BER www.berjournal.com ISSN: 2619-9491
BUSINESS AND ECONOMICS RESEARCH JOURNAL

Business and Economics Research Journal Vol. 16, No.1, 2025 pp. 1-20 doi: 10.20409/berj.2024.454

# Consumption-Based Poverty in Türkiye between 2003 and 2022*

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**Abstract:** *This paper seeks to evaluate consumption-based poverty in Türkiye between 2003 and 2022. Using representative household data from the Turkish Statistical Institute's Household Budget Survey, this study calculates the Foster-Greer-Thorbecke (FGT) poverty indices based on relative poverty thresholds. The results show that poverty rates initially declined rapidly between 2003 and 2008, increased slightly between 2008 and 2012, and then continued to decline between 2012 and 2018. After 2018, poverty rates increased in Türkiye, almost reaching the 2007 level. The analysis also includes the decomposition of poverty changes into growth and redistribution components as well as subgroups. Growth in living standards acted as a poverty-reducing effect and was dominant between 2004-2008 and 2012-2018. The redistribution component was a poverty-increasing factor that was dominant after 2018. These periods coincide with the country's overall economic performance. In particular, the highest decline in poverty rates occurred during high economic growth between 2003-2008. The surge in inflation post-2019 aligns with the increase in consumption poverty rates in 2022.*

**Keywords:** Poverty, Consumption, Relative Poverty Line, Poverty Decomposition

**JEL:** I30, I31, I32, O10, O15

**Received** : 16 July 2024
**Revised** : 02 October 2024
**Accepted** : 30 October 2024

**Type** : Research

## 1. Introduction

Poverty remains a pervasive global issue in the 21st century, affecting a substantial portion of the global population. Although some progress has been made in recent times, the most recent estimates indicate that in 2024, 689 million people worldwide are living in extreme poverty (under $2.15 per person per day, 2017 Purchasing Power Parity-PPP), which accounts for 8.9 percent of the world population (World Bank, 2024). This number has increased during 2020-2023 because of economic shocks worldwide, where millions of new people have fallen into poverty (Ecker et al., 2023).

This continuous situation has prompted the establishment of numerous global programs and enterprises designed to mitigate poverty by employing various approaches to tackle the complex essence of this problem. In pursuit of this goal, the United Nations implemented the Sustainable Development Goals (SDGs) in 2015, replacing the Millennium Development Goals (MDGs). The SDGs have an ambitious aim of eliminating extreme poverty by the year 2030[1]. Likewise, The World Bank has moved forward in addressing this issue with "twin goals" where the first goal is reducing extreme poverty to 3% of the world population by 2030, and the second is promoting shared prosperity (Jolliffe, 2014).

*Cite this article as:* Yıldız, S. (2025). Consumption-based poverty in Türkiye between 2003 and 2022. *Business and Economics Research Journal,* 16(1), 1-20. http://dx.doi.org/10.20409/berj.2024.454



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This circumstance poses a challenge not only for developing nations. Although absolute poverty rates are low in many middle- and high-income countries, policymakers cope with the presence of relative poverty and undertake measures to alleviate it (Ravallion & Chen, 2011). The concept of relative poverty involves the establishment of a poverty threshold set at a specific proportion of the mean income or median income (Jolliffe & Prydz, 2021). This approach facilitates the identification of individuals who are unable to attain a standard of living considered typical within their society (Garza-Rodriguez, 2000).

Türkiye is no exception in terms of prolonged poverty history. Türkiye has been experiencing poverty since the initial days of the republic, but the pace increased with the industrialization and migration periods of the 1980s, especially in urban areas. Currently, Türkiye has the highest 9$^{th}$ poverty rate among the OECD countries with a relative income poverty rate of 14% (OECD, 2024). The situation has been the focus of many national policies. Many social assistance programs and agencies have been introduced to curb poverty. Among them are employment programs (establishment of Turkish Employment Agency - İŞKUR in 1946, public works programs since 2007), conditional cash transfers (Conditional Health and Education Assistance Program since 2003 as part of the Social Risk Mitigation Project (SRMP), cooperatively with the World Bank), general health insurance (GHI, introduced in 2008), education reforms (introduction of free textbooks since the 2000s, lifelong learning programs), affordable housing (establishment of TOKİ in 1984 and expansions in the 2000s), agricultural subsidies, energy assistance (subsidies for electricity and natural gas bills for low-income households), microfinance (Turkish Grameen Microfinance Program - TGMP since 2003), small enterprise support (introduction of Small and Medium Enterprises Development Organization–KOSGEB in 1990), and family support (introduction of Family Social Support Program - ASDEP in 2011) to name major schemes.

To handle this issue effectively, it is crucial to have a comprehensive understanding of the situation with an appropriate measure of this abstract concept. In this context, a critical consideration in the assessment of poverty revolves around the selection of a correct welfare indicator to use. When evaluating the measurement of poverty, the decision between using income-based or consumption-based measures holds significant importance. Income-based indicators of poverty center on the financial resources accessible to individuals or households, whereas consumption-based metrics evaluate actual material well-being and standards of living. Meyer and Sullivan (2012, 2013) indicate that a consumption-based measure of poverty might offer greater efficacy in identifying individuals facing the most severe disadvantages when compared to income-based metrics. However, there is no consensus on which measure better reflect the standard of living. Consumption-based measures are preferred over their income-based counterparts for several reasons. First, individual utility is determined by the level of consumption in standard economic models. The use of consumption as a welfare measure has a theoretical basis. Moreover, the life-cycle/permanent income hypothesis (LCPIH) implies that a household engages in consumption smoothing throughout the life cycle such that, despite significant variations in income over the life cycle, consumption remains less volatile than income on an annual basis. This theoretical framework advocates the use of consumption data as the preferred indicator of permanent income and household well-being. Consequently, consumption is used as a more reliable variable for measuring poverty. Second, poverty is the result of material deprivation. Households can achieve their material well-being levels by spending their income or wealth. Using income as a welfare measure does not reflect consumption out of savings or out of durables. Third, public insurance programs available to lower-income households compensate for the lack of income to alleviate poverty. Fourth, although both consumption and income are subject to measurement errors, measurement problems in income are possibly more severe because of informal labor and under-reporting of capital income (Bergant et al., 2022; Coudouel et al., 2001; Meyer et al., 2009).

Several statistical functions are used to create a monetary metric for poverty. The most common are the incidence of poverty (headcount index), depth of poverty (poverty gap), and poverty severity (squared poverty gap). Foster et al. (1984) formulate a family of poverty indices called Foster-Greer-Thorbecke (FGT) that also incorporate the headcount index, poverty gap, and squared poverty gap. The income gap ratio, Sen Index, Thon Index, Hagenaars Index, and TIP poverty curves are other popular poverty measures, although they are less commonly used in the literature (De, 2017; Gunewardena, 2004).

This paper analyzes household consumption-based relative poverty changes in Türkiye using the Turkish Statistical Institute's (TurkStat) Household Budget Survey (HBS) for the years 2003–2019 and 2022. The welfare measure is equivalized household consumption, using modified OECD adult equivalence scales. The poverty measures presented in this paper are the annual Foster-Greer-Thorbecke (FGT) poverty indices developed by Foster et al. (1984), namely, the poverty rate (headcount ratio), poverty gap, and poverty severity. This paper calculates the FGT poverty indices using various poverty lines. Using TurkStat's relative poverty line, the benchmark case calculation is based on 60% of the median household disposable income. Furthermore, this study decomposes poverty changes into growth and redistribution components and conducts a detailed analysis of subgroup breakdowns according to different household characteristics.

The results indicate that the poverty rate in Türkiye declined from 28.73% in 2004 to 20.75% in 2018 but increased to 23.78% by 2022. The poverty gap and the severity index followed similar trends. The decline in poverty between 2004 and 2008 and between 2012 and 2018 was primarily driven by improvements in living standards, whereas redistribution had a negative effect on poverty. In particular, from 2018 to 2022, the distribution component played a significant role in the increase in poverty rates, such that economic growth was not sufficient to compensate for the negative effects of the increase in inequality. Poverty varies across household categories, with female-headed households and those with low education levels experiencing higher poverty. The agricultural sector has seen a decrease in its population share and poverty rate, whereas the manufacturing sector has experienced an increase. Economic growth tends to reduce poverty, whereas downturns and inflation disproportionately affect the poor. Türkiye's poverty rate decreased during a period of strong economic growth from 2003 to 2008 but has been on an upward trend since 2016, coinciding with weak economic performance and unprecedented inflation levels by 2022.

