Unequal Outcomes in Unequal Times: Distributional Consequences of Turkey's Unorthodox Policies

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Introduction

- Turkey's economy underwent a significant transformation recently
  - Exchange rate crisis in 2018
    - Turkish Lira depreciated by over 30% against USD in August 2018
  - Economic setbacks due to the COVID-19 pandemic
    - GDP growth rate only 0.8% in 2019 and 1.9% in 2020
  - *Unconventional* monetary and fiscal policy
    - Central Bank policy rate slashed (from 19% in August 2021 to 8.5% in March 2023) *after* COVID-19 pandemic
    - Introduction of FX-Protected Deposits (KKM) in December 2021
    - Rent increase caps (of 25%) despite high inflation
    - Minimum wage kept increasing rapidly
- This *natural experiment* is likely to have significant aggregate and distributional implications
  - *Distributional* consequences remain largely unexplored

Key Research Questions

- How did wage, income, and consumption inequalities evolve in Turkey between 2002 and 2023?
  - Have there been significant shifts in inequality trends since 2018?
- Are there contrasting patterns in inequality trends?
  - If so, what factors contributed to these disparities?
- How have recent unorthodox economic policies impacted different segments of the population?
  - Which segments of the population have gained or lost the most due to these policies?

Main Findings

- *Wage inequality* steadily declined from 2002 to 2023, despite periods of economic turbulence.
  - Largely driven by significant minimum wage hikes and wage compression
  - Return to education diminished, plausibly due to record-high university graduation
- *Income inequality* decreased until late 2010s but has risen in recent years
  - Due to rising inequality in non-labor income components (i.e., capital and entrepreneurial income) that diverged from wage inequality trends
- *Consumption inequality* surged recently, significantly exceeding income inequality for the first time
  - Mostly driven by expanded durable goods consumption among the top-income decile

Review of Related Literature

- *Wage, Income, and Consumption Inequality:*
  - Tamkoç and Torul (2020): Wage, income, and consumption inequality trends in Turkey from 2002–2016, showing high inequality with a downward trend
  - Torul and Öztunalı (2018): High income and wealth inequality in Turkey compared to OECD countries
  - Filiztekin (2015, 2020): Income inequality trends, noting consistent disparities
- *Macroeconomic and Structural Factors Influencing Inequality:*
  - Ekşi and Kırdar (2015); Bakış and Polat (2023): Minimum wage hikes' compressing impact on wage inequality
  - Aktuğ et al. (2021), Aydemir and Yazıcı (2019), Öztunalı and Torul (2022),Demirtaş and Torul (2024): Heterogeneity in labor income, gender disparities, and intergenerational mobility
  - Bilgiç and Stoeffler (2025); Gemicioğlu et al. (2024); Tekgüç and Eryar (2025): Post-Covid 19 developments

Our Contribution

- The first comprehensive analysis of post-2018 economic inequalities in Turkey
- Simultaneous examination of wage, income, and consumption patterns
- Offers insights into distributional impacts of unorthodox macroeconomic policies, with potential implications for other emerging markets

Data Sources and Methodology

Turkish Statistical Institute's (*TurkStat*) micro datasets:

- Household Budget Survey (*HBS*):
  - Coverage: 2002–2023, excluding 2020–21 due to COVID-19 disruptions
  - Sample size: $\sim$ 12,000 households annually
  - Detailed consumption and income data
- Survey of Income and Living Conditions (*SILC*):
  - Coverage: 2005-2023
  - Sample size: $\sim$ 20,000 households annually
  - EU-harmonized methodology
  - Granular income data

Descriptive Statistics ▷

Variable Definitions

- Nominal variables → Real variables via Turkish CPI
- Concentrate only on working-age individuals (25-60) who work at least 30 hours a week & whose annual earnings are above 174 Turkish liras (in *2002*) in our estimations using earnings (Krueger et al., 2010; Tamkoç and Torul, 2020)
- *Annual earnings* calculated as follows:

$$ae_{i,t} = nw_{i,t} + rw_{i,t} + \alpha_t^{TR}(nse_{i,t} + rse_{i,t})$$

$ae_{i,t}$: annual earnings; $nw_{i,t}$ and $rw_{i,t}$: annual cash and other real payments; α_t^{TR}: share of labor income in national income at the year of observation; $nse_{i,t}$ and $rse_{i,t}$: the cash and other real incomes from self-employment

