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ARTICLE

Unequal outcomes in unequal times: the distributional consequences of Turkey's unorthodox policies

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Abstract

This paper examines trends in wage, income, and consumption inequality in Turkey from 2002 to 2023, a period marked by unorthodox economic policymaking before and after the COVID-19 pandemic. Using microdata from the Turkish Statistical Institute's Household Budget Survey and the Survey of Income and Living Conditions, we document several salient distributional patterns. Wage inequality declined steadily over two decades, including during the recent episode of policy experimentation – coinciding with sustained minimum wage hikes and a rising share of university-educated workers. Income inequality also fell, though less markedly, before reversing in recent years due to widening disparities in capital and entrepreneurial income. In addition, consumption inequality rose dramatically during the unorthodox policy period, exceeding income inequality growth and driven primarily by a surge in durable goods consumption among top-decile households. These findings reveal the complex and multi-dimensional distributional consequences of unconventional economic policy in emerging markets and highlight the importance of examining inequality across multiple dimensions when evaluating policy effectiveness.

Keywords: minimum wage; wage dispersion; income distribution; consumption inequality; economic policy

Introduction

Since 2018, the Turkish economy has undergone a dramatic transformation, characterized by severe macroeconomic shocks and the adoption of a series of unorthodox policy measures. The 2018 exchange rate crisis, followed by the COVID-19 pandemic, ushered in a period of pronounced volatility across both financial and real sectors. In response, the Turkish government and the Central Bank of the Republic of Turkey (CBRT) implemented policies that deviated sharply from standard macroeconomic prescriptions.

Diverging from the prevailing international approach of raising interest rates, the CBRT lowered its policy rate amid mounting inflationary pressures. The government also introduced novel mechanisms such as Foreign Exchange Protected Deposits (*Kur Korumali Mevduat*; KKM) to mitigate depreciation pressures on the Turkish lira (TRY). These deposits effectively functioned as free call option derivatives[1] for account holders, establishing a TRY-denominated floor at the market deposit rate while offering potentially higher returns – at the expense of Turkish taxpayers. Simultaneously, substantial increases in the minimum wage were enacted, directly affecting more than two-fifths of wage earners. While the aggregate economic effects of these interventions have been widely studied, their distributional consequences remain largely unexplored.

Although inequality dynamics during financial crises and macroeconomic instability have received extensive attention, relatively little is known about the distributional effects of unconventional monetary and fiscal policies – particularly in emerging market contexts where such policies are increasingly employed. Prior studies of Turkish inequality have largely focused on the pre-2018 period, leaving a critical gap in our understanding of how this recent episode of policy experimentation has reshaped economic disparities. This gap in the literature is particularly significant given that Turkey's recent policy experimentation offers a unique natural experiment for understanding the distributional effects of heterodox policies.

This paper addresses that gap by providing the first comprehensive analysis of inequality dynamics in Turkey during this period of macroeconomic turbulence and policy heterodoxy. Specifically, we examine changes in wage, income, and consumption inequality between 2002 and 2023, with particular analytical focus on the critical post-2018 period of policy experimentation. Our multi-dimensional approach allows us to distinguish how different dimensions of inequality (wage, income, and consumption) responded to the evolving economic environment.

Our empirical analysis draws on two nationally representative microdata sources: the Turkish Statistical Institute's Household Budget Survey (HBS) and the Survey of Income and Living Conditions (SILC). These rich data sets allow us to track changes in wages, incomes, and consumption patterns across the income distribution from 2002 to 2023, with particular emphasis on the post-2018 period of policy experimentation.

We document several salient patterns. Contrary to conventional expectations, wage inequality declined during this turbulent period, coinciding with sustained minimum wage hikes and a rapid increase in the relative supply of highly skilled labor. However, we observe a divergence between wage and income inequality. While wage inequality fell, income inequality rose in recent years, mainly due to increasing concentration in capital and entrepreneurial incomes. Another notable development is the substantial rise in consumption inequality, which exceeded the growth in income inequality and was primarily driven by a sharp expansion in durable goods consumption among the richest decile. The greater dispersion in consumption changes – relative to income – suggests that higher-income households were better

[1] Call options are financial instruments that grant investors the right to purchase various assets, including stocks, bonds, or commodities, at a predetermined price within a specified period, while retaining the freedom to decline the purchase if conditions are unfavorable.

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able to shield themselves from inflationary pressures, plausibly due to better access to credit markets and liquid assets.

This study contributes to the literature in three key ways. First, it offers the first systematic analysis of distributional outcomes in Turkey during the era of macroeconomic heterodoxy. Second, by jointly examining wages, incomes, and consumption, we provide a more granular and comprehensive understanding of inequality than studies focused on a single dimension. Third, our findings speak to broader debates on the distributional consequences of unconventional policy in emerging markets, demonstrating that such policies can generate complex, non-monotonic effects across different facets of household well-being. These insights are particularly relevant for policymakers in emerging economies considering non-traditional responses to external pressures and domestic constraints, highlighting the importance of evaluating distributional effects alongside aggregate macroeconomic outcomes.

The remainder of the paper is organized as follows. The Related literature section reviews the relevant literature on inequality in Turkey, highlighting the contributions of this study. The Data and key variables section describes the data and methodological approach employed in the analysis. The Results section presents the empirical findings, documenting the changes in wages, incomes, and consumption inequality during the study period. The Conclusion discusses the implications of our findings and concludes.

Related literature

Turkey has long been characterized by high levels of economic inequality relative to other Organisation for Economic Co-operation and Development (OECD) countries. Prior research has documented persistent inequality across various dimensions, including wages, incomes, and wealth. For instance, Tamkoç and Torul (2020) show that while wage, income, and consumption inequality in Turkey exhibited downward trends from 2002 to 2016, the country still ranked among the most unequal in the OECD. Torul and Öztunalı (2018) further highlight that Turkey's wealth inequality is exceptionally high, even surpassing the levels observed in the United States and Russia, a finding corroborated by the more recent work of Ceritoğlu et al. (2023) using household finance data.

The sources of Turkey's high inequality are multifaceted. Aktuğ et al. (2021) uncover substantial heterogeneity in labor income profiles across education levels, gender, and public versus private sector employment, with a significant gender pay gap, especially for less educated workers. This aligns with Turkey's historically low female labor force participation documented in studies such as Filiztekin (2020) and Bakış and Polat (2015, 2023). Aydemir and Yazıcı (2019) and Öztunalı and Torul (2022) demonstrate that intergenerational educational mobility in Turkey is relatively low compared to developed countries, with persistence being primarily driven by unequal access to tertiary education.[2] Demirtaş and Torul (2024) estimate that

[2] Regarding educational supply dynamics, Caner et al. (2024) analyzed Turkey's significant 2006–2008 higher education expansion and found an increase in overall attainment but a persistent failure to reduce the gender gap, partly due to field-specific enrollment changes.