This study addresses an important gap in the literature on poverty in Türkiye. Although several studies have examined poverty trends in Türkiye, there are no studies that cover nearly two decades (18 years from 2003 to 2022, excluding 2020 and 2021). It is partially possible to look at the poverty situation over the last two decades by looking at research that analyzes different periods. However, the literature uses various poverty measures and differing poverty lines in its measurement. It makes them hardly comparable across studies. This paper presents a consistent measure and method applied to the entire period. Thus, it becomes easy to assess the consumption-based poverty trend in Türkiye from 2003 to 2022. Importantly, this study includes the post-Covid-19 era and the economic downturn that the country is going through by including the poverty situation in 2022. The dramatic increase in all poverty measures from 2019 to 2022 shows how worsening economic conditions have adversely affected the living standards of millions of people recently. This shows the importance of measuring changes in poverty after 2019, which is not present in the literature.

The rest of the paper is organized as follows: Section 2 summarizes the literature on the poverty situation in Türkiye. Section 3 describes the method used in the analysis. Section 4 presents the data and the sample selection. Section 5 presents the main findings of the study, and section 6 presents the results of the poverty decomposition analysis. Finally, section 7 concludes the paper with a discussion and policy suggestions.

## 2. Recent Literature on Poverty in Türkiye

The status of poverty in Türkiye has been extensively examined in various studies due to its persistent nature, posing a significant challenge for the country and positioning it among the nations with high poverty rates among OECD countries (OECD, 2024). This problem has been addressed in the literature using many dimensions and varying approaches. The issue is addressed as an income-based poverty situation (Bilik, 2023; Dalgıç et al., 2015; Gemicioğlu, 2023; Kılıç & Şahin, 2021; Şeker & Dayıoğlu, 2015), or a consumption-based poverty situation (Aran et al., 2010; Azevedo & Atamanov, 2014; Kızılgöl & Demir, 2010; Şeker & Jenkins, 2015). Consequently, many money-metric calculations have been performed. These studies used either a basic-needs poverty line as the cut-off to determine who is poor or non-poor, which is calculated based on a basket of goods, or a relative poverty line, which is usually defined as a certain fraction of mean income. TurkStat began announcing poverty lines in 2004, using Household Budget Surveys. The statistics were

initially based on the basic needs approach determined together with the World Bank (Şeker & Jenkins, 2015). However, as countries grew, the basic-needs poverty lines became inadequate to draw the poverty status over time, and countries started to shift to announcing relative poverty lines. TurkStat has also announced poverty statistics based on relative poverty lines since 2006 using income data from the Survey of Income and Living Conditions (SILC).

Among the studies with consumption-based welfare measures, Azevedo and Atamanov (2014) use 5 USD/PPP as a poverty line for the years 2002-2011 and show that the country experienced a tremendous reduction in poverty from 44% to 22% due to high economic growth during this period. Similarly, Şeker and Jenkins (2015) examined consumption-based poverty trends for 2003-2012 using an absolute poverty line determined by the cost-of-basic needs approach. They report a sharp decline in the poverty rate between 2003 and 2008, which remained relatively stable thereafter.

Tekgüç (2018) used an absolute poverty line with an income-based welfare measure to define poverty by exploiting the cross-sectional microdata of SILC for the years 2006-2015. His analysis reveals that pensions continue to be the primary form of public transfer to households in Türkiye, and homeownership is highlighted as a factor that helps alleviate poverty and inequality within the country. He points out that despite relatively modest amounts, social assistance has proven to decrease poverty levels, with a more significant impact on income inequality compared to other income sources.

Moreover, the issue of relative poverty in Türkiye has been the subject of examination, highlighting changes and variations in poverty dimensions over time (Güloğlu et al., 2012). Relative poverty, which compares an individual's income to the overall distribution of income in society, provides insight into the standards of living and economic disparities within the population. Amongst the studies using relative poverty lines, Şeker and Dayıoğlu (2015) examined relative poverty dynamics utilizing the panel structure of SILC for 2005-2008 and observed that poverty is highly persistent. Similarly, Bilik (2023) indicates that poverty in Türkiye is not just a temporary condition but rather a persistent challenge with significant implications for various demographic groups and regions within the country.

Studies have shown that factors such as gender, marital status, employment status, health conditions, and occupation of the household head play crucial roles in influencing poverty rates and persistence in Türkiye (Çağlayan & Dayıoğlu, 2011; Bilik, 2023). The analysis of poverty dynamics in Türkiye reveals that these factors contribute to the perpetuation of poverty, making it a deeply rooted issue that requires targeted interventions and comprehensive strategies to address effectively. Additionally, urban poverty, particularly urban child poverty, is on the rise in Türkiye, indicating that poverty is becoming increasingly entrenched and intergenerational, posing challenges to social mobility and well-being (Bayırbağ et al., 2018). The extent of poverty in Türkiye varies between rural and urban areas, with rural areas experiencing higher levels of poverty than urban areas (Şengül & Tuncer, 2005). This disparity underscores the importance of considering regional differences and specific contextual factors in addressing poverty in Türkiye.

Furthermore, research has delved into specific aspects of poverty in Türkiye, such as old-age income poverty, which affects a significant proportion of the country’s elderly population (Aydın & Güloğlu, 2021). Understanding the unique challenges faced by vulnerable groups such as the elderly is essential for developing targeted support mechanisms and social security programs to ensure well-being and financial stability. Studies have also explored the impact of poverty on partner violence against women in Türkiye, highlighting the intersectionality of poverty with other social issues and the need for comprehensive approaches to address gender-based violence and economic hardship simultaneously (Eralp & Gökmen, 2023).

Another approach to defining poverty is to view it as an intertwined phenomenon encompassing various dimensions and challenges. In this respect, the multidimensional poverty index (MPI) is used to quantify poverty. This index incorporates several aspects of living conditions to create a threshold for the poverty line across the three key dimensions of education, health, and living standards. It complements traditional money-metric poverty measures by capturing overlapping deprivations. Acar (2014) studies the

dynamics of multidimensional poverty in Türkiye using panel data from SILC between 2007-2010. She uses several measures for four main categories, namely, living standards, health status, labor market status, and housing conditions for the MPI index. Her findings indicate a decrease in multidimensional poverty during the study period. Giovanis and Özdamar (2021) estimate a multidimensional poverty index (MPI) for the young and the general population in Türkiye over the period 2006-2015 and evaluate the effect of the 2012 Regional Investment Incentive Scheme on the MPI of the youth population. They incorporate material deprivation, quality of the environment, dwelling characteristics, health, and education into the index. They find a significant reduction in youth poverty, especially in the eastern part of the country. Similarly, Karahasan and Bilgel (2021) created an index with non-monetary measures using SILC 2014-2017 and found that multidimensional poverty in Türkiye differs regionally from relative monetary poverty, emphasizing the regional underdevelopment challenge in the eastern parts of the country. Karadağ and Saraçoğlu (2015) compose two multidimensional poverty indices, one with four dimensions and the other with six dimensions to compare the multidimensional poverty of the EU and Türkiye. They conclude that despite a considerable decrease in poverty levels in Türkiye from 2006 to 2012, the country still lags far behind the EU average in terms of poverty.

## 3. Methodology

Various statistical methodologies have been employed to establish financial metrics for the assessment of poverty. The most prevalent measures include the incidence of poverty, often referred to as the headcount index; the depth of poverty, commonly known as the poverty gap; and the severity of poverty, identified as the squared poverty gap. Foster et al. (1984) propose a comprehensive framework of poverty indices termed the Foster-Greer-Thorbecke (FGT) indices, which includes the headcount index, poverty gap, and squared poverty gap.

FGT poverty indices proposed by Foster et al. (1984) are used in the main analysis. The FGT index is formulated as follows:

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha \quad (1)$$

where z is the poverty line, $y_i$ is the income (alternatively consumption as a standard of living indicator)[2] of individual i, n is the total population, q is the number of people below the poverty line, and $\alpha$ is the poverty aversion parameter, which takes values of 0, 1 or 2.

When $\alpha = 0$, the FGT index is the poverty headcount index, $P_0$, which is a standard measure used to assess the incidence of poverty within a population. $P_0$ simply count the proportion of people living below a specified poverty line.

When $\alpha = 1$, $P_1$ is the normalized poverty gap measure. The poverty gap calculates the average income shortfall of the poor relative to the poverty line and provides a measure of the depth of poverty. It is also considered an indicator of the minimum cost required to take the poor out of poverty (Raza et al., 2023).