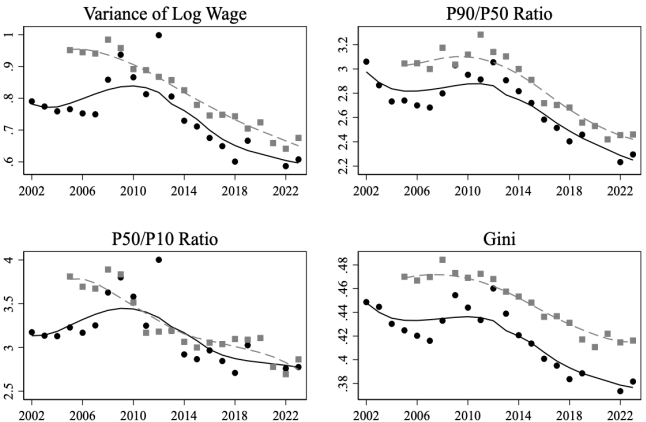
- *Hourly wage rate* calculated as follows:

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

$ah_{i,t}$: annual hours worked

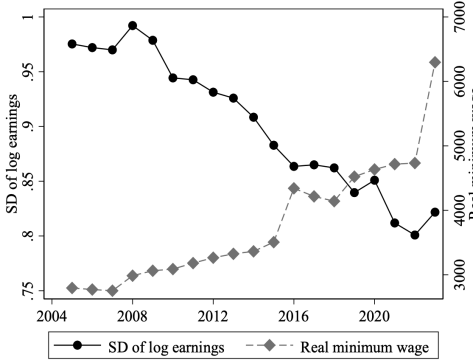
- *Equivalized household income and consumption* via the modified *OECD* equivalence scale

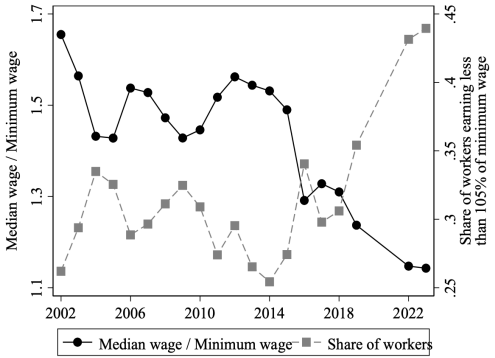
Wage Inequality



† *Notes*: 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 *HBS* and 2005-2023 for *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 *SILC*.

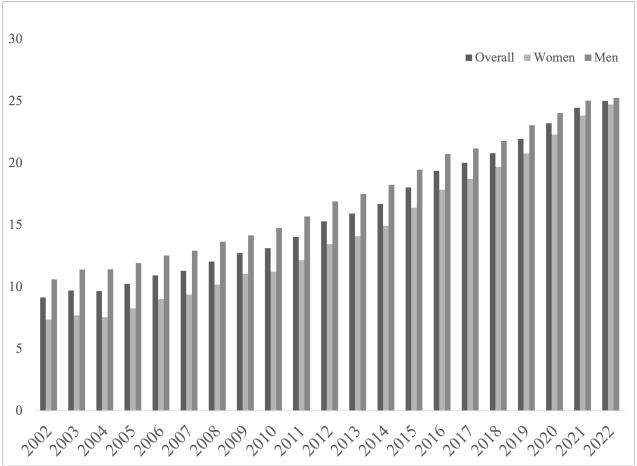
Minimum Wage & Wage Inequality





Notes: The left panel displays the evolution of wage inequality and the real minimum wage (in constant 2002 TL). Data is derived from *SILC* for wage-related calculations. The correlation between the variables is -0.896 (significant at p =1%). The right panel displays the convergence of wages to the monthly minimum wage for the general public in Turkey. The black line represents the ratio of median wage to minimum wage, and the gray line shows the share of the population earning less than 105% of the minimum wage. The unit of observation is individual. Due to the suspension of the *HBS* data collection during the COVID-19 pandemic in 2020 and 2021, they are unavailable. The correlation between the variables is -0.873 (significant at p =1%).

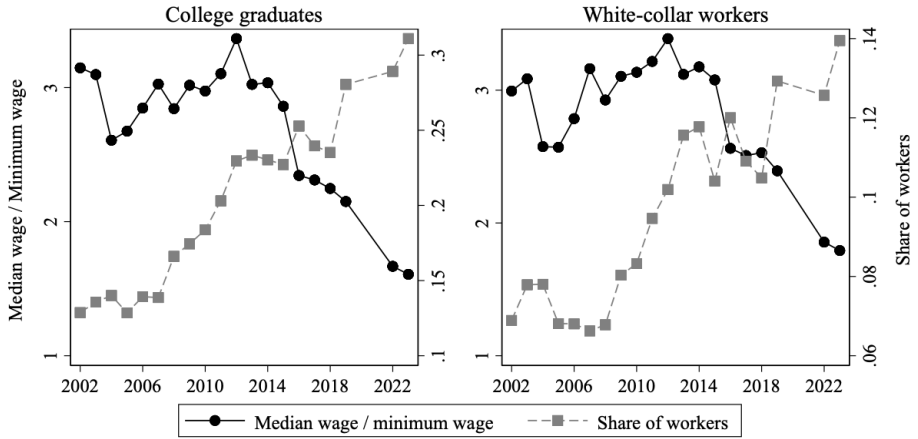
Tertiary Education (% of 25-64 Year-Old Population) by Year



†*Source*: OECD Education Database. The estimates for 2020 are interpolated linearly using the neighboring years.