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intergenerational earnings elasticity is approximately 0.5 between fathers and sons, placing Turkey among the least mobile economies.

Beyond these structural factors, macroeconomic developments have also shaped inequality dynamics in Turkey. Ekşi and Kırdar (2015) and Bakış and Polat (2015, 2023) show that minimum wage hikes in the 2000s contributed to declining wage inequality, with "price" or "wage" effects dominating "composition" effects. However, the extent to which these gains persisted or were eroded in the more recent period remains an open question. Sefil-Tansever and Yılmaz (2024) provide further insights into the potential spillover effects of the minimum wage, within the formal sector and potentially across the informal labor market.

While extensive research on Turkish inequality predates 2018, recent contributions offer complementary insights. Bilgiç and Stoeffler (2025) document a surprising decrease in poverty in 2021. Gemicioğlu et al. (2024), examining the period up to 2019, provide evidence that price changes, influenced by indirect taxes, increase real consumption inequality, while Tekgüç and Eryar (2025) find an enhanced redistributive impact of fiscal policy up to 2019, albeit with burdens from indirect taxes. Nevertheless, a comprehensive examination of how wage, income, and consumption inequalities evolved across Turkey's recent turbulent post-2018 period of unorthodox economic policies remains lacking. This paper addresses this gap by investigating these largely unexplored distributional consequences.

Analyzing these distributional impacts is crucial, as the Turkish government's actions during this period represented a marked departure from conventional macroeconomic management. For instance, the aggressive minimum wage hikes directly targeted the lower end of the earnings distribution. Meanwhile, introducing the FX-Protected Deposit Scheme primarily benefited wealthier households. Therefore, it is essential to understand how these diverse policy interventions shaped the evolution of wages, incomes, and consumption across different segments of the Turkish population.

This paper contributes to the literature by providing the first comprehensive analysis of how economic inequalities in Turkey have changed in the aftermath of the 2018 exchange rate crisis and the subsequent policy responses. By examining the distributional impacts of these recent developments, this paper offers important insights into the Turkish economy's ongoing transformation and the extent to which the government's actions addressed longstanding inequality challenges. Our findings also have broader implications for understanding the distributive consequences of unorthodox macroeconomic policies, particularly in emerging market economies facing complex economic challenges and shocks.

Data and key variables

We use data from two primary sources: the HBS and the SILC, both conducted annually by the Turkish Statistical Institute (TurkStat). These two microdata sets are the principal sources for examining economic inequalities in Turkey (Tamkoç and Torul 2020). Throughout our empirical analysis, we follow Krueger et al.'s (2010) standardized guidelines to ensure that our results are compatible with the previous literature.

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Household Budget Survey (HBS)

The HBS provides detailed information on household consumption expenditure and disposable income at the household level, along with individual-level information on earnings and labor supply. We use HBS data between 2002 and 2023 due to data availability.[3]

Survey of Income and Living Conditions (SILC)

The SILC has been conducted since 2005 to obtain income distribution statistics compatible with the European Union's official statistics. Like the HBS, its unit of observation is the household, providing detailed income source information for individuals in at least 10,700 households annually, representative at the Classification of Territorial Units for Statistics (NUTS)-1 level. However, unlike the HBS, the SILC lacks consumption data. Our SILC sample covers the 2005–2023 period, including the COVID-19 pandemic.[4]

Data adjustments and harmonization

Wage and labor earnings

We use the individual as the unit of analysis for wage calculations. We convert nominal variables into real terms by deflating them with TurkStat's consumer price index. To examine wage inequality, we follow Krueger et al. (2010) and concentrate on 25- to 59-year-olds who annually earned more than half the average monthly minimum wage in 2002 (i.e. 174 TRY).[5]

To calculate the wage rate, we adhere to Krueger et al.'s (2010) guidelines and construct annual earnings of person i in year t as follows:

$$ae_{i,t} = nw_{i,t} + rw_{i,t} + p_{i,t} + b_{i,t} + \alpha^{TUR}\left(nse_{i,t} + rse_{i,t} + ag_{i,t}\right)$$

where $ae_{i,t}$ denotes annual earnings, $nw_{i,t}$ and $rw_{i,t}$ denote annual cash and other real payments, $p_{i,t}$ and $b_{i,t}$ denote annual premiums and bonuses received from employers, α^{TUR} denotes the share of labor income in Turkey's national income, $nse_{i,t}$ and $rse_{i,t}$ denote cash and other real incomes from self-employment, and $ag_{i,t}$ denotes net agricultural income. Following Tamkoç and Torul (2020), we set α^{TUR} to 0.42 by using the initial 5-year estimates by the Groningen Growth and Development Centre (2023). This parametrization presumes that 42 percent of self-employment and agricultural income, if any, can be considered a part of labor earnings, as in the case of national averages.[6]

[3] TurkStat suspended HBS conduct during 2020 and 2021 due to the COVID-19 pandemic. HBS surveys conducted before 2002 (e.g. HBS in 1994) lack continuity and nationwide representativeness and are excluded from our analysis.

[4] Note that the reference year in SILC is the preceding calendar year. Thus, utilizing SILC 2006–2024 microdata, our analysis covers the 2005–2023 period.

[5] We also exclude individuals who did not report hours worked for our wage calculations. For further descriptive statistics, see Table B.1.

[6] Our findings remain robust across alternative α values. While different coefficients produce smoother trends due to scaling differences, the overall direction and timing of inequality changes remain unchanged.

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We calculate annual hours worked, $ah_{i,t}$, as hours worked in a week multiplied by the average number of weeks worked in the last 12 months.[7] Finally, we calculate the wage rate by dividing annual earnings by annual hours worked:

$$w_{i,t} = \frac{ae_{i,t}}{ah_{i,t}}$$

Following Krueger et al. (2010), we also report gender, education (university and high school), and experience premiums in wages, the details of which we include in the Appendix.[8]

Income and consumption

In line with Krueger et al.'s (2010) guidelines, we analyze income and consumption inequality at the household level. Our income variable is the after-tax and transfers disposable income of households. We also analyze the subcomponents of income, such as capital income and entrepreneurial income, depending on data availability. We use total consumption as our primary consumption measure and, following Krueger et al. (2010), also present results for non-durable consumption and durable consumption.[9] We use the OECD (Oxford) equivalence scale to equalize income and consumption series.[10]

Measures of inequality

To comprehensively assess inequality, we use four metrics: the variance of the natural logarithm, the Gini coefficient, the P90/P50 ratio, and the P50/P10 ratio, following Krueger et al. (2010). The variance of the logarithm captures overall dispersion within the distribution. The Gini coefficient provides an alternative measure of inequality based on relative mean differences. The P90/P50 ratio shows the gap between the top 10 percent and the median (50th percentile) of the distribution, while the P50/P10 ratio highlights the disparity between the median and the bottom 10 percent. We discuss the details of these inequality measures in the Appendix.