When $\alpha = 2$, $P_2$ becomes the squared poverty gap measure, also known as the severity of poverty, which reflects both the depth and inequality of poverty among the poor. $P_2$ places greater weight on those who are further below the poverty line. This means that an increase in the income shortfall of the poorest individuals will increase $P_2$ more than it would increase the poverty gap index ($P_1$).

The analysis continues by decomposing poverty measures into growth and redistribution components. The decomposition was originally proposed by Datt and Ravallion (1992) and is characterized by poverty line z, mean income (or consumption) at time *t,* $\mu_t$, and Lorenz curve, $L_t$. Then, the poverty measure is written as:

$$P_t = P(\mu_t, L_t, z). \quad (2)$$

This paper follows Kolenikov and Shorrocks's (2005) application of Datt and Ravallion's (1992) decomposition analysis of poverty into income growth and redistribution components. Accordingly, given a poverty line z, the overall shift in poverty between time 0 and time 1, represented by $P_1 - P_0$, can be broken down into two parts. In this breakdown, $P - P_0$ signifies the impact of income growth, while $P_1 - P$ reflects the component related to redistribution. Let the total change in poverty between time 0 and time 1 be written as:

$$\Delta P = P_1 - P_0 = P(\mu_1, L_1, z) - P(\mu_0, L_0, z) \quad (3)$$

This change can be decomposed into income and redistribution components respectively as:

$$P - P_0 = P(\mu_1, L_0, z) - P(\mu_0, L_0, z) \quad (4)$$

$$P_1 - P = P(\mu_1, L_1, z) - P(\mu_1, L_0, z) \quad (5)$$

Equation (4) indicates the marginal effect of the change in mean income with the distribution held constant at the initial level of time 0, while equation (5) computes the marginal impact of redistribution holding mean income constant at the final level of time 1. Kolenikov and Shorrocks (2005) argue that the decomposition can also be done when Lorenz curve in equation (4) held at final level and mean income in equation (5) kept at initial level. Hence, they suggest to average the two alternative orderings. Then, the growth effect G and the distribution effect D is written respectively as[3]:

$$G = \frac{1}{2}[P(\mu_1, L_0, z) - P(\mu_0, L_0, z)] + \frac{1}{2}[P(\mu_1, L_1, z) - P(\mu_0, L_1, z)], \quad (6)$$

$$D = \frac{1}{2}[P(\mu_0, L_1, z) - P(\mu_0, L_0, z)] + \frac{1}{2}[P(\mu_1, L_1, z) - P(\mu_1, L_0, z)]. \quad (7)$$

The main analysis in this study is conducted using the DASP software package developed by Araar and Duclos (2007). The growth-distribution decomposition analysis uses the package by Sanfelice et al. (2012), and subgroup decomposition analysis uses the package by Jenkins (1999).

**4. Data and Sample**

The main data source for consumption poverty calculations is the Household Budget Survey (HBS) conducted by TurkStat. The HBS is first carried out in 1994, enabling the calculation of household consumption poverty status in Türkiye. The survey was performed every year from 2002 to 2019, and then in 2022. In 2020 and 2021, the survey could not be completed due to Covid-19 restrictions. This study uses HBS data for the years 2003-2019 and 2022.

The poverty lines that are used in this study are 50% and 60% of equivalized household consumption calculated using the HBS sample and the modified OECD equivalence scales. Moreover, national poverty lines are shown for comparison. The national relative poverty lines are extracted from TurkStat which are based on income data from SILC. TurkStat announces relative poverty lines at 40%, 50%, 60%, and 70% of the median equivalized household income since 2006. Since the SILC asks for income for the previous year, poverty levels are available for 2005 onwards. Since national relative poverty lines are not available for 2003 and 2004, they are estimated by taking averages of 2005 and 2007 values using HBS sample poverty lines as deflators[4].

The income variable used in the analysis is the annual disposable income of the household. The consumption variable is monthly household consumption multiplied by 12 to make it annual. All nominal variables were deflated to 2003 Turkish liras using the annual average Consumer Price Index (2003=100) extracted from TurkStat[5]. All household income and consumption variables are divided by equivalized household size using the modified OECD equivalence scales given in the HBS dataset. This scale assigns a

weight of 1 to the reference person in the family, 0.5 to the second, and all subsequent adults above the age of 14, and 0.3 to each child under the age of 14. All poverty lines were deflated to the 2003 values. The analysis in this study is carried out using the population weights given in the HBS dataset.

The unit of analysis is household (one observation per household), with household-level sample weights provided within the HBS dataset. Hence, the household size adjustment should be made to weights to accurately compute poverty rates that reflect the total number of individuals experiencing poverty as opposed to the number of households. The DASP software incorporates household size into its poverty calculations, wherein the weights are derived as the product of the specified weight and the household size. For other software, it is necessary to use the adjusted weights by multiplying the HBS weights by the size of the household.

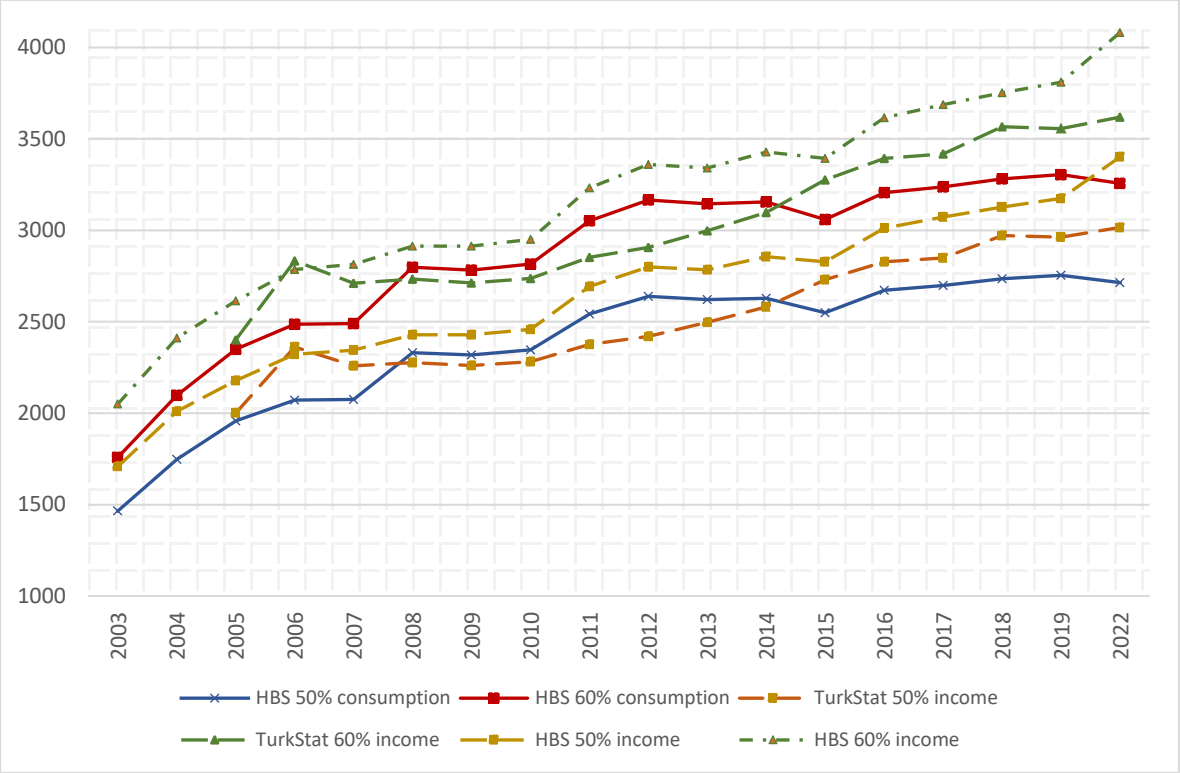
Table 1 lists all the poverty lines used in this study. The benchmark is the 60% of median equivalized household consumption in HBS dataset. However, 50% of median equivalized household consumption is also used inasmuch as feasible. These two poverty line measurements are the most common relative poverty lines. TurkStat provides data for 40%, 50%, 60% and 70% of median income. Eurostat and the OECD generally utilize relative poverty thresholds established at 50% or 60% of the national median income levels. Figure 1 shows the trends in relative poverty lines. As seen in both Table 1 and Figure 1, with economic growth and the resulting increases in income levels, the relative poverty lines also show a rising trend over the period. The increase in poverty lines is mostly parallel throughout the period, except for the divergence in the consumption and income poverty lines in recent years. This highlights the importance of separately analyzing income and consumption poverty.