Upper Secondary Education

University Graduation and Wages

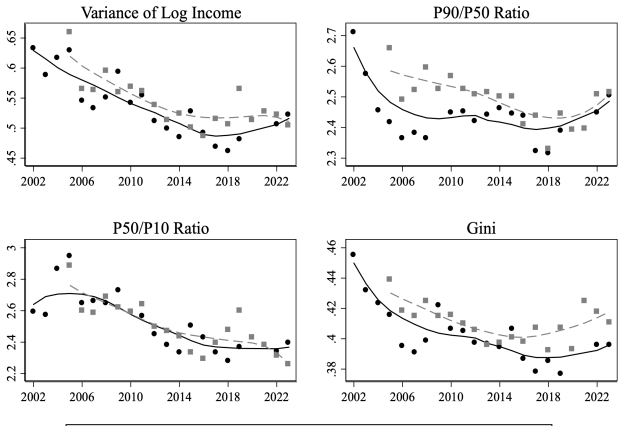


† *Notes*: This figure illustrates the evolution of wages compared to minimum wage using educational attainment and occupational breakdown. The unit of observation is individual. Due to the suspension of the *HBS* data collection during the COVID-19 pandemic in 2020 and 2021, they are unavailable. The correlation between the variables in the first graph is -0.664 (significant at p =1%), while in the second graph, it is -0.506 (significant at p =5%).

Wage Inequality

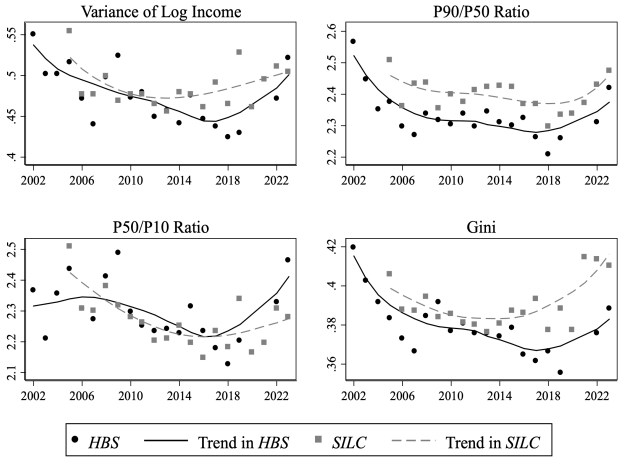
- Wage inequality steadily *declined* from 2002 to 2023
  - Gini coefficient for wages fell from 0.45 in 2002 to 0.38 in 2023
  - Variance of log wages declined by 25% over the same period
- Key Drivers:
  - Rapid minimum wage growth resulted in wage convergence around the minimum wage
    - Median-to-minimum wage ratio declined from 1.7 in 2002 to 1.1 in 2023
    - Share of workers earning less than 105% of minimum wage rose from 26% in 2002 to 44% in 2023
  - Share of individuals with a tertiary degree or above rose from 9% (of the overall adult population) in 2002 to 25% in 2022 (11% to 25% for males & 7% to 25% for females)
    - College premium fell by more than 20% since 2013
    - Median college graduate salary fell from 3 times to 1.5 times the minimum wage between 2002 & 2023
    - Median white-collar salary fell from 3 times to 1.9 times the minimum wage between 2002 & 2023

Income Inequality



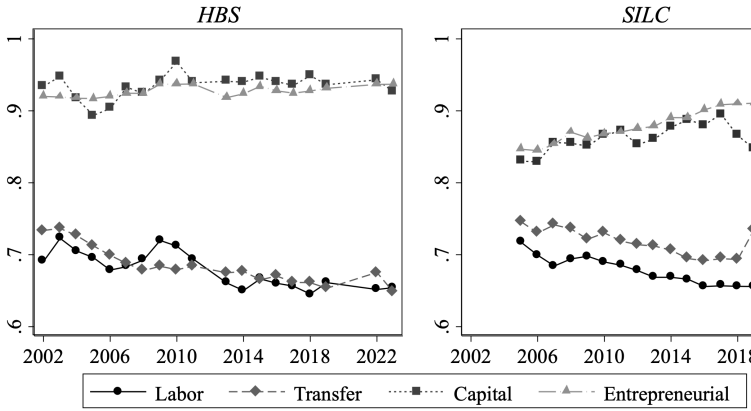
† *Notes*: Black solid lines with circles denote results from the *HBS*, while gray dashed lines with squares represent *SILC* data. Smoothed lines are derived using local polynomial regression to identify trends. The unit of observation is the household, with income series equalized using the *OECD* equivalence scale. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