Results

Wage inequality

Figure 1 shows the evolution of wage inequality from 2002 to 2023 using four key metrics: variance of log wage, P90/P50 ratio, P50/P10 ratio, and the Gini coefficient, as

[7] Data on the number of months worked in the last 12 months were unavailable in the 2012 wave of the HBS. We imputed this value for 2012 by calculating the mean of the sample averages of 2011 and 2013.

[8] We defined full-time workers as those who work over 30 hours a week, as TurkStat's related questions changed over the years and showed inconsistencies.

[9] Non-durable consumption includes spending on food, alcohol, tobacco, personal care items, fuel, utilities, public services, household operations, public transportation, gasoline and diesel oil, apparel, reading items, entertainment spending, lodging expenses, education expenditures, and out-of-pocket health expenditures. Durable consumption includes spending on rent, furniture, domestic appliances, medical goods, motor and non-motor vehicles, digital devices, and jewelry.

[10] The OECD equivalence scale adjusts household income by member number and age to enable comparisons across different household structures. The modified OECD version assigns a weight of 1 for the first adult (14+ years), 0.5 for each additional adult (14+ years), and 0.3 for each child (0–13 years).

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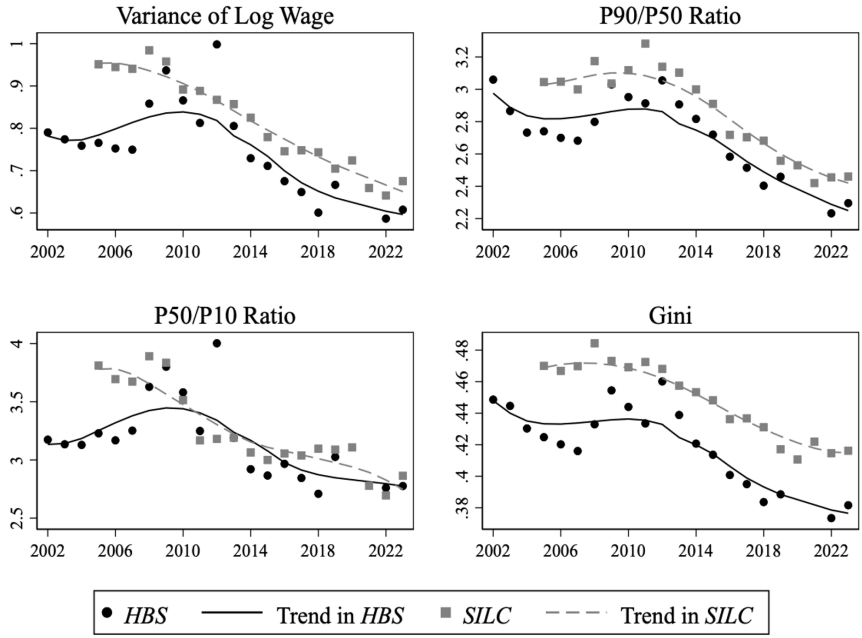

Figure 1. Wage inequality.

Notes: This figure illustrates the evolution of wage inequality. Results are reported using the Household Budget Survey (HBS) and Survey of Income and Living Conditions (SILC) data sets. Black solid lines with circles denote results from the HBS, while gray dashed lines with squares represent SILC data. Smoothed lines are derived using local polynomial regression to identify trends. The unit of observation is the individual. The analysis period covers 2002–2023 for the HBS and 2005–2023 for the SILC. Due to the suspension of HBS data collection during the COVID-19 pandemic in 2020 and 2021, estimates for these years are available only from the SILC.

outlined by Krueger et al. (2010).[11] We use local polynomial regressions to show long-term trends and provide annual point estimates, which are displayed together.

Our findings show that the variance of log wage, the P90/P50 ratio, and the Gini coefficient exhibit similar trends. These metrics demonstrate a non-monotonic decline until the 2008 Great Recession, followed by a temporary increase lasting about 4 years, and then a renewed downward trend continuing to the present. In contrast, the P50/P10 ratio does not follow this pattern; it remains mostly stable before 2008 and shows mixed trends afterward. Overall, despite variations in levels, the downward trend observed across these four inequality metrics indicates a decline in wage inequality.

The impact of the minimum wage policy on wage inequality trends in Turkey is significant. Figure B.2 shows the changes in median wage relative to the minimum wage and the percentage of workers earning below 105 percent of the minimum wage. This figure indicates a possible connection between increases in the minimum wage and wage convergence, consistent with Tamkoç and Torul's (2020) findings on wage

[11] We present the descriptive statistics of the two data sets (HBS and SILC) in Table B.1.

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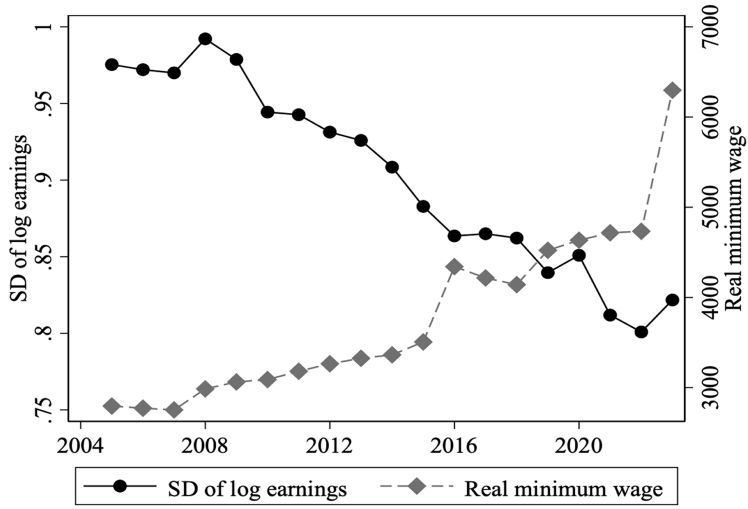

Figure 2. Wage inequality and the real minimum wage.
Notes: This figure illustrates the evolution of wage inequality and the real minimum wage (in constant 2002 Turkish liras). Data are derived from the Survey of Income and Living Conditions for wage-related calculations covering the period 2005–2023. The correlation between the variables is –0.896 (significant at p=0.01).

inequality in Turkey. This relationship is particularly pronounced during periods of rapid minimum wage growth compared to inflation, such as in 2016 when the minimum wage increased by 30 percent while inflation was approximately 8 percent (Figure B.1).[12]

Driven by the observed link between minimum wage policies and wage compression, we explore this relationship using the methodology of Engbom and Moser (2022) from their study of Brazil. We observe comparable patterns in the Turkish labor market, with a strong negative correlation (–0.896) between the standard deviation of log earnings and the real minimum wage, as illustrated in Figure 2. This correlation is particularly noteworthy given the significant proportion of Turkish employees (44 percent in 2023) earning wages at or near the minimum wage threshold.