**Table 1.** Poverty Lines

| | National Poverty Line | | HBS income line | | HBS consumption line | |
|---|---|---|---|---|---|---|
| | 50% median | 60% median | 50% median | 60% median | 50% median | 60% median |
| 2003 | 1608.08* | 1929.69* | 1708.70 | 2050.43 | 1465.43 | 1758.51 |
| 2004 | 1891.68* | 2270.01* | 2010.04 | 2412.05 | 1748.44 | 2098.13 |
| 2005 | 2000.99 | 2401.19 | 2178.09 | 2613.71 | 1957.76 | 2349.31 |
| 2006 | 2361.81 | 2834.17 | 2321.71 | 2786.05 | 2072.38 | 2486.86 |
| 2007 | 2259.58 | 2711.50 | 2345.08 | 2814.10 | 2075.45 | 2490.54 |
| 2008 | 2277.37 | 2732.85 | 2428.89 | 2914.67 | 2331.26 | 2797.51 |
| 2009 | 2260.45 | 2712.53 | 2428.83 | 2914.60 | 2319.15 | 2782.98 |
| 2010 | 2281.00 | 2737.20 | 2459.08 | 2950.90 | 2346.23 | 2815.48 |
| 2011 | 2377.05 | 2852.46 | 2693.58 | 3232.29 | 2543.49 | 3052.19 |
| 2012 | 2420.77 | 2906.67 | 2800.94 | 3361.13 | 2638.27 | 3165.93 |
| 2013 | 2497.95 | 2997.54 | 2783.70 | 3340.44 | 2621.16 | 3145.40 |
| 2014 | 2580.78 | 3096.85 | 2856.80 | 3428.16 | 2628.97 | 3154.76 |
| 2015 | 2730.78 | 3276.86 | 2827.74 | 3393.28 | 2549.20 | 3059.04 |
| 2016 | 2828.60 | 3394.03 | 3012.68 | 3615.21 | 2672.00 | 3206.40 |
| 2017 | 2848.68 | 3418.29 | 3072.85 | 3687.42 | 2697.66 | 3237.19 |
| 2018 | 2972.26 | 3566.82 | 3127.43 | 3752.92 | 2734.67 | 3281.61 |
| 2019 | 2963.47 | 3556.17 | 3175.10 | 3810.11 | 2754.23 | 3305.08 |
| 2022 | 3016.08 | 3619.30 | 3401.57 | 4081.89 | 2713.62 | 3256.34 |

Note: The nominal poverty lines are deflated to 2003 values using CPI deflators. National poverty lines were extracted from the TurkStat website. The HBS poverty lines were calculated using the HBS sample in this study. * indicates that the numbers are estimated using the HBS income poverty lines as deflators.

**Figure 1.** Trends in Relative Poverty Lines




Note: The nominal poverty lines are deflated to 2003 values using CPI deflators. The TurkStat poverty lines are national poverty lines extracted from the TurkStat website. HBS poverty lines were calculated using the HBS sample in this study.

## 5. Results

Poverty in Türkiye experienced a marked decline in the early 2000s. This trend slowed afterward and remained stable in the early 2010s. After 2012, the rate declined further up until 2018. Recently, it started to rise again and reached almost 2007 levels. Table 2 shows the FGT poverty indices using alternative poverty lines (%50 and %60 of median consumption) for the period 2003-2022. Columns 2 and 3 show the headcount ratio, $P_0$. Column 3 is the benchmark for this study, where HBS relative poverty line at 60% of median consumption is used for poverty calculations. The poverty rate was 28.73% in 2004[6] and fell to 23.54% in 2007, showing a fall of 5.19 percentage points in this period. The rate fell further to 20.75% in 2018. However, it rose to 23.78% in 2022.

Columns 4 and 5 of Table 2 show the poverty gap, $P_1$, during this period. This index represents the average consumption shortfall of the poor relative to the poverty line. In 2004, the poverty gap was 9.16%, meaning that the average difference between the poor's needs and what they have is approximately 9 percent. This might also mean that on average, targeted transfers would need to spend 9.16% of the consumption poverty threshold for each person in need to help them escape poverty. The gap decreased to 5.58% in 2018, a decline of 3.57 percentage points. The poverty gap also started to rise after 2018, reaching 7.11% in 2022.

Columns 6 and 7 of Table 2 show the trends in poverty severity, $P_2$, which indicate both the depth of poverty and inequality among the poor. At the benchmark poverty line, the severity index is 4.02% in 2004. The index falls to 2.17% in 2018, rises later, and becomes 3.06% in 2022. This finding demonstrates that the levels of poverty and intra-poor disparity declined up to 2018, followed by an upward trend thereafter.