Inequality in Raw Disposable Income



† *Notes*: 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. We do not equalize income series but instead use total household income. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*. Mean Household Size by Year ▷

Gini for Labor, Transfer, Capital, and Entrepreneurial Income



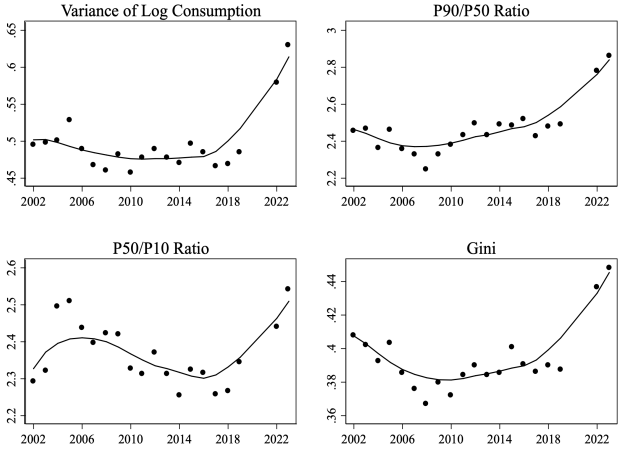
† *Notes*: This figure illustrates the evolution of labor, transfer, capital, and entrepreneurial income inequality. Gini coefficient results are reported using the *HBS* (left panel) and *SILC* (right panel) data sets. The unit of observation is the household, with income component series equalized using the *OECD* equivalence scale. For this analysis, we assigned a value of 0 to households that did not report any relevant income component. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

% of HH with 0 Income Comp. ▷ Gini for Positive-Income HH ▷

Income Inequality

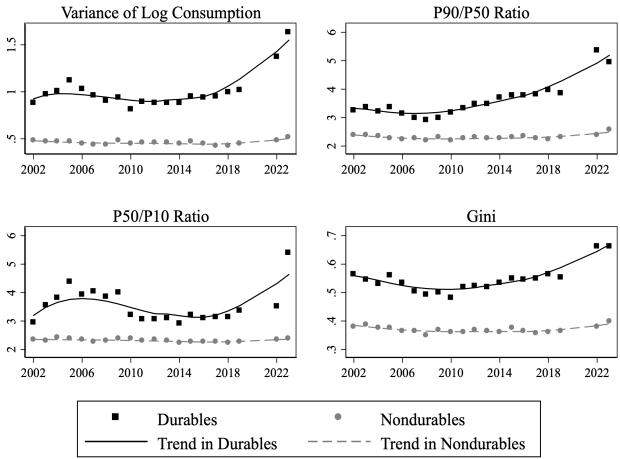
- Income inequality declined between 2002 and 2019 but increased thereafter
  - Gini for income fell from 0.44 in 2005 to 0.40 in 2019 but rose to 0.42 again in 2023
  - Variance of log incomes decreased by 21% until 2019 but rose by 11% between 2019 and 2023
- Disparities across the distribution:
  - Below-median inequality steadily decreased, especially after 2005 (`P50/P10`: 2.9 in 2005 to 2.3 in 2023)
  - Above-median inequality exhibited a U shape (`P90/P50`: 2.7 in 2005 to 2.3 in 2018 and 2.5 in 2023)
- Divergence from wage inequality:
  - Non-labor income inequality surged
    - Gini for capital income increased from 0.83 in 2005 to 0.91 in 2023
    - Gini for entrepreneurial income increased from 0.85 in 2005 to 0.93 in 2023
  - Income inequality *surpassed* wage inequality after 2022

Consumption Inequality



† *Notes*: Results are reported using the *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. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are unavailable.