To provide context for these findings, the International Labour Organization's 2020–2021 global wage report indicates that minimum-to-median wage ratios are generally higher in developing countries (International Labour Office 2020). However, while Brazil's ratio is consistent with the average for developing countries, Turkey's ratio ranks among the highest globally, highlighting the significance of the observed relationship between wage compression and minimum wage levels in Turkey.

The cyclical dynamics of the Turkish economy suggest that wage inequality is likely to exhibit countercyclical behavior, increasing during economic downturns and decreasing during periods of expansion (Tamkoç and Torul 2020). This theoretical

[12] Since Turkey does not have an hourly minimum wage, we utilize monthly minimum wage data to construct Figure 3, Figure B.2, and Figure B.4.

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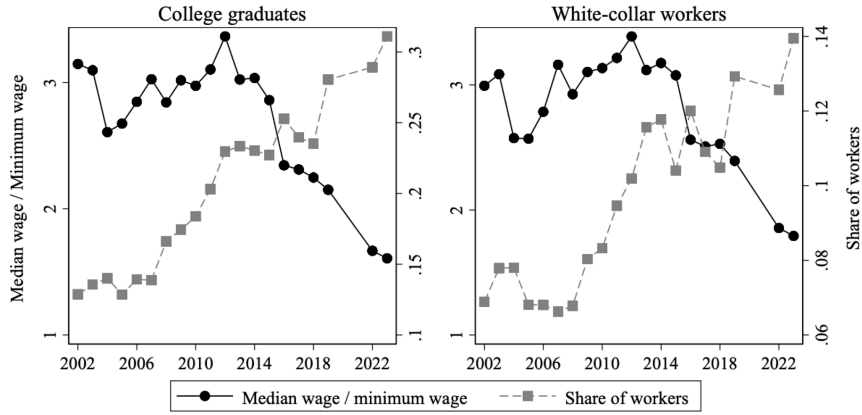

Figure 3. Educational and occupational breakdown.

Notes: This figure illustrates the evolution of wages compared to the minimum wage using educational attainment and occupational breakdown. The unit of observation is the individual. The study period spans from 2002 to 2023. Due to the suspension of the Household Budget Survey data collection during the COVID-19 pandemic in 2020 and 2021, data for these years are unavailable. The correlation between the variables in the left panel is –0.664 (significant at p=0.01), while in the right panel, it is –0.506 (significant at p=0.05).

expectation aligns with the empirical trends observed in our data. Following the economic contraction in 2020, Turkey's economy experienced a notable recovery, with gross domestic product (GDP) growth rates reaching 11.4 percent in 2021, 5.5 percent in 2022, and 5.1 percent in 2023.[13] This period of economic recovery corresponds with the countercyclical trend in wage inequality, as illustrated in Figure 1 and Figure B.2. During this phase, all our measured indicators of inequality reached their lowest recorded levels. Concurrently, the fraction of individuals earning at or below 105 percent of the minimum wage peaked at 44 percent in 2023. It is noteworthy, however, that a slight increase in these inequality measures was observed in 2023. Over the entirety of our analysis period, the contemporaneous correlation between the Gini coefficient and GDP growth is –0.60, a figure that is statistically significant at the 0.01 level.

Our analysis indicates a notable change in educational attainment within the Turkish labor market. As shown in Figure 3, the proportion of individuals with at least a university degree more than doubled from 2004 to 2023. This trend corresponds with national statistics in Figure B.17, which show a significant increase in tertiary education completion, rising from 9 percent to 25 percent of the adult population during the same period. Figure B.18 shows a similar pattern for upper secondary education completion rates over the same timeframe.

To evaluate the impact of this changing educational landscape, we compare wage trajectories relative to the minimum wage for university graduates. Figure 3 reveals a significant trend: a decline in the relative earnings of individuals with tertiary degrees. These individuals experienced a decrease in wages relative to the minimum

[13] Data are obtained from the World Bank (n.d.).

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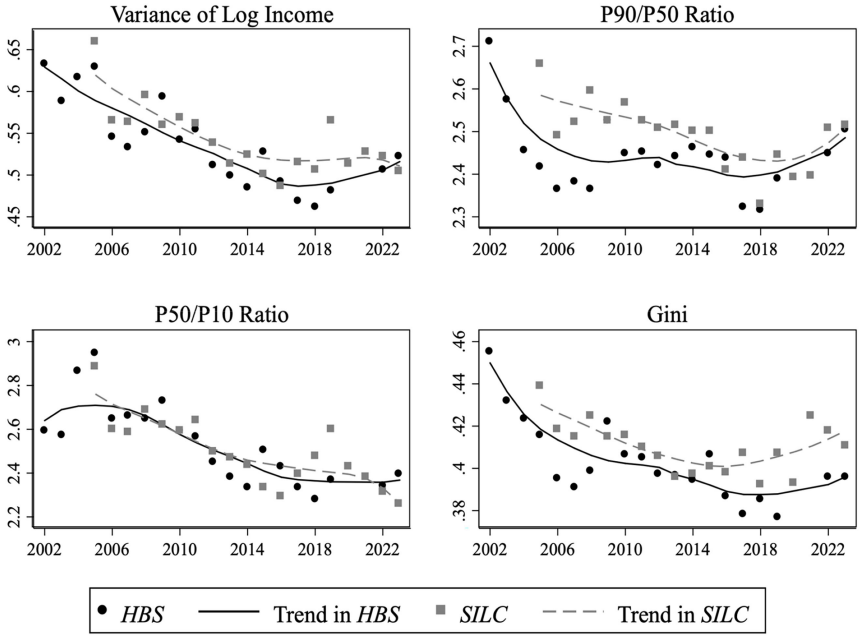

Figure 4. Inequality in equivalent disposable income.