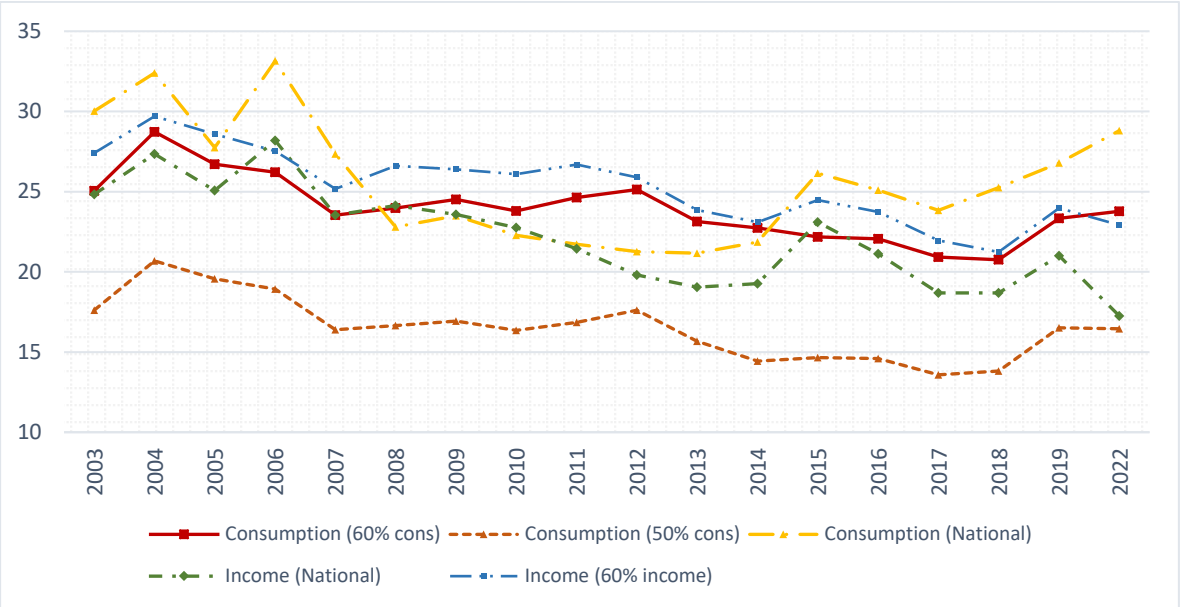
**Table 2.** FGT Poverty Indices

| | Poverty rate | | Poverty gap | | Squared Poverty Gap | |
|---|---|---|---|---|---|---|
| | 50% median | 60% median | 50% median | 60% median | 50% median | 60% median |
| 2003 | 17.61 | 25.06 | 4.74 | 7.49 | 1.88 | 3.18 |
| | (0.345) | (0.378) | (0.124) | (0.153) | (0.065) | (0.086) |
| 2004 | 20.68 | 28.73 | 5.98 | 9.16 | 2.45 | 4.02 |
| | (0.607) | (0.658) | (0.228) | (0.276) | (0.121) | (0.158) |
| 2005 | 19.57 | 26.71 | 5.94 | 8.81 | 2.55 | 4.03 |
| | (0.608) | (0.66) | (0.243) | (0.289) | (0.133) | (0.171) |
| 2006 | 18.92 | 26.20 | 5.57 | 8.41 | 2.35 | 3.77 |
| | (0.63) | (0.681) | (0.247) | (0.296) | (0.136) | (0.174) |
| 2007 | 16.38 | 23.54 | 4.63 | 7.19 | 1.89 | 3.12 |
| | (0.578) | (0.64) | (0.224) | (0.27) | (0.119) | (0.156) |
| 2008 | 16.65 | 23.97 | 5.07 | 7.61 | 2.16 | 3.44 |
| | (0.579) | (0.655) | (0.227) | (0.273) | (0.119) | (0.157) |
| 2009 | 16.92 | 24.51 | 4.83 | 7.51 | 2.02 | 3.29 |
| | (0.517) | (0.585) | (0.193) | (0.234) | (0.107) | (0.137) |
| 2010 | 16.34 | 23.80 | 4.70 | 7.24 | 1.96 | 3.19 |
| | (0.512) | (0.57) | (0.198) | (0.238) | (0.112) | (0.141) |
| 2011 | 16.86 | 24.62 | 4.83 | 7.50 | 2.00 | 3.27 |
| | (0.52) | (0.577) | (0.199) | (0.24) | (0.107) | (0.139) |
| 2012 | 17.61 | 25.14 | 4.95 | 7.67 | 2.03 | 3.34 |
| | (0.536) | (0.591) | (0.197) | (0.24) | (0.104) | (0.137) |
| 2013 | 15.67 | 23.14 | 4.26 | 6.80 | 1.71 | 2.88 |
| | (0.493) | (0.558) | (0.17) | (0.212) | (0.087) | (0.116) |
| 2014 | 14.43 | 22.73 | 3.86 | 6.29 | 1.49 | 2.58 |
| | (0.519) | (0.606) | (0.18) | (0.226) | (0.087) | (0.12) |
| 2015 | 14.66 | 22.17 | 3.79 | 6.20 | 1.47 | 2.55 |
| | (0.525) | (0.59) | (0.179) | (0.224) | (0.091) | (0.122) |
| 2016 | 14.59 | 22.06 | 3.64 | 6.06 | 1.36 | 2.43 |
| | (0.49) | (0.556) | (0.153) | (0.198) | (0.073) | (0.102) |
| 2017 | 13.58 | 20.92 | 3.40 | 5.66 | 1.27 | 2.26 |
| | (0.474) | (0.557) | (0.147) | (0.191) | (0.069) | (0.097) |
| 2018 | 13.82 | 20.75 | 3.27 | 5.58 | 1.17 | 2.17 |
| | (0.501) | (0.569) | (0.14) | (0.189) | (0.063) | (0.091) |
| 2019 | 16.51 | 23.33 | 4.35 | 6.95 | 1.74 | 2.94 |
| | (0.558) | (0.609) | (0.196) | (0.24) | (0.105) | (0.136) |
| 2022 | 16.46 | 23.78 | 4.55 | 7.11 | 1.85 | 3.06 |
| | (0.5) | (0.555) | (0.18) | (0.221) | (0.094) | (0.124) |

Note: The welfare indicator is modified OECD equivalized household consumption, and the poverty lines are modified OECD equivalized household consumption at 50% and 60% of median. HBS poverty lines were calculated using the HBS sample in this study. The standard errors are in parentheses.

There are considerable differences between the results of this study and those of Şeker and Jenkins (2015), who analyzed consumption-based poverty for 2003-2012. The first is the result of the absolute poverty line. They observe a sharp decline in poverty rates using absolute poverty lines. It is typically observed that poverty rates fall in developing countries if absolute lines are used as a benchmark, because of increased living standards with economic growth. The period they employed was also a period of economic growth in Türkiye. The second difference relates to the relative poverty calculation as an alternative measure in their study. The values presented in this study exceed those reported in their findings. This is possibly a result of the sample selection. The current study uses all the population available in the HBS dataset. Conversely, poverty rates might be lower when considering only the working-age population or when utilizing a population selected according to specific criteria.

**Figure 2.** Trends in Headcount Poverty Rates Using Alternative Definitions and Poverty Lines




Note: The series are explained inside the text.

Figure 2 shows the trend in poverty rates using alternative definitions of living standards and poverty lines. The red solid line is the consumption-based poverty rate using the HBS 60% median consumption as the relative poverty line, which is the benchmark in the analysis. The orange short-dashed line is relative consumption-based poverty, using 50% median consumption as the poverty line. The yellow dashed-dotted line represents the consumption-based poverty rate using TurkStat's 60% median income poverty line, which is the national poverty line. The blue dash-dotted line is the income-based poverty rate calculated using HBS 60% median income as the relative poverty line. The green dashed-dotted line represents the income poverty rate using the national poverty line. All the series show a declining trend in the early 2000s, and most are stable between 2008-2012, though income poverty measured with the national line continues to decline during this period. The consumption poverty rates declined further until 2018. On the other hand, the income poverty rate shows an unstable pattern, rising until 2015 and declining thereafter. After Covid-19, the consumption poverty rate has been increasing, but the income poverty rate has been declining between 2019 and 2022. This implies a behavioral change in the consumption-saving behavior of households, including median households.

Are the differences in poverty rates statistically significant? To answer this question, the changes in poverty rates and standard errors associated with these changes are calculated. The study period was divided into four intervals. To compare the results with Şeker and Jenkins's (2015) analysis, the first two intervals are the 2004-2008 period and the 2008-2012 period[7]. Then, the remaining periods are divided into 2012-2018 and 2018-2022 intervals. Of particular interest is the latter interval, which is marked by significant economic transformation due to the impact of the Covid-19 pandemic on both the economy and households. This phase was characterized by economic challenges, including historically high inflation levels in 2022. Table 3 summarizes the changes in poverty rates during these periods. The most substantial decline in poverty rates was observed between 2004 and 2008, at 4.76 percentage points. This decline was significant at the 1% level. A small increase of 1.17 percentage points was noted between 2008 and 2012, which was not significant at the 5% level. Between 2012-2018, the decline continued with 4.38 percentage points. However, post-2018, there was a notable reversal in the trend of consumption-based poverty rates, with a statistically significant increase of 3.02 percentage points between 2018-2022.

**Table 3.** Poverty Rate Differences

| | Poverty rate | |
|---|---|---|
| | 50% median | 60% median |
| 2004-2008 | -4.03 | -4.76 |
| | (0.839) | (0.929) |
| 2008-2012 | 0.96 | 1.17 |
| | (0.789) | (0.882) |
| 2012-2018 | -3.79 | -4.38 |
| | (0.734) | (0.82) |
| 2018-2022 | 2.64 | 3.02 |
| | (0.708) | (0.795) |

Note: The welfare indicator is modified OECD equivalized household consumption, and the poverty lines are modified OECD equivalized household at 50% and 60% of median consumption. The standard errors are in parentheses.

## 6. Decomposing Poverty

### 6.1. Growth and Distribution Decomposition

Since poverty persists in most emerging nations, there has been discussion over the link between economic growth and poverty alleviation. This discussion has largely focused on the assumption that inequality tends to increase in the early phases of development. Average income and amount of inequality are the two variables that determine the degree of poverty and are related to economic growth. However, understanding which factors contribute more to poverty reduction is of particular interest to policymakers. For this reason, Datt and Ravallion (1992) proposed a decomposition analysis that breaks down poverty into inequality and growth effects.

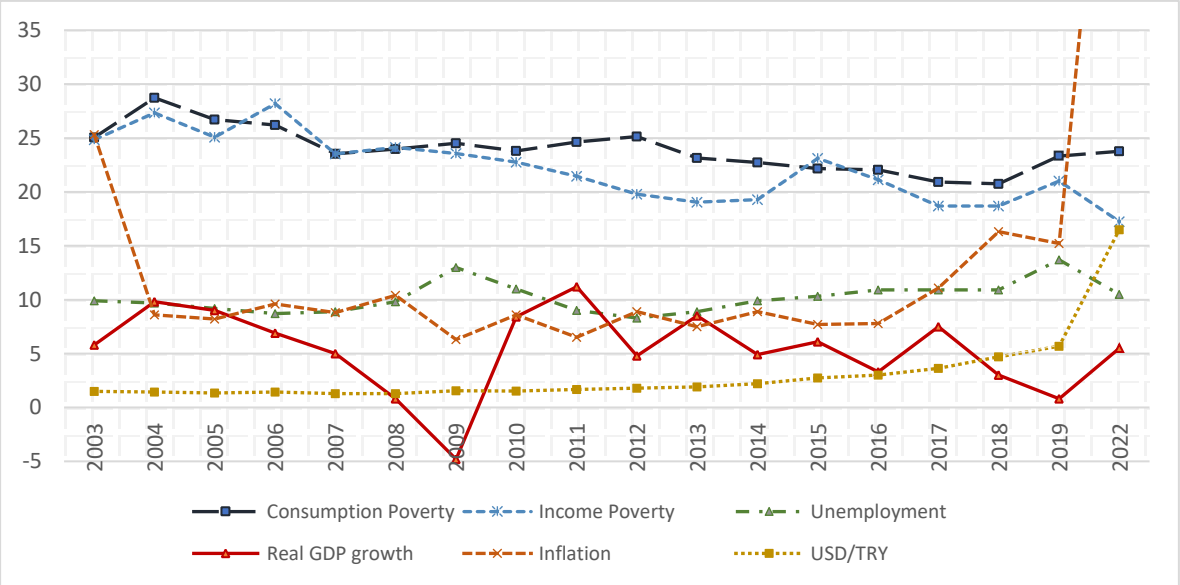
**Table 4.** Poverty Change Decomposition

