 9 | 0.3 | 16.74 | 500 |
| Other Furniture and Household Items | 9 | 0.3 | 17.28 | 998 |
| Countertop Stoves | 9 | 0.3 | 33.16 | 3,898 |
| Bed Bases | 8 | 0.27 | 7.87 | 3,273 |
| Air Conditioners, Heaters and Humidifiers | 8 | 0.27 | 39.06 | 1,093 |
| Motor Cycles | 8 | 0.27 | 62.21 | 48,788 |
| Garden Furniture | 7 | 0.23 | 14.28 | 5,016 |
| Optical Instruments | 7 | 0.23 | 83.19 | 1,983 |
| Cover, Case and Bag for Data Processing | 7 | 0.23 | 86.92 | 306 |
| Kitchen Corner Sets | 6 | 0.2 | 2.94 | 12,904 |
| Tables | 6 | 0.2 | 15.51 | 861 |
| Aspirator | 6 | 0.2 | 38.56 | 2,823 |
| Electrical Hand Tools | 6 | 0.2 | 46.9 | 900 |
| Silver Cabinets, Buffets, Showcases, Cupboards etc. Mobi | 5 | 0.17 | 14.01 | 952 |
| Electric Lighting Devices | 5 | 0.17 | 16.91 | 3,034 |
| Other Floor Coverings | 5 | 0.17 | 24.52 | 1,593 |
| Built-in Refrigerator | 5 | 0.17 | 26.78 | 8,849 |
| Exhaust Hood | 5 | 0.17 | 38.73 | 5,443 |

| | | | | |
|---|---|---|---|---|
| Health Related Devices | 5 | 0.17 | 56.5 | 459 |
| Camera | 5 | 0.17 | 82.96 | 8,927 |
| Other Jewelry and Watches | 5 | 0.17 | 100 | 2,271 |
| Other Kitchen Furniture | 4 | 0.13 | 4.74 | 3,495 |
| Computer Desk | 4 | 0.13 | 13.84 | 1,054 |
| Other Furniture and Household Goods and Other M | 4 | 0.13 | 17.41 | 6,833 |
| Replacement for Refrigerator and Deep Freezer | 4 | 0.13 | 27.82 | 974 |
| Sewing-Embroidery Machine | 4 | 0.13 | 43 | 1,156 |
| Bathroom Furniture | 3 | 0.1 | 14.38 | 5,283 |
| Security and Fire Alarm | 3 | 0.1 | 44.76 | 2,000 |
| Motorized Garden and Household Appliances Other | 3 | 0.1 | 47 | 1,767 |
| Parts and Accessories of Radio, CD Play | 3 | 0.1 | 76.85 | 539 |
| Camera | 3 | 0.1 | 82.76 | 5,126 |
| Other Electronic Data Processing Tools | 3 | 0.1 | 86.12 | 894 |
| Essential Outdoor Recreational Tools | 3 | 0.1 | 87.09 | 3,381 |
| Essential Indoor Recreational Vehicles | 3 | 0.1 | 87.63 | 2,210 |
| Other Bedroom Furniture | 2 | 0.07 | 7.94 | 4,273 |
| Spare Pa for Oven, Stove, Stove with Oven | 2 | 0.07 | 33.79 | 1,369 |
| Other Air Conditioner, Heater and Air Humidifier | 2 | 0.07 | 38.79 | 141 |
| Other Electro Acoustic Instruments | 2 | 0.07 | 76.75 | 263 |
| Printer | 2 | 0.07 | 86.19 | 1,908 |
| Computer Software (Windows, MS Office, | 2 | 0.07 | 86.99 | 1,310 |
| Bed Headboard | 1 | 0.03 | 7.61 | 503 |
| Other Dining Room and Living Room Mobile | 1 | 0.03 | 14.04 | 733 |
| Sculpture, Carving, Figurines etc. Ornaments | 1 | 0.03 | 15.54 | 646 |
| Non-Electric Lighting Devices | 1 | 0.03 | 16.94 | 20 |
| Small Household Goods and Accessories | 1 | 0.03 | 16.98 | 129 |
| Built-in Deep Freezer | 1 | 0.03 | 27.69 | 6,464 |
| Water Heater | 1 | 0.03 | 37.59 | 228 |
| Radio | 1 | 0.03 | 76.65 | 309 |
| Cassette Player (Tape) | 1 | 0.03 | 76.68 | 712 |
| Film, Recording etc. Display Devices | 1 | 0.03 | 82.79 | 697 |
| Optical instruments | 1 | 0.03 | 83.22 | 11,095 |