Notes: This figure illustrates the evolution of equivalent disposable income inequality. Results are reported using the Household Budget Survey (HBS) and Survey of Income and Living Conditions (SILC) data sets. Black solid lines with circles denote results from the HBS, while gray dashed lines with squares represent SILC data. Smoothed lines are derived using local polynomial regression to identify trends. The unit of observation is the household, with income series equalized using the OECD equivalence scale. The analysis period covers 2002–2023 for the HBS and 2005–2023 for the SILC. Due to the suspension of HBS data collection during the COVID-19 pandemic in 2020 and 2021, estimates for these years are available only from the SILC.

wage following the significant increase in the minimum wage in 2016. This trend continues throughout the period of unconventional monetary policy, with HBS data indicating that the average earnings for a university graduate declined from 2.15 times the minimum wage in 2019 to 1.67 times in 2022, and further to 1.61 times in 2023.

Income inequality

Figure 4 presents the evolution of income inequality for four different measures using the HBS (2002–2023) and SILC (2005–2023) data sets.[14] The Figure indicates that overall income inequality decreased until the late 2010s and exhibited a slight upward trend in the most recent period. Specifically, the Gini coefficient, as measured in the HBS data set, declined from 0.45 in 2002 to 0.38 in 2019, then rose to 0.40 in 2022 and

[14] As discussed in the Data and key variables section, we utilize the household as our unit of observation for the income and consumption calculations, and we equivalize both series using the OECD equivalence scale.

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remained at that level in 2023. This pattern – decreasing inequality until the late 2010s, followed by a modest increase thereafter – is consistent with the trend observed in the variance of log income. Our findings regarding declining income inequality in the pre-2018 period, characterized by relative economic and political stability compared to the subsequent period of exchange rate volatility and unconventional policy responses, align with the results of Filiztekin (2015) and Tamkoç and Torul (2020). Moreover, our study extends the existing literature by documenting a modest rise in income inequality during the early 2020s.

While overall income dispersion decreased until the late 2010s and slightly increased thereafter, as evidenced by the variance of log income and the Gini coefficient, the trend and magnitude of changes differed between below-median and above-median income groups. During the pre-2018 period, the decline in the P50/P10 ratio was more pronounced than the decrease in the P90/P50 ratio. Specifically, as measured in the HBS data set, the P50/P10 ratio decreased from 2.95 in 2005 to 2.27 in 2018, while the P90/P50 ratio fluctuated between 2.53 and 2.32. This disparity suggests that the reduction in income inequality during the 2002–2018 period was predominantly driven by the contraction in the dispersion of income groups below the median.

Furthermore, these metrics responded differently to the unconventional economic policies implemented after 2018. The P90/P50 ratio increased, though to varying degrees, in both the HBS and SILC data sets, while the P50/P10 ratio remained relatively stable or even decreased slightly. Collectively, these findings indicate that the dispersion in the below-median income groups contracted more substantially than in the above-median income groups throughout the study period.

Although wage and income inequality exhibited similar trends before 2019, the rate and magnitude of change differed between them. Specifically, Figure 5 shows that the decline in income inequality is less pronounced than the decline in wage inequality throughout the period in both the HBS and SILC data sets. Moreover, we observe an upward trend in income inequality in the most recent period, while wage inequality exhibits no such increase. Figure 5 also indicates that, while income inequality was historically lower than wage inequality, it surpassed wage inequality in the most recent period.

Several factors may contribute to this disparity between wage and income inequality estimates. It is important to note that our unit of analysis differs between wage and income inequality: we use individuals for wage inequality and households for income inequality. One potential explanation, therefore, relates to the equivalization method used in adjusting household income inequality.[15] To examine the effect of household formation on income inequality, we replicate the analysis using raw household incomes instead of equivalized incomes. Figure B.6 reveals that

[15] If changes in household sizes were not uniform across different income groups, this could account for the discrepancy with wage inequality estimates. For instance, assuming constant household incomes, if low-income groups experienced a greater relative decline in household size compared to high-income groups, the same income would be distributed among fewer individuals in low-income households, increasing equivalent household income and resulting in reduced inequality. However, Figure B.5 indicates that household sizes across different income groups declined in similar proportions, suggesting that changes in household composition did not significantly contribute to the observed disparity between wage and income inequality trends.

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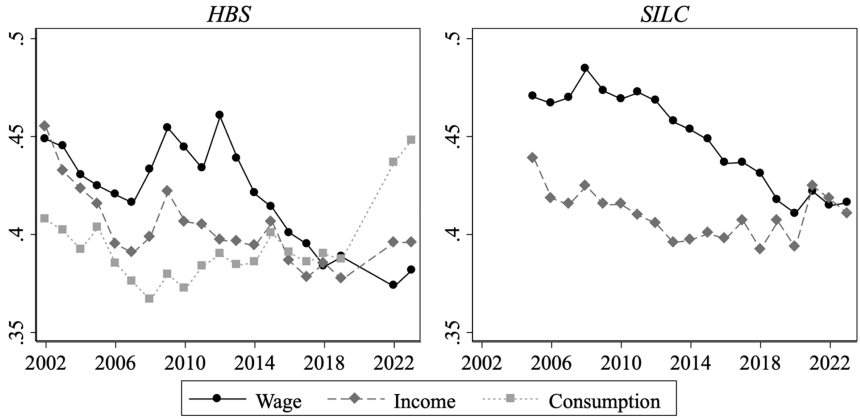

Figure 5. Gini coefficients for wage, income, and consumption.

Notes: This figure illustrates the evolution of wage, income, and consumption inequality. Gini coefficient results are reported using the Household Budget Survey (HBS) and Survey of Income and Living Conditions (SILC) data sets. The left panel shows the evolution of wage, income, and consumption inequality estimated from the HBS data. The right panel depicts the evolution of wage and income inequality derived from the SILC data, as consumption information is unavailable in this survey. The analysis period covers 2002–2023 for the HBS and 2005–2023 for the SILC. Due to the suspension of HBS data collection during the COVID-19 pandemic in 2020 and 2021, estimates for these years are available only from the SILC.

the trend in raw household income inequality remains consistent with that found in equivalent disposable income inequality, with a decline until the late 2010s, followed by an increase in the recent period. Therefore, this analysis suggests that changes in household size across different income groups did not impact the observed trend in income inequality using equivalized incomes.

Another potential factor contributing to the disparity between wage and income inequality trends could be the increase or stagnation in inequality within non-labor income components, such as capital income and transfer payments, which are excluded from wage calculations. Rising inequality in these components may offset the decline in labor income inequality, potentially leading to an increase in total income inequality, depending on the relative magnitudes of change.