| | | Poverty rate | Poverty gap | Squared Poverty Gap | Poverty rate | Poverty gap | Squared Poverty Gap |
|---|---|---|---|---|---|---|---|
| | | 50% median | | | 60% median | | |
| 2004-2008 | ΔP | -4.03 | -0.91 | -0.29 | -4.76 | -1.54 | -0.58 |
| | G | -11.16 | -3.9 | -1.89 | -13.57 | -5.34 | -2.73 |
| | D | 7.14 | 2.99 | 1.6 | 8.81 | 3.8 | 2.15 |
| 2008-2012 | ΔP | 0.96 | -0.13 | -0.13 | 1.17 | 0.06 | -0.1 |
| | G | -4.46 | -1.61 | -0.78 | -6.28 | -2.24 | -1.13 |
| | D | 5.42 | 1.49 | 0.65 | 7.45 | 2.3 | 1.03 |
| 2012-2018 | ΔP | -3.79 | -1.68 | -0.86 | -4.38 | -2.1 | -1.17 |
| | G | -4.06 | -1.36 | -0.59 | -5.72 | -1.95 | -0.92 |
| | D | 0.27 | -0.32 | -0.27 | 1.34 | -0.15 | -0.26 |
| 2018-2022 | ΔP | 2.64 | 1.28 | 0.67 | 3.02 | 1.53 | 0.9 |
| | G | -2.43 | -0.79 | -0.34 | -3.3 | -1.13 | -0.53 |
| | D | 5.07 | 2.07 | 1.01 | 6.32 | 2.66 | 1.43 |

Note: The welfare indicator is modified OECD equivalized household consumption, and the poverty lines are modified OECD equivalized household at 50% and 60% median consumption. HBS poverty lines were calculated using the HBS sample in this study.

Table 4 gives the results for the decomposition of the change in consumption poverty into a component of change in growth in living standards (G) and a component of change in consumption distribution (D) for the three indices. For the benchmark case, the reduction in the headcount ratio of 4.03 percentage points between 2004 and 2008 was mainly driven by improvements in living standards. Indeed, the distribution component is such that growth counteracts inequality by reducing the poverty rate. This means that by holding the Lorenz curve constant, poverty would have been much lower in Türkiye. Between 2008-2012, the distribution component again acts as an adverse effect. During this period, the inequality effect dominates the growth effect, such that there is an increase in the overall poverty rate of 1.17 percentage points. Between 2012-2018, there is a sharp decline in poverty. The negative growth effect is much larger than the positive inequality effect. Post-2018, the distribution component is almost twice of growth component in absolute value. Hence, the overall poverty rate increases. The observation that economic expansion is insufficient to alleviate poverty because of the concurrent rise in inequality underscores the critical necessity for policies designed to enhance growth while simultaneously reducing inequality. The situation is similar to that of other poverty indices except for 2012-2018. In most cases, growth in living standards has a poverty-reducing effect, whereas distribution has a poverty-increasing effect. However, between 2012 and 2018, the distribution component is such that it reduces the poverty rate but increases the poverty gap and poverty severity, although the magnitude is small.

**Figure 3.** Relationship between Macroeconomy and Poverty




Note: The macro indicators are taken from the IMF World Economic Outlook (April 2024) database and Federal Reserve Bank of St. Louis FRED database. The series are Real GDP growth (Annual percent change), Unemployment rate (Percent), Inflation rate, average consumer prices (Annual percent change), Turkish Lira - US Dollar Exchange Rate (annual, average). The inflation rate is recorded at 72.3% in 2022, which is omitted from the graph for the sake of visual clarity. Source: https://www.imf.org/external/datamapper/datasets/WEO, https://fred.stlouisfed.org/series/CCUSSP01TRM650N

The relationships between poverty, growth, and inequality can also be assessed by examining macroeconomic indicators. Figure 3 shows the main macro indicators for Türkiye over the 2003-2022 period along with the consumption poverty rate. As shown in the figure, the poverty rate shows a declining trend between 2003 and 2007 when the growth rate is high, which is consistent with the literature showing a negative relationship between the growth rate and poverty rate (Shoukry et al., 2018; Marrero et al., 2022). The growth rate became negative in 2009 during the global financial crisis, and the poverty rate had a small bump in 2009 and 2012 then had a declining trend, while the economy recovered from 2010 to 2015. After 2018, low economic performance coincides with an increasing trend in the poverty rate. The unemployment rate does not vary significantly during this period. Inflation is also stable for most of the period but starts rising after 2016 and reaches historically high levels by 2022. This can be an important factor for the increase in the consumption poverty rate after 2018. Inflation disproportionally affects poor households; hence, it is

considered a *regressive consumption tax* (Erosa & Ventura, 2002). Rich households experience lower rates of inflation than the poor do, because the impact of inflation on poverty is not uniform across different expenditure classes, with food prices playing a significant role in affecting the poor disproportionately (Akkoç & Kızılırmak, 2021; Erosa & Ventura 2002; Kaplan, G., & Schulhofer-Wohl, S. 2017; Paul & Sharma, 2018).

### 6.2. Subgroup Decomposition

Poverty affects certain types of households more than others. In this regard, the analysis proceeds with a subgroup decomposition of poverty rates using Foster et al. 's (1984) methodology to examine the heterogeneity of poverty across households. Households are categorized based on factors such as household size, educational level, age, gender of the household head, and the industry in which the head is employed. Table 5 presents the decomposition results for the years 2004, 2008, 2012, 2018, and 2022. The table demonstrates the outcomes in terms of the consumption-based poverty headcount ratio, which are the population share, poverty rate within each subgroup, and the group's contribution to the overall poverty rate.

The poverty rate among male-headed households was lower than that among female-headed households for most years except 2018, where poverty was lower among female-headed households. A noticeable increase was observed in both the population share and the poverty share of female-headed households during this period. Households led by individuals with lower levels of education tend to experience higher poverty levels. Nevertheless, there has been a significant increase in the poverty rate of households with heads educated up to high school or beyond. This trend can be attributed to the overall rise in the average duration of schooling within the country, as indicated by the rise in the population share of households with higher educated heads, coupled with the increased poverty rate in this category. An interesting finding emerges when examining households led by individuals with a master's or doctoral degree. Although this particular group did not face poverty during the period 2004-2012, the poverty rate reached 3.30% by 2022. This indicates that despite attaining higher levels of education, specific households encounter difficulties in lifting themselves out of poverty. One explanation could be the rise in the number of universities in Türkiye in recent years, together with the lack of job prospects for this demographic. Türkiye implemented an excessive expansion strategy for tertiary education from 2006 to 2008, resulting in the establishment of 41 additional public universities nationwide. Nevertheless, there is evidence of a correlation between the number of higher education graduates and the increase in the unemployment rate in Türkiye (Algül, 2024).

The demographic composition of households has undergone a salient transformation during this period. Turkish households exhibited a trend towards smaller sizes, with a notable increase in the proportion of households comprising one, two, or three individuals. Throughout the years, the average household size has remained constant at four members. The poverty contribution of all household types increased between 2004 and 2022, except for very large families (comprising over seven members). This was mainly because of a decrease in the population share of this group. Notably, a significant shift in poverty rates and demographic distribution is observed among households headed by individuals aged greater than 64, who have experienced a substantial decrease in the poverty rate alongside a rise in population share, which also shows the aging of the society. The result is an increased poverty share for old households.

In terms of sector, agriculture underwent the most significant transformation during this period. The proportion of the population engaged in agriculture and the poverty rate in this sector exhibited a drastic decrease. Consequently, the percentage of poverty attributed to this sector has decreased by more than 50 percent, from 48.39% in 2004 to 22.59% in 2022. Conversely, the manufacturing sector has observed an increase in its share of the population and the poverty rate, leading to a two-fold increase in its contribution to poverty from 8.47% in 2004 to 16.47% in 2022. This phenomenon can be understood by the historical pattern of rural-urban migration dating back to the 1950s, coinciding with the process of industrialization within the country (Şeker & Dayıoğlu, 2015).