**Table 14:** Transition matrix for different welfare aggregates

| | | Total consumption excluding durables | | |
|---|---|---|---|---|
| | | Non-poor | Poor | Total |
| Total consumption | Non-poor | 97.7% | 2.3% | 100.0% |
| | Poor | 8.5% | 91.5% | 100.0% |

**Table 15:** Transition matrix for different welfare aggregates

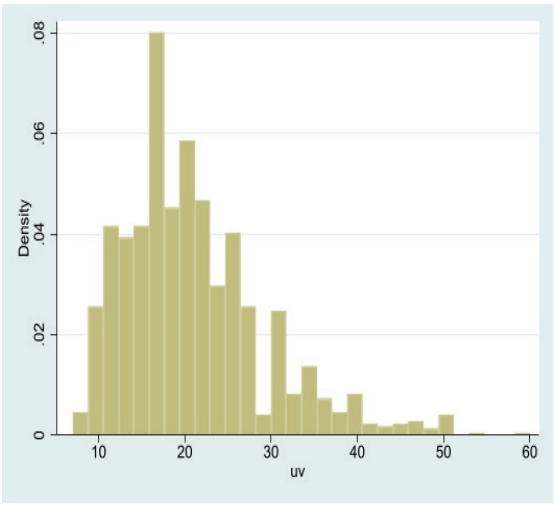
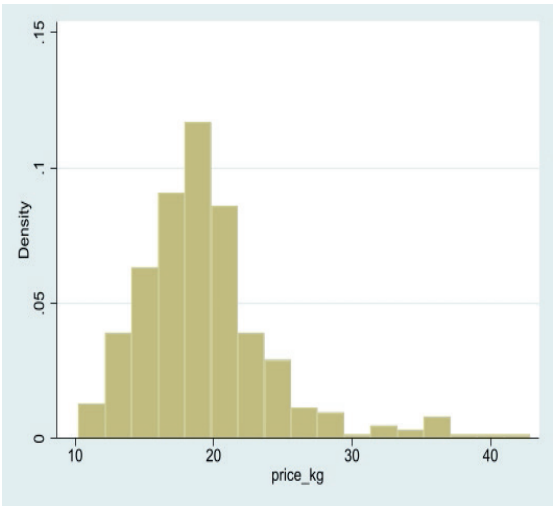
| Unadjusted unit values | Adjusted unit values |
|---|---|
|  |  |





**Table 16:** Distribution of unit values of chicken

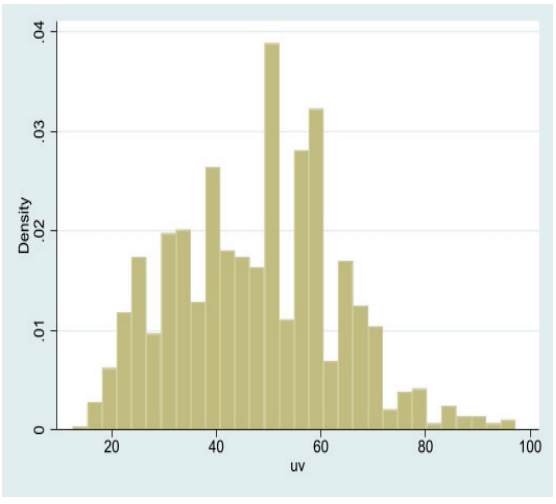
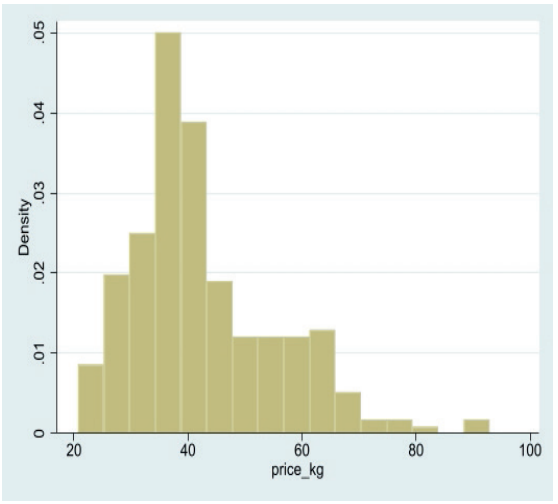
| Unadjusted unit values | Adjusted unit values |
|---|---|
|  |  |