To investigate this disparity, we calculate Gini coefficients separately for labor income, capital income, entrepreneurial income, and transfer payments, and plot the results in Figure B.10.[16] Consistent with wage inequality trends, Figure B.10 confirms the downward trend in labor income inequality. However, it also reveals no decline, and potentially even an increase, in capital and entrepreneurial income inequality, particularly pronounced in the SILC data set. Specifically, according to the HBS (SILC) data set, the Gini coefficient for capital income increased from 0.89 (0.83) in 2005 to 0.93 (0.88) in 2023, while that for entrepreneurial income changed from 0.92 (0.85) to 0.94 (0.92). Overall, these findings indicate that despite decreasing labor income

[16] For this analysis, households reporting no income were assigned a value of 0 and included in the Gini coefficient calculations.

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inequality, the relatively slow reduction in income inequality until the late 2010s and the subsequent upward trend in the most recent period, compared to wage inequality, are largely attributable to rising, or at best constant, inequality in capital and entrepreneurial income. The measurement of these non-labor income components, particularly at the top end, is often complicated by the "missing rich" phenomenon in household surveys, where affluent households may be underrepresented or may underreport such incomes (Lustig 2020).

To further explore whether the increasing inequality in capital and entrepreneurial income results from an increase in the share of households without such income (extensive margin) or increasing dispersion among households with non-zero capital and entrepreneurial income (intensive margin), we analyze the share of households without these income components (Figure B.11) and the Gini coefficient for households with positive capital and entrepreneurial income (Figure B.12).

Our analysis provides stronger evidence for the extensive margin hypothesis, particularly in the HBS data set. First, Figure B.11 shows an increase in the share of households with zero capital and entrepreneurial income over time. Specifically, the proportion of households with zero capital income increased from 0.70 in 2002 to 0.79 in 2023, while those with zero entrepreneurial income rose from 0.80 to 0.85 during the same period. On the other hand, Figure B.12 indicates no distinct trend in the Gini coefficient for households with non-zero capital and entrepreneurial income.

However, results from the SILC data set provide evidence for both extensive and intensive margin hypotheses. Figure B.11 reveals that the share of households with zero capital income increased from 0.49 in 2005 to 0.61 in 2023, and those with zero entrepreneurial income rose from 0.63 to 0.79. Additionally, the Gini coefficient for these income components showed an upward trend in Figure B.12, particularly in the latter half of the analyzed period. This difference may also partially explain the divergence in income inequality trends at the end of the study period between the HBS and SILC data sets observed in Figure 4.[17]

Consumption inequality

Figure 6 illustrates the evolution of inequality in total consumption – the sum of durable and non-durable consumption – from 2002 to 2023, using various inequality measures.[18] Each panel in Figure 6 depicts a U-shaped pattern in the evolution of consumption inequality. The overall dispersion of consumption, as measured by the variance of log consumption and the Gini coefficient, declined until the Great Recession in 2008, remained relatively stable throughout the 2010s, and increased sharply in 2022 and 2023.

[17] The discrepancy between estimates from the HBS and SILC data sets is notable, particularly for capital and entrepreneurial income. We caution future researchers using the SILC data set, as it appears to underreport low-income groups in recent surveys. For example, SILC data indicate that only 25 percent of workers in Turkey earned less than 105 percent of the minimum wage in 2023, with no significant increase over time. This seems highly unlikely given Turkey's labor market conditions. In contrast, the HBS data set shows this figure to be approximately 45 percent. Therefore, researchers should be cautious when using SILC data, especially for analyses focused on lower-income groups.

[18] This analysis utilizes only the HBS data set due to the absence of consumption data in the SILC. Data for 2020 and 2021 are unavailable, precluding analysis for those years.

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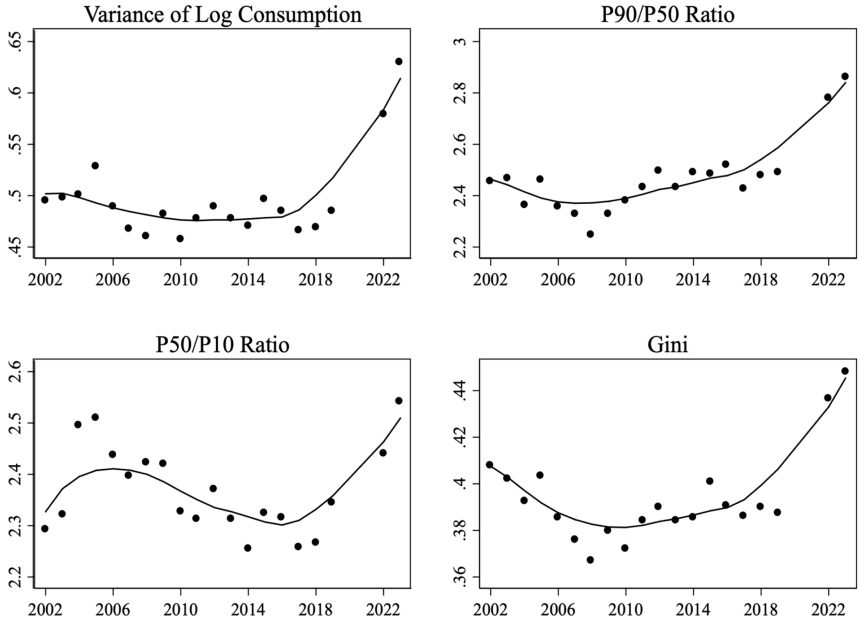

Figure 6. Consumption inequality.

Notes: This figure illustrates the evolution of consumption inequality. Results are reported using the Household Budget Survey (HBS) data set. Smoothed lines are derived using local polynomial regression to identify trends. The unit of observation is the household, with consumption series equalized using the OECD equivalence scale. The study period spans from 2002 to 2023. Due to the suspension of HBS data collection during the COVID-19 pandemic in 2020 and 2021, estimates for these years are unavailable.

The increase in consumption inequality after 2019 is particularly notable, with the Gini coefficient rising from 0.38 in 2019 to 0.45 in 2023 and the variance of log consumption increasing from 0.48 in 2019 to 0.63 in 2023. This increase is so pronounced that consumption inequality significantly surpassed income inequality in the same year, with the variance of log income at 0.52 and the Gini coefficient for income at 0.40. This finding suggests that Turkey's economic challenges since 2018 have had a more substantial impact on the distribution of consumption than on income distribution.

While the variance of log consumption and the Gini coefficient identify overall trends, they do not reveal details about the specific segments of the population where the distribution contracted or expanded. The P90/P50 and P50/P10 ratios provide additional insights into the general trends outlined above. Figure 6 suggests that variations in consumption inequality among above-median income groups are the primary determinant of overall consumption inequality trends, as fluctuations in consumption inequality within below-median income groups were comparatively modest throughout the period under study.