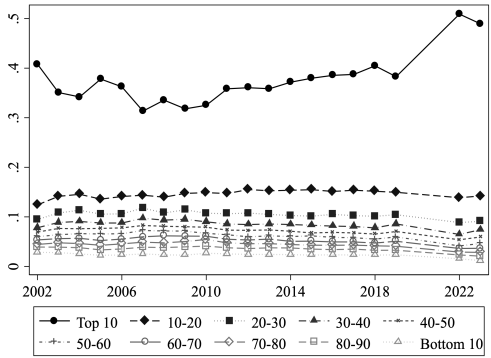
Durable vs Non-Durable Consumption Inequality



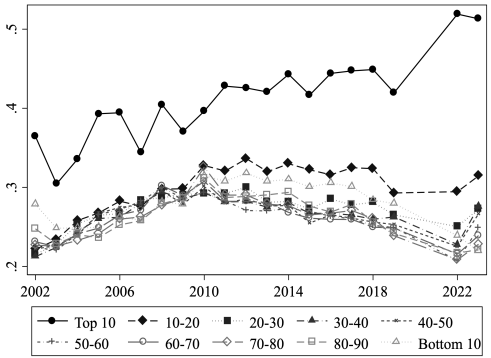
† *Notes*: Results are reported using the *HBS* data set. Black solid lines with squares denote durable consumption inequality, while gray dashed lines with circles show non-durable consumption inequality. Smoothed lines are derived using local polynomial regression to identify trends. The unit of observation is the household, with consumption series equalized using the *OECD* equivalence scale. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are unavailable.

Durable Consumption Inequality

Share of Deciles in Consumption



Share of Durables in Consumption



Notes: Results are reported using the *HBS* data set. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are unavailable.

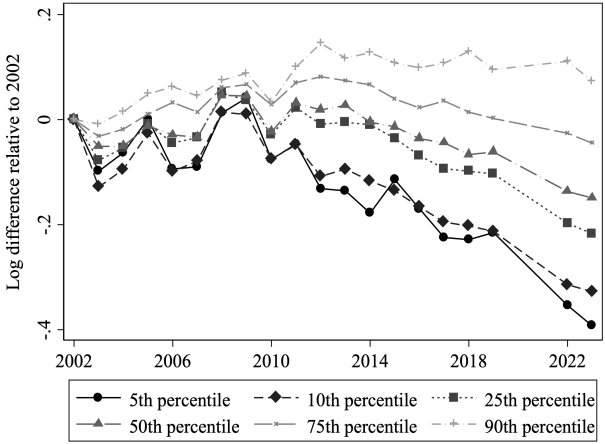
Share of Deciles in Total Consumption ▷

Consumption Inequality

- Consumption inequality followed a U-shaped trajectory between 2002 and 2023
  - Gini coefficient for consumption declined from 0.41 in 2002 to 0.36 in 2008 and then rose sharply, especially after 2019, peaking in 2023 and reaching 0.44 ▷
  - Variance of log consumption and P90/P50 skyrocketed after 2019, both increasing more than 30% between 2019 and 2023 ▷
- Durable and non-durable consumption inequality exhibited differences after 2019
  - Durable cons. inequality surged post-2019: Gini of 0.51 in 2019 & 0.65 in 2023 ▷
  - Non-durable cons. inequality stable: Gini of 0.36 in 2019 & 0.39 in 2023 ▷
- Top-income decile's durable consumption differed markedly from that of poorer ones
  - Top-income decile's share of durable goods rose from 38% in 2019 to 50% in 2023, whereas all other deciles's shares declined ▷
  - Top-income decile's share of durable consumption exceeded half of their consumption (from 42% in 2019 to 52% in 2023) while almost all other deciles experienced lower durable consumption shares in 2022 (and slightly higher shares in 2023) ▷

Real Income & Consumption by Year ▷ Income/Consumption Ratio by Year ▷

Changes in Consumption-to-Income Ratio



† *Notes*: This figure illustrates the changes in consumption-to-income ratio across different percentiles relative to 2002 levels. Results are reported using the *HBS* data set. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are unavailable.

Real Income & Consumption by Year Back

Conclusions

- **Summary of Findings**:
  - *Wage inequality* steadily declined (2002–2023), driven by minimum wage hikes and lower education premiums
  - *Income Inequality* declined until 2019 but reversed post-2018 due to rising capital and entrepreneurial income inequality
  - *Consumption Inequality* surged post-2019 mainly due to expanded durable goods of the top-income decile
- **Policy Implications**:
  - Moderation in wage inequality stems from compression around the minimum wage, which may not necessarily indicate a healthy economic development
  - Decreasing college premium and rising centrally-planned university admission quotas are at odds
  - The top income decile diverged sharply, highlighting the adverse effects of unorthodox policies under inflation
- **Future Research**:
  - Causal analysis of the impact of unorthodox policies on inequality trends
  - Comparative studies with other emerging markets implementing unconventional policies

Thank You!

Questions?