**Table 5.** Subgroup Poverty Shares

| | 2004 | | | 2008 | | | 2012 | | | 2018 | | | 2022 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Popl. share | Poverty rate | Poverty share | Popl. share | Poverty rate | Poverty share | Popl. share | Poverty rate | Poverty share | Popl. share | Poverty rate | Poverty share | Popl. share | Poverty rate | Poverty share |
| Gender | | | | | | | | | | | | | | | |
| Man | 93.16 | 28.77 | 93.29 | 92.19 | 23.48 | 90.31 | 91.20 | 24.96 | 90.56 | 89.36 | 20.92 | 90.07 | 79.27 | 23.20 | 77.35 |
| Woman | 6.84 | 28.21 | 6.72 | 7.81 | 29.73 | 9.69 | 8.80 | 26.96 | 9.44 | 10.64 | 19.37 | 9.94 | 20.73 | 25.98 | 22.65 |
| Education | | | | | | | | | | | | | | | |
| Not Completed | 13.05 | 59.70 | 27.13 | 11.90 | 57.76 | 28.67 | 12.45 | 54.57 | 27.02 | 10.32 | 47.37 | 23.56 | 11.56 | 48.49 | 23.58 |
| Primary | 63.49 | 30.50 | 67.40 | 59.60 | 25.76 | 64.07 | 57.53 | 28.23 | 64.60 | 57.18 | 23.09 | 63.62 | 52.21 | 27.15 | 59.62 |
| High School | 15.42 | 9.26 | 4.97 | 18.01 | 9.01 | 6.77 | 17.33 | 10.69 | 7.37 | 18.21 | 12.58 | 11.04 | 19.19 | 15.64 | 12.63 |
| Some College | 2.29 | 2.31 | 0.18 | 3.16 | 2.29 | 0.30 | 3.96 | 2.92 | 0.46 | 4.10 | 4.89 | 0.97 | 4.59 | 8.14 | 1.57 |
| Bachelor's | 5.47 | 1.67 | 0.32 | 6.84 | 0.66 | 0.19 | 7.55 | 1.83 | 0.55 | 8.93 | 1.86 | 0.80 | 10.72 | 5.25 | 2.37 |
| Masters, PhD | 0.29 | 0.00 | 0.00 | 0.49 | 0.00 | 0.00 | 1.19 | 0.00 | 0.00 | 1.26 | 0.23 | 0.01 | 1.74 | 3.30 | 0.24 |
| Household size | | | | | | | | | | | | | | | |
| 1 | 0.92 | 20.23 | 0.65 | 1.02 | 16.57 | 0.70 | 1.88 | 19.81 | 1.48 | 4.71 | 11.21 | 2.54 | 6.14 | 14.47 | 3.74 |
| 2 | 7.83 | 12.79 | 3.49 | 8.74 | 12.26 | 4.47 | 10.69 | 14.71 | 6.26 | 12.39 | 9.72 | 5.80 | 13.94 | 14.20 | 8.32 |
| 3 | 14.34 | 11.71 | 5.84 | 17.78 | 8.63 | 6.40 | 19.43 | 12.77 | 9.87 | 17.53 | 7.43 | 6.28 | 18.80 | 11.83 | 9.35 |
| 4 | 26.49 | 14.30 | 13.19 | 27.54 | 14.05 | 16.15 | 27.69 | 14.88 | 16.39 | 23.67 | 11.68 | 13.32 | 24.25 | 17.33 | 17.67 |
| 5 | 19.11 | 25.70 | 17.10 | 17.16 | 25.74 | 18.43 | 16.66 | 28.16 | 18.66 | 15.97 | 21.71 | 16.70 | 16.05 | 28.30 | 19.10 |
| 6 | 11.72 | 39.98 | 16.31 | 11.78 | 37.10 | 18.23 | 9.96 | 40.62 | 16.10 | 12.05 | 35.08 | 20.37 | 10.87 | 38.74 | 17.71 |
| 7 or 8 | 11.32 | 55.17 | 21.74 | 9.78 | 47.60 | 19.43 | 8.14 | 51.59 | 16.71 | 9.95 | 48.61 | 23.31 | 7.54 | 56.93 | 18.05 |
| >8 | 8.27 | 75.40 | 21.69 | 6.20 | 62.59 | 16.18 | 5.55 | 65.87 | 14.54 | 3.74 | 64.83 | 11.68 | 2.42 | 59.47 | 6.06 |

**Table 5** (continued)

| | 2004 | | | 2008 | | | 2012 | | | 2018 | | | 2022 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Popl. share | Poverty rate | Poverty share | Popl. share | Poverty rate | Poverty share | Popl. share | Poverty rate | Poverty share | Popl. share | Poverty rate | Poverty share | Popl. share | Poverty rate | Poverty share |
| Age | | | | | | | | | | | | | | | |
| 15-24 | 0.95 | 26.88 | 0.89 | 1.06 | 22.89 | 1.01 | 1.29 | 20.61 | 1.06 | 1.03 | 24.33 | 1.21 | 1.28 | 17.64 | 0.95 |
| 25-34 | 17.37 | 25.50 | 15.42 | 19.29 | 22.39 | 18.02 | 18.21 | 21.48 | 15.56 | 14.54 | 18.19 | 12.75 | 13.01 | 18.43 | 10.08 |
| 35-44 | 32.20 | 29.35 | 32.90 | 30.42 | 25.86 | 32.82 | 29.59 | 26.80 | 31.56 | 29.30 | 23.78 | 33.57 | 28.07 | 26.54 | 31.33 |
| 45-54 | 26.24 | 27.08 | 24.73 | 24.46 | 20.89 | 21.32 | 24.46 | 22.16 | 21.56 | 25.37 | 19.94 | 24.38 | 24.49 | 23.57 | 24.28 |
| 55-64 | 13.28 | 28.50 | 13.17 | 14.36 | 24.28 | 14.54 | 15.56 | 24.61 | 15.23 | 17.00 | 17.84 | 14.62 | 17.55 | 21.16 | 15.62 |
| >=65 | 9.97 | 37.15 | 12.89 | 10.43 | 28.27 | 12.30 | 10.89 | 34.70 | 15.03 | 12.75 | 21.92 | 13.47 | 15.61 | 27.02 | 17.74 |
| Sector | | | | | | | | | | | | | | | |
| Agriculture | 25.41 | 56.12 | 48.39 | 18.03 | 55.37 | 41.66 | 19.90 | 52.31 | 43.39 | 14.33 | 39.95 | 29.65 | 12.92 | 35.10 | 22.59 |
| Mining | 0.55 | 27.73 | 0.52 | 0.61 | 41.28 | 1.06 | 0.64 | 9.41 | 0.25 | 0.68 | 6.64 | 0.23 | 1.24 | 11.93 | 0.74 |
| Manufacturing | 17.12 | 14.58 | 8.47 | 18.23 | 13.23 | 10.06 | 18.07 | 14.26 | 10.74 | 20.65 | 13.64 | 14.59 | 20.03 | 16.51 | 16.47 |
| Energy, water | 0.58 | 2.29 | 0.05 | 0.60 | 0.78 | 0.02 | 1.27 | 30.82 | 1.63 | 1.03 | 34.94 | 1.86 | 1.32 | 39.06 | 2.56 |
| Construction | 7.91 | 36.54 | 9.81 | 8.38 | 34.53 | 12.07 | 10.86 | 32.56 | 14.74 | 11.02 | 25.38 | 14.48 | 9.04 | 32.23 | 14.50 |
| Trade and repair | 16.99 | 22.74 | 13.11 | 18.91 | 18.09 | 14.28 | 13.58 | 17.23 | 9.75 | 13.96 | 14.36 | 10.39 | 15.01 | 17.63 | 13.18 |
| Tourism, food | 4.16 | 20.25 | 2.86 | 4.72 | 19.20 | 3.78 | 6.87 | 22.18 | 6.35 | 5.36 | 21.11 | 5.86 | 4.94 | 15.34 | 3.78 |
| Transportation | 8.73 | 24.40 | 7.22 | 7.53 | 18.92 | 5.95 | 4.99 | 12.93 | 2.69 | 7.17 | 18.68 | 6.94 | 7.51 | 17.75 | 6.64 |
| Financial | 0.57 | 1.27 | 0.02 | 0.71 | 4.04 | 0.12 | 0.98 | 3.90 | 0.16 | 1.06 | 0.39 | 0.02 | 0.92 | 0.89 | 0.04 |
| Real estate | 1.96 | 6.42 | 0.43 | 4.21 | 8.60 | 1.51 | 5.99 | 13.42 | 3.35 | 6.14 | 13.39 | 4.25 | 5.93 | 18.32 | 5.41 |
| Public, defense | 6.94 | 12.53 | 2.95 | 8.78 | 12.50 | 4.58 | 7.61 | 6.51 | 2.07 | 9.17 | 11.43 | 5.43 | 9.18 | 11.08 | 5.06 |
| Education | 3.28 | 4.60 | 0.51 | 3.59 | 4.34 | 0.65 | 3.97 | 5.57 | 0.92 | 3.80 | 7.97 | 1.57 | 4.71 | 7.79 | 1.83 |
| Health, social | 1.28 | 4.43 | 0.19 | 1.77 | 8.84 | 0.65 | 2.17 | 10.62 | 0.96 | 2.27 | 14.18 | 1.67 | 3.91 | 14.60 | 2.84 |
| Other/ cultural | 4.54 | 35.58 | 5.49 | 3.95 | 21.89 | 3.61 | 3.10 | 23.28 | 3.00 | 3.36 | 17.54 | 3.05 | 3.36 | 26.14 | 4.38 |

Note: Calculations are based on OECD equivalized household consumption in the HBS dataset as the welfare indicator and 60% of the median OECD equivalized household consumption using the HBS sample as the poverty line.