Regarding the sharp increase from 2019 to 2022, the results indicate that a significant proportion of the rise can be attributed to increased consumption dispersion among the above-median income groups. Specifically, the P90/P50 ratio

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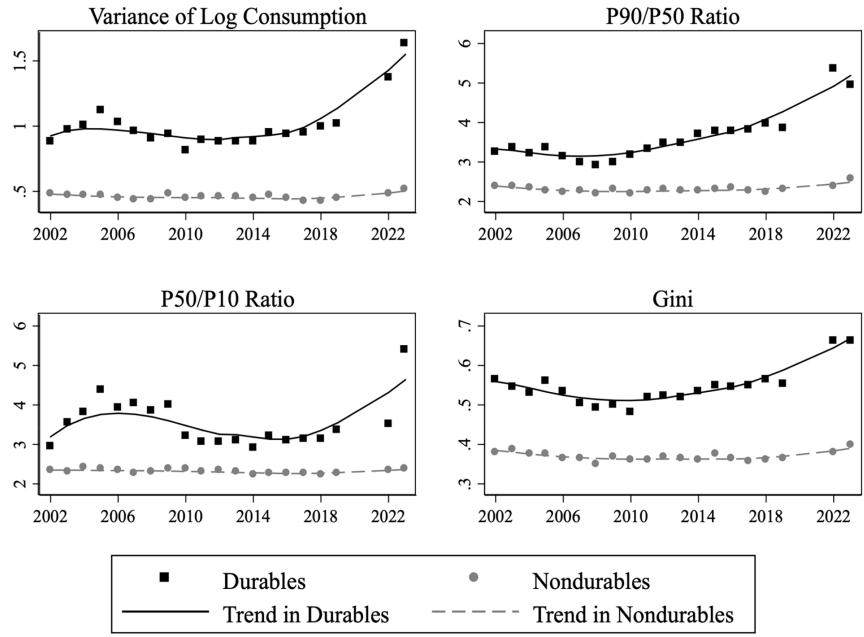

Figure 7. Durable and non-durable consumption inequality.

Notes: This figure illustrates the evolution of durable and non-durable consumption inequality. Results are reported using the Household Budget Survey (HBS) data set. Black solid lines with squares denote durable consumption inequality, while gray dashed lines with circles show non-durable consumption inequality. Smoothed lines are derived using local polynomial regression to identify trends. The unit of observation is the household, with consumption series equalized using the OECD equivalence scale. The study period spans from 2002 to 2023. Due to the suspension of HBS data collection during the COVID-19 pandemic in 2020 and 2021, estimates for these years are unavailable.

increased from 2.49 to 2.78, while the increase in the P50/P10 ratio was comparatively modest, rising from 2.34 to 2.44. Similarly, the initial decrease in consumption inequality until 2008 appears to have been primarily driven by a narrowing dispersion in consumption among above-median income groups, with the P90/P50 ratio decreasing from approximately 2.50 to 2.20. During the 2010s, although the P90/P50 ratio exceeded the P50/P10 ratio, both remained relatively stable.[19]

Given the unusually sharp increase in consumption inequality during the most recent period, we investigate potential drivers of this trend. A useful approach is breaking down consumption inequality into durable and non-durable components. Figure 7 illustrates the separate evolution of inequality in durable and non-durable consumption across households. We observe a divergence between durable and non-durable consumption inequality trends in 2022, as reflected in the variance of log consumption, the P90/P50 ratio, and the Gini coefficient. Specifically, while durable

[19] The increase in the P50/P10 ratio from 2022 to 2023 further contributed to the overall rise in consumption dispersion, resulting in the variance of log consumption reaching its peak in 2023.

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consumption inequality increased substantially, changes in non-durable consumption inequality remained relatively limited. For durable consumption, the Gini coefficient rose from approximately 0.50 to 0.66, and the variance of log consumption increased from about 1 to 1.37.[20]

A plausible explanation for this disparity between durable and non-durable consumption is that households with access to funds or borrowing capacity may have sought to hedge against high inflation in Turkey by reverting postponed consumption and investing in durable goods. To test this hypothesis, Figure B.15 illustrates the share of durable consumption in total consumption for each income decile. Overall, Figure B.15 indicates that the inflationary environment after 2021 could have driven up consumption inequality by heterogeneously impacting household consumption patterns with respect to income levels. As for the spike in consumption inequality in durable goods in 2022, the figure provides suggestive evidence that economic instability and unanchored inflation expectations led households in the top income decile to increase their purchases of durable goods as protection against inflation, which resulted in a greater concentration of durable goods consumption among high-income households during the period of rising inflationary pressure. In particular, the share of durable consumption in total consumption for the top decile rose from 0.42 in 2019 to 0.52 in 2022. In contrast, lower-income groups, facing financial constraints, experienced a decline in the share of durable goods expenditures over the same period. For example, this share for the lowest income decile decreased from 0.28 to 0.24.[21]

An intriguing phenomenon emerging from our income and consumption inequality estimates is that consumption inequality significantly exceeded income inequality in 2022 and 2023. Figure 5 shows that this trend began in 2016, but by 2023, the Gini coefficient for consumption reached 0.45, while that for income was 0.40. In line with our findings, Attanasio and Pistaferri (2016), in their survey paper, point out a shift in the empirical literature over time: earlier evidence suggested smaller changes in consumption inequality compared to income inequality, but recent studies employing more refined methodologies and data indicate similar changes between the two. Our study contributes to this literature by providing evidence that consumption inequality not only tracks income inequality but may, somewhat unexpectedly, exceed it.

To account for the discrepancy between our income and consumption inequality estimates, we employ a methodology used by Meyer and Sullivan (2013). In Figure 8, we plot the real change in income and consumption across various percentiles. In contrast to their findings, our results indicate that lower percentiles experienced higher income growth and lower consumption growth compared to upper percentiles. This finding is consistent with our evidence of decreased income

[20] The P50/P10 ratio stands out in particular, as it rose with a slight lag in 2023, coinciding with the presidential election year when the government relied heavily on expansionary fiscal and monetary policies. This delayed response aligns with the easing of borrowing constraints for the median earner.

[21] Further analysis in Figure B.14 provides extra evidence of the widening gap between the top decile and other groups. While the top decile accounted for 38 percent of total durable consumption in 2019, this proportion increased to 51 percent in 2022. This rise is particularly notable given that this ratio did not exceed 0.41 throughout the 2002–2019 period.