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Descriptive Statistics

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
											HBS												
Male	Share of Uni. Grad.	0.11	0.11	0.12	0.11	0.12	0.12	0.14	0.15	0.15	0.17	0.20	0.19	0.20	0.19	0.21	0.20	0.20	0.24			0.25	0.27
	Age	38.39	39.04	39.33	39.37	39.22	39.26	39.34	39.43	39.66	39.40	39.78	39.78	40.13	40.62	40.46	40.73	40.81	40.92			41.24	41.13
	LFPR	0.67	0.66	0.67	0.66	0.67	0.66	0.72	0.74	0.73	0.74	0.72	0.73	0.73	0.71	0.71	0.72	0.73	0.71			0.73	0.71
	Sample Size	6252	16312	5594	5652	5877	5708	5532	6287	6387	6497	6512	6604	6592	7276	7454	7566	7342	6724			7044	6305
Female	Share of Uni. Grad.	0.27	0.28	0.25	0.24	0.25	0.26	0.27	0.28	0.31	0.32	0.34	0.37	0.35	0.34	0.37	0.35	0.35	0.39			0.41	0.43
	Age	36.22	36.86	37.29	37.07	37.02	36.54	37.10	37.29	37.58	37.67	37.49	37.36	38.23	38.61	38.91	39.08	39.19	39.30			39.58	39.18
	LFPR	0.22	0.25	0.25	0.25	0.24	0.25	0.28	0.34	0.31	0.32	0.33	0.33	0.33	0.32	0.32	0.33	0.32	0.33			0.31	0.30
	Sample Size	858	2441	903	984	942	1098	1192	1457	1530	1703	1915	1836	1909	2179	2368	2346	2338	2363			2463	2319
											SILC												
Male	Share of Uni. Grad.				0.12	0.13	0.13	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.23	0.23	0.24	0.25	0.25	0.27	0.28	0.29	0.31
	Age				39.52	39.63	39.25	39.18	39.45	39.47	39.73	39.86	39.83	40.00	40.12	40.30	40.38	40.48	40.58	40.64	40.65	40.82	40.75
	LFPR				0.72	0.72	0.74	0.73	0.72	0.72	0.72	0.72	0.71	0.71	0.70	0.71	0.71	0.71	0.70	0.69	0.70	0.70	0.70
	Sample Size				6355	6547	6842	6860	6977	8817	10276	11590	13241	13094	13050	13019	13531	13629	13618	14107	14248	13351	13826
Female	Share of Uni. Grad.				0.28	0.27	0.29	0.33	0.36	0.36	0.35	0.36	0.37	0.39	0.42	0.42	0.40	0.41	0.43	0.47	0.48	0.49	0.51
	Age				37.46	37.17	36.88	37.01	37.19	37.66	37.71	37.83	38.18	37.97	38.25	38.53	38.95	38.98	38.75	38.81	38.97	38.94	38.97
	LFPR				0.28	0.28	0.28	0.29	0.29	0.28	0.29	0.29	0.28	0.28	0.29	0.28	0.29	0.29	0.27	0.28	0.29	0.29	0.29
	Sample Size				1212	1266	1389	1424	1556	1984	2481	2893	3360	3648	3853	3906	4214	4363	4217	4629	4874	4818	5313

† *Notes*: University rate, age, and sample size are calculated for the workforce, defined as individuals earning above half the 2002 real monthly minimum wage annually. Labor force participation rates (*LFPR*) are calculated using the full data sets. Ages are estimated by assigning the midpoint of each 5-year age interval.

Back

Inequality Measures

- Variance of the natural logarithm:

$$\text{Var}\left[\log(y_t)\right] = \frac{1}{n}\sum_{i=1}^{n}\left\{\left[\log(y_{i,t}) - \mu_t\right]^2\right\} \tag{1}$$

where $y_{i,t}$ denotes wage, income, or consumption in year t, i denotes individual index, μ_t denotes the mean value of the natural logarithm of the variable of interest, and n denotes the number of observations

- Percentile ratios (`P90/P50` & `P50/P10`): After sorting wage, income, and consumption variables in ascending order, we construct `P90/P50` ratio by dividing the `90th` percentile's value by that of the median and the `P50/P10` ratios by dividing the median's value to that of the `10th` percentile.
- Gini Coefficient: the mean of the absolute difference between every possible pair of individuals in a sample of n individuals, divided by the mean of the variable of interest, μ_t:

$$\text{Gini Coefficient} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n}|y_{i,t} - y_{j,t}|}{2n^2\mu_t}$$

  where $y_{i,t}$ and $y_{j,t}$ denote wage, income or consumption levels of individuals i and j with $i \neq j$.
- These four inequality measures capture different distribution aspects and possess distinct properties (e.g., scale invariance, transfer principle adherence). The choice of a specific measure depends on the research question and the desired emphasis within the distribution (Haughton and Khandker, 2009)