**Table 17:** Distribution of unit values of egg

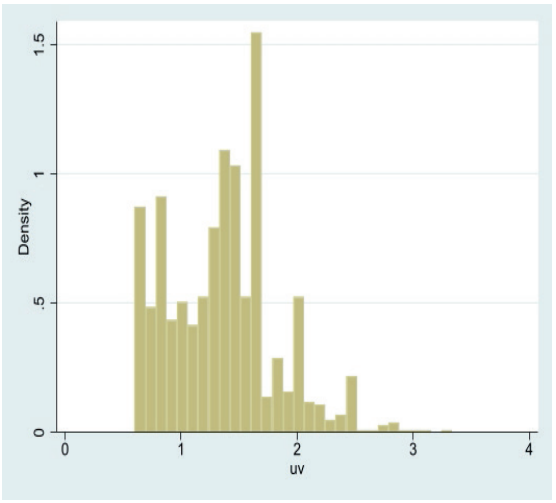
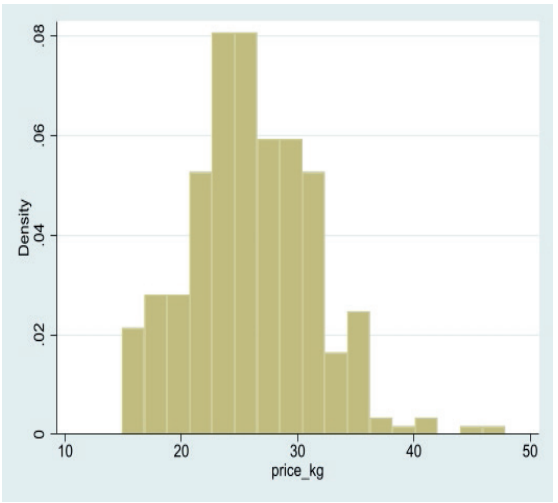
| Unadjusted unit values | Adjusted unit values |
|---|---|
|  |  |





**Table 18:** Distribution of unit values of pasta

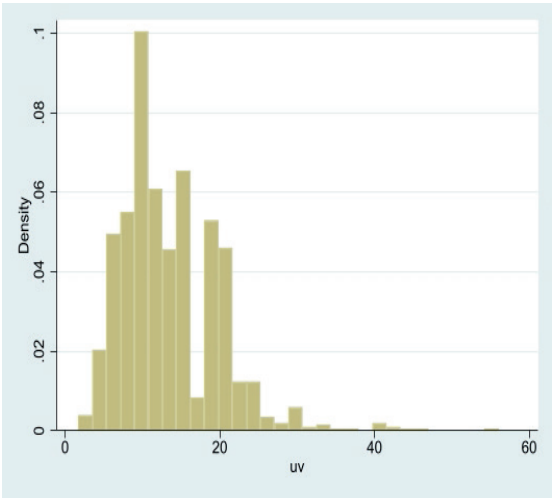
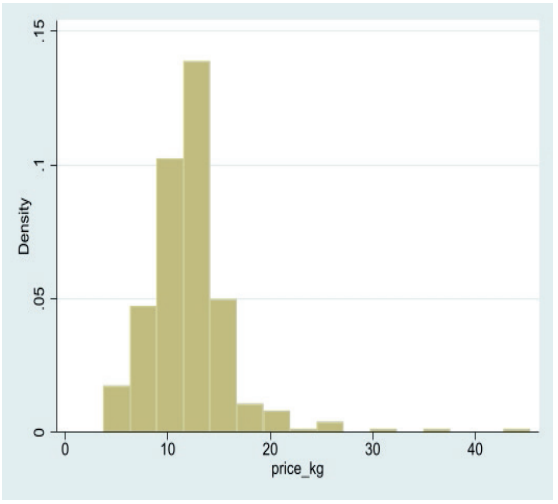
| Unadjusted unit values | Adjusted unit values |
|---|---|
|  |  |