## 7. Conclusion

This study examines changes in consumption-based relative poverty in Türkiye using data from the Turkish Statistical Institute's Household Budget Survey from 2003 to 2022. Various poverty lines were used to calculate the FGT poverty indices developed by Foster et al. (1984), with the benchmark case using a relative poverty line set at 60% of the median single-adult equivalent disposable household consumption in the HBS dataset.

The results from the benchmark analysis show a decrease in the poverty rate from 28.73% in 2004 to 20.75% in 2018, representing an 8-percentage point decline. However, there is a subsequent increase, reaching 23.78% by 2022. Similarly, the poverty gap was 9.16% in 2004 and decreased to 5.58% in 2018, a reduction of 3.58 percentage points. However, the poverty gap rises to 7.11% by 2022. The poverty severity index was 4.02% in 2004, decreasing to 2.17% by 2018 and later climbing to 3.06% by 2022. All indicators of poverty exhibit a parallel trajectory, declining initially and subsequently surging, thereby indicating a reversal of poverty across various dimensions, namely the poverty rate, depth of poverty, and disparity among the poor.

Analyzing the decomposition of consumption poverty change into growth and distributional components reveals that the decrease in the headcount ratio by 4.76 percentage points from 2004 to 2008 is mainly due to improved living standards. This coincides with a period of high economic growth, thus confirming Şeker and Jenkins (2015) results. A similar trend was observed from 2012 to 2018, with a decrease in the headcount ratio of 4.38 percentage points. Poverty rates increased slightly from 2008 to 2012 and more significantly from 2019 to 2022, when the distribution component now plays a more significant role, leading to an overall rise in poverty rates despite the poverty-reducing effect of the growth component. This pattern is consistent across various poverty indicators, highlighting the role of economic growth in reducing poverty and inequality in exacerbating poverty.

The link between economic growth and poverty underscores the need for complementary, mutually reinforcing pro-poor and pro-growth policies to ensure sustainable poverty reduction. In this respect, countercyclical fiscal policies addressing the lower end of the distribution during downturns are crucial to the well-being of disadvantaged households. Moreover, the fact that the redistribution component was a poverty-increasing effect for all periods between 2003 and 2022, and reducing the benefits of economic growth shows the importance of policies that address both inequality and growth simultaneously. Furthermore, the literature presents compelling evidence suggesting an interconnection between poverty, inequality, and economic growth, with each factor influencing and reinforcing the others. Implementing specific policies targeted at alleviating poverty has the potential to not only curb poverty but also stimulate economic growth. Therefore, policies aimed at simultaneously reducing poverty and inequality can be beneficial for fostering sustainable economic growth and development (Marrero & Servén, 2022).

Furthermore, that the high inflation period coincides with elevated poverty in 2022 shows that controlling inflation is crucial to mitigating its negative implications on poverty, which is a result that is also supported in studies with other countries (Sehrawat & Giri, 2018; Rehman et al., 2022).

Subgroup decompositions show that the poverty rate in Türkiye varies among different household categories, influenced by factors such as household size, educational achievement, age, gender of the household head, and sector of employment of the head. Female-headed households and those with lower educational levels tend to exhibit higher poverty rates. However, poverty has increased in households with more educated heads, and even those with highly educated heads have experienced poverty in recent years. One reason for this is the increased number of higher education institutions in Türkiye in recent years, coupled with the lack of employment opportunities for this population. This situation indicates the importance of creating jobs relevant to the human capital that people earn during their education. Also, academic institutions must consistently observe the demands of the labor market and make necessary modifications to their educational programs (Özoğlu et al., 2016). Overall, these results suggest that education remains an important factor in escaping poverty. However, higher education should also be addressed through societal needs.

Regarding sectoral decomposition, the agricultural sector has experienced a significant decrease in both its proportion of the population and the poverty rate, while the manufacturing sector has observed a rise in both aspects. This may be attributed to migration from rural to urban areas, as evidenced by the decrease in the percentage of the population engaged in the agricultural sector. In this context, vocational training programs aimed at the manufacturing industry can serve as a specific policy approach for individuals who have migrated.

This study has several limitations. First, survey data are known to contain measurement errors in income and consumption. There is also a non-response problem, which results in selection bias if non-response is correlated with certain aspects of households. These problems can be addressed using administrative data which is not available to researchers in Türkiye. Second, a more thorough understanding of poverty can be obtained using panel data, which enables the differentiation between temporary poor and permanent poor households. Policies aimed at addressing persistent poverty differ significantly from those targeting temporary poverty in several respects. Permanent poverty (or chronic poverty) is characterized by long-term deprivation and is typically intergenerational, requiring comprehensive and sustained interventions. These include social protection policies that provide an income floor such as employment guarantees, social assistance schemes, conditional cash transfers, pensions, and financial support for children and disabilities. Conversely, policies for transient poverty focus on income-smoothing mechanisms, such as temporary cash transfers, unemployment benefits, and other forms of social insurance that help households manage these fluctuations without falling into long-term poverty (Barrientos et al., 2005; McCulloch & Baulch, 2000). The analysis in this study used cross-sectional consumption data, which is the only available option for researchers in Türkiye. Panel data on consumption will enhance the effectiveness of future research on consumption poverty by providing more relevant policy recommendations.

## Declarations and Disclosures

***Ethical Responsibilities of Authors***: The author of this article confirms that her work complies with the principles of research and publication ethics.

***Conflicts of Interest***: No potential conflict of interest was reported by the author.

***Funding***: The author received no financial support for the preparation and/or publication of this article.

***Author Contributions***: The author confirms sole responsibility for conceptualization and design, data collection, analysis of data and interpretation of results, writing the first draft of the manuscript, and review and editing.

***Plagiarism Checking***: This article was screened for potential plagiarism using a plagiarism screening program.

***(*) Additional Disclosure***: This study is an expanded version of the oral presentation presented on the 5th. Bilsel International World Science and Research Congress.

## End Notes

1. *For more information, see https://sdgs.un.org/goals.*
2. *Both consumption and income are extensively employed as welfare indicators in the literature.*
3. *Kolenikov and Shorrocks (2005) show that these factors correspond to the level and distribution of income in a Shapley decomposition of the change in poverty. Shorrocks (2013) provide a detailed decomposition analysis based on Shapley value.*
4. *For example, let us call $NPL^{2005}$ the national poverty line at 60% median income in 2005 announced by TurkStat using SILC and let $HBS^{2004}$ and $HBS^{2005}$ be the 60% median income in the HBS dataset in 2004 and 2005, respectively. The national poverty line in 2004 was estimated as $NPL^{2004}= NPL^{2005} * HBS^{2004}/ HBS^{2005}$. Using this method, $NPL^{2004}$ was calculated separately with $HBS^{2005}$ and $HBS^{2007}$ as deflators. The average of these two calculations was used for robustness.*
5. *There exist concerns regarding the contemporary inflation rate, as the Consumer Price Index figures fail to accurately represent the actual economic conditions. This discrepancy may pose a significant challenge when analyzing poverty*

*rates over time, particularly when employing the absolute poverty line for such calculations. Since this study deals with relative poverty, a general mismeasurement of price levels does not affect the results. Nonetheless, it may impact poverty assessments if the miscalculation is not uniformly distributed across various consumption categories. If the discrepancies are more pronounced for commodities and services predominantly utilized by the poor, then this concern will similarly affect relative poverty calculations. See Jaravel (2019) for a related discussion concerning the concept of "inflation inequality."*

6. *The low poverty rates observed in 2003 relative to those in 2004 and subsequent years may be attributed to a sampling issue. The year 2003 serves as a reference point for revised poverty assessments conducted by TurkStat, and it oversamples poorer households.*
7. *As discussed previously, 2004 provides a better representation of poverty trends relative to 2003 because the 2003 survey over-samples poor households.*

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