Wage Premium Calculations

Following *RED* guidelines, we define *gender premium* as the average male wage divided by the average female wage:

$$\text{Gender Premium}_t = \frac{\overline{w_t^m}}{\overline{w_t^f}}$$

where $\overline{w_t^m}$ and $\overline{w_t^f}$ denote the respective average wages of males and females. We calculate college (education) premium as the ratio of average wages between college-educated and high school-educated males:

$$\text{Education (College) Premium}_t = \frac{\overline{w_t^c}}{\overline{w_t^h}}$$

We also calculate the high school premium as the wage ratio of those with a high school diploma to those with only a secondary school education:

$$\text{High School Premium}_t = \frac{\overline{w_t^h}}{\overline{w_t^s}}$$

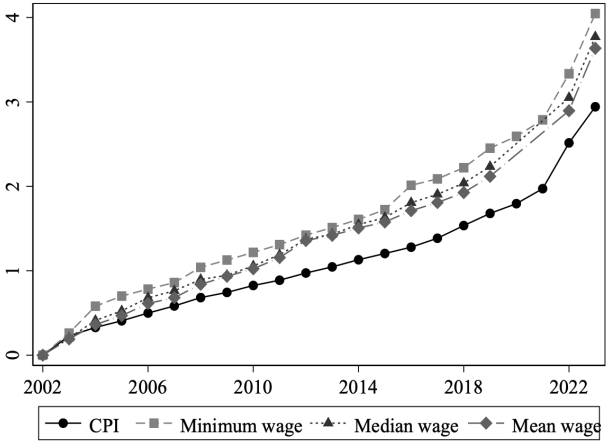
where $\overline{w_t^s}$ denotes the average wage of secondary school-educated males. We calculate *experience premium* as the average wage of older men (45-55) divided by the average wage of younger men (25-35):

$$\text{Experience Premium}_t = \frac{\overline{w_t^o}}{\overline{w_t^y}}$$

where $\overline{w_t^o}$ and $\overline{w_t^y}$ denote the average respective wages of males aged 45-54 and aged 25-35.

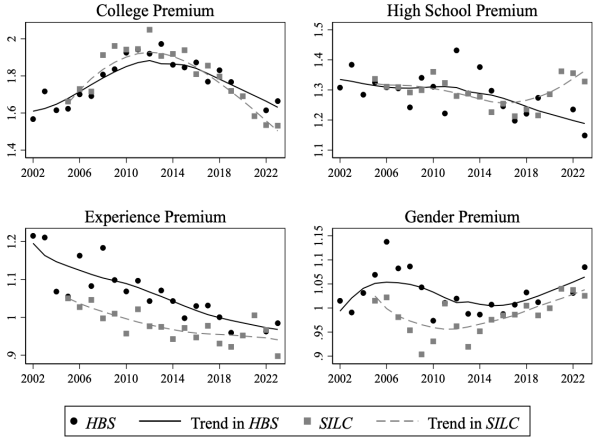
Growth Rate of Incomes

Figure: Log Value of Normalized *CPI*, Minimum, Median, and Mean Wage



† *Notes*: This figure illustrates the difference in the growth of wages and inflation in Turkey. Data is derived from *HBS* for wage-related calculations, and due to the suspension of the *HBS* data collection during the COVID-19 pandemic in 2020 and 2021, they are unavailable. The data series are normalized, with 2002 set as the base year (zero value).

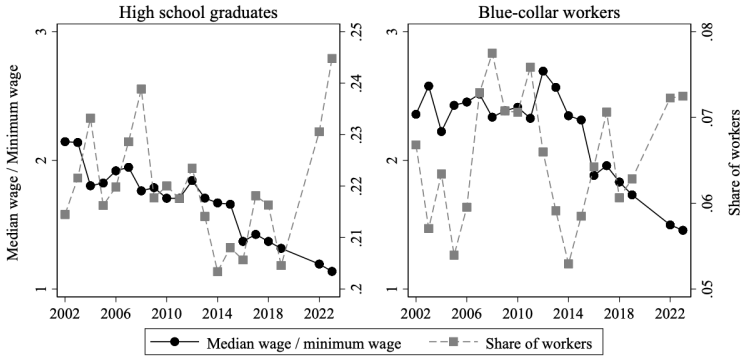
Wage Premiums



† *Notes*: Results are reported using the *HBS* and *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 individual. Due to the suspension of the *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from the *SILC*.