**Table 19:** Distribution of unit values of rice

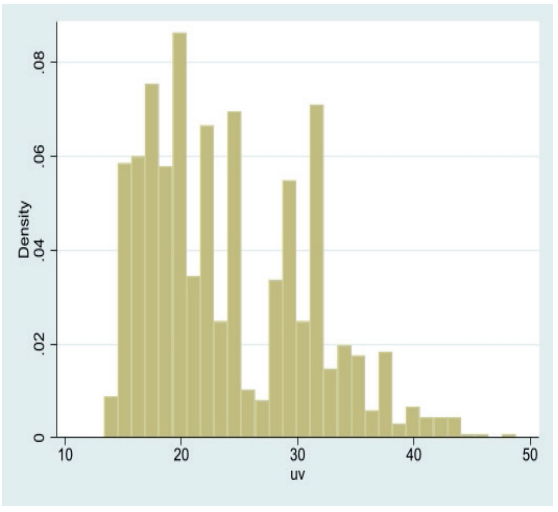
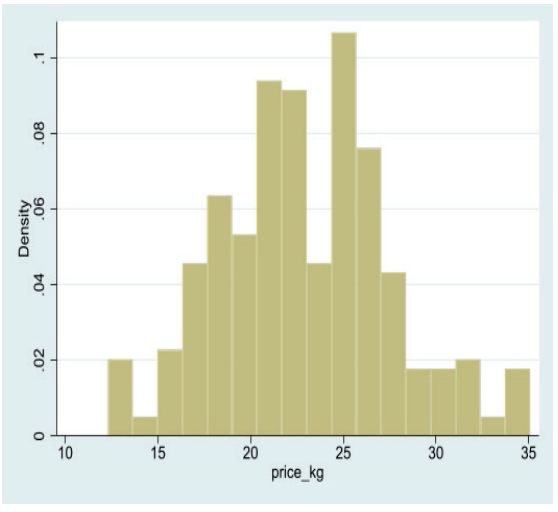
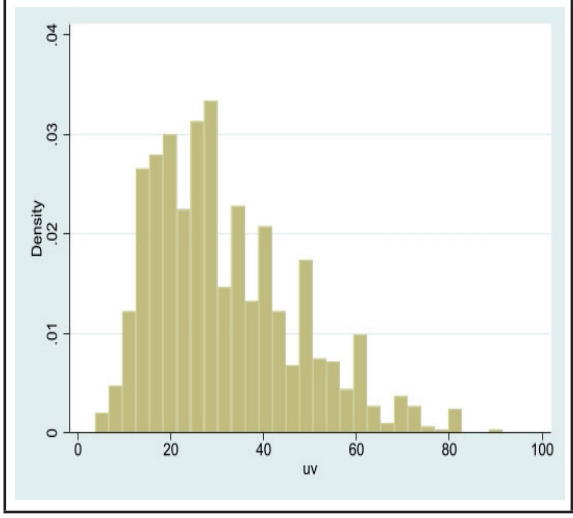
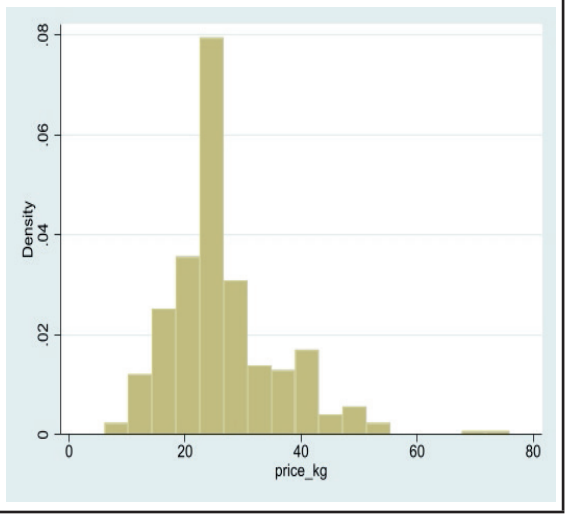
| Unadjusted unit values | Adjusted unit values |
|---|---|
|  |  |





**Table 20:** Distribution of unit values of yoghurt

| Unadjusted unit values | Adjusted unit values |
|---|---|
|  |  |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