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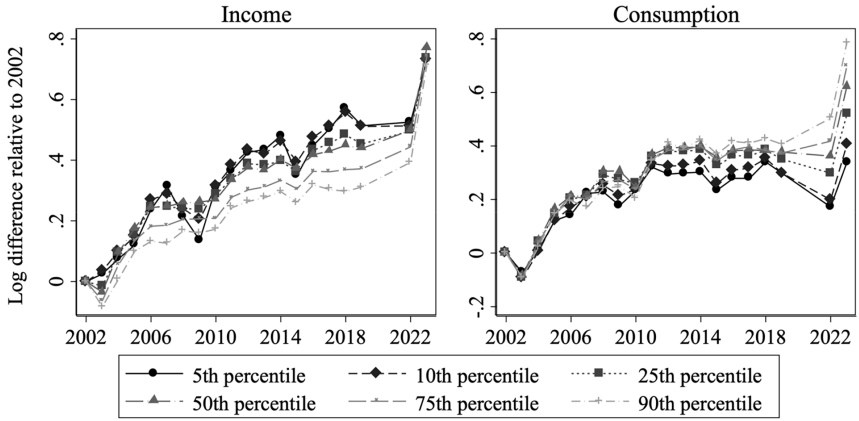

Figure 8. Real changes in income and consumption at various percentiles.
Notes: This figure illustrates the real changes in income and consumption across different percentiles relative to 2002 levels. Results are reported using the Household Budget Survey (HBS) data set. The study period spans from 2002 to 2023. Due to the suspension of HBS data collection during the COVID-19 pandemic in 2020 and 2021, estimates for these years are unavailable.

inequality and increased consumption inequality. The dispersion in consumption changes in 2022 is particularly striking, with the growth difference between the 5th and 90th percentiles reaching 33 percentage points, compared to a maximum difference of 15 percentage points before 2020. Overall, we observe a marked contrast in consumption growth between the top and bottom income groups, while changes around the median remained relatively stable.[22]

To further investigate the divergent trends in income and consumption inequality towards the end of the analyzed period, Figure B.16 illustrates the change in the ratio of consumption to income across various percentiles. Consistent with our previous findings, Figure B.16 reveals that while wealthier households maintained a similar proportion of income allocated to consumption throughout the period, poorer households experienced a reduction in their consumption-to-income ratio, with the most substantial drop occurring in 2022. The 90th percentile saw an increase of 10 percent, while the 5th percentile experienced a decrease of 40 percent during this period.

Attanasio and Pistaferri (2016) suggest that various financial instruments, such as savings, insurance, and credit, can be utilized to reallocate resources across time and states of nature, and their availability may explain differences between consumption and income inequality. In our context, several factors may be at work. First, in the face of economic crisis and its poor management, lower-income households – more

[22] Surprisingly, Figure 8 also reveals a substantial real increase in both consumption and income across all deciles in 2023. Some genuine gains may have occurred, particularly due to the significant wage increases introduced by the government in response to the presidential and parliamentary elections held that year. However, this finding should be interpreted with caution. It is also likely that the substantial increase in 2023 is largely driven by the underreporting of inflation by the Turkish Statistical Institute, which artificially inflated real variables.

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vulnerable to adverse conditions – may anticipate prolonged economic hardship, thus leading to increased precautionary savings. Second, households in lower percentiles may face relatively more severe difficulties in accessing credit to finance consumption compared to wealthier households.

Conclusion

Our comprehensive analysis of inequality dynamics in Turkey from 2002 to 2023 uncovers three empirically robust yet counterintuitive patterns that challenge conventional expectations about the distributional consequences of macroeconomic turbulence. First, wage inequality declined steadily throughout the period, coinciding with sustained increases in the minimum wage and a rising relative supply of skilled labor. Second, while income inequality initially mirrored this downward trend, it reversed in recent years as disparities in capital and entrepreneurial income widened. Third, and most strikingly, consumption inequality surged during the most recent period – outpacing income inequality – driven largely by a sharp rise in durable goods consumption among top-decile households, even as lower-income households curtailed such expenditures. This decoupling between income and consumption inequality highlights asymmetric household exposure to inflationary shocks, with affluent households better positioned to preserve or even expand consumption, likely through better access to credit markets and liquid asset buffers.

These findings shed new light on the distributional channels through which unorthodox macroeconomic policies operate in emerging market economies. The observed trends are consistent with theoretical expectations: aggressive minimum wage hikes compress wage distributions, while unconventional monetary tools – such as negative real interest rates and FX-protected deposit schemes – create uneven access to inflation hedges. The decline in the college wage premium marks a notable structural transformation that may weaken incentives for higher education and human capital investment. Meanwhile, the escalation of consumption inequality appears to reflect a "front-loaded consumption behavior" among wealthier households, who are anticipating continued inflation and depreciation, a phenomenon enabled by their superior financial positioning. The FX-protected KKM scheme may have unintentionally amplified these dynamics by offering implicit government guarantees that are predominantly accessible to high-income savers, thereby subsidizing wealth preservation for the already well-positioned.

Beyond Turkey's specific institutional context, our findings contribute to the broader literature on heterodox policies in emerging markets by highlighting their complex and multi-dimensional distributional consequences. They challenge binary classifications of such policies as inherently progressive or regressive. In particular, the divergence across wage, income, and consumption inequality trajectories highlights the importance of adopting a multi-dimensional lens in inequality analysis; relying on single metrics may obscure critical aspects of distributive change. For policymakers navigating macroeconomic instability in similar contexts, our results emphasize the need for systematic distributional impact assessments alongside aggregate policy evaluations. Turkey's experience illustrates that while heterodox measures may achieve certain macroeconomic stabilization goals, their distributive effects can be both substantial and unintended.

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While our descriptive approach provides a rich empirical account of inequality under macroeconomic stress, causal inference is limited by data constraints. Future research should prioritize isolating causal mechanisms underlying these trends through quasi-experimental approaches or natural experiments. In particular, expanding access to long-term household-level panel data would enable more rigorous examination of consumption smoothing and portfolio reallocation strategies during inflationary episodes, while firm-level data could reveal how unconventional monetary policy affects employment and wage-setting across the skill spectrum. Comparative analysis with other emerging economies that implemented similar policies would further enhance the external validity and policy relevance of our findings. Building on the descriptive foundation established here, future research can provide more precise guidance for designing policy responses that balance macroeconomic stabilization objectives with distributional equity considerations.

Data statement. The data sets we use for our analyses (Survey of Income and Living Conditions and Household Budget Survey) were confidentially acquired from the Turkish Statistical Institute and cannot be made publicly available. The replication files that use these data sets are available from the corresponding author upon request.

Supplementary material. To view supplementary material for this article, please visit https://doi.org/10.1017/npt.2025.10050

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