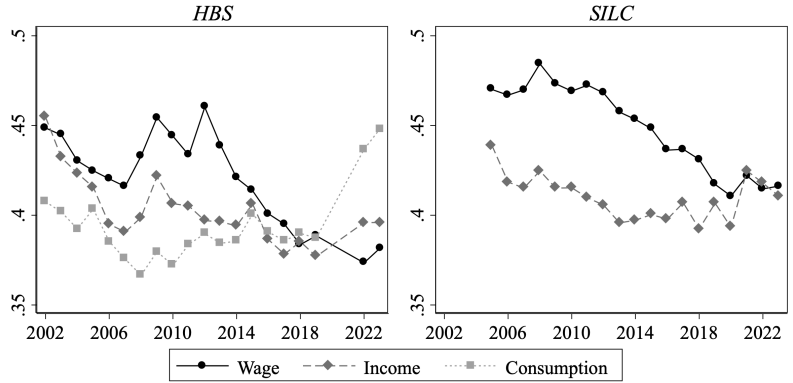
Back

High School Graduates and Blue-Collar Workers



† *Notes*: This figure illustrates the evolution of wages compared to minimum wage using educational attainment and occupational breakdown. The unit of observation is individual. The study period spans from 2002 to 2023. Due to the suspension of the *HBS* data collection during the COVID-19 pandemic in 2020 and 2021, they are unavailable. The correlation between the variables in the first graph is -0.056, while in the second graph, it is -0.169 (both insignificant at p =10%).

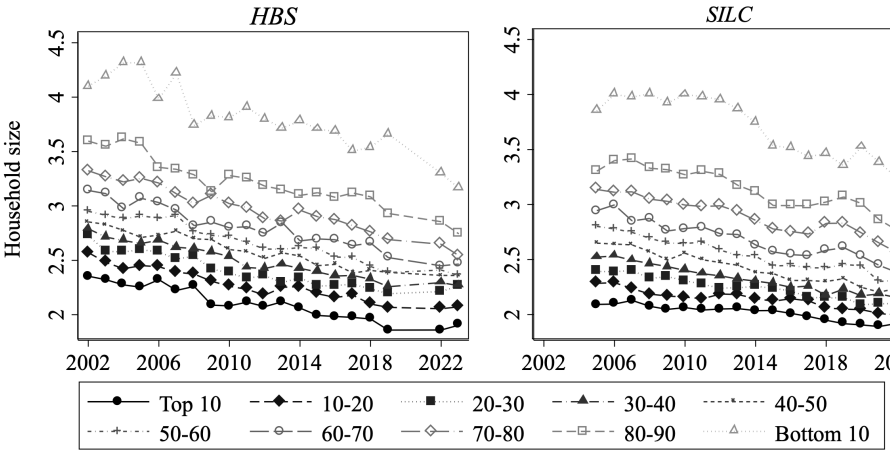
Gini Coefficients of Wage, Income and Consumption



† *Notes*: Gini coefficient results are reported using the *HBS* and *SILC* data set. 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 not available in this survey. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

Back

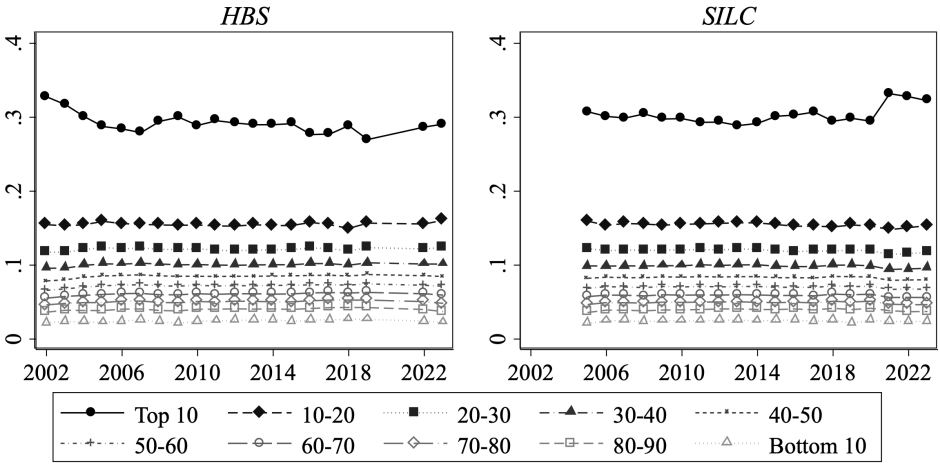
Mean Household Size by Income Deciles



† *Notes*: Results are reported using the *HBS* and *SILC* data sets. The left panel displays results from the *HBS*, and the right panel shows results from *SILC*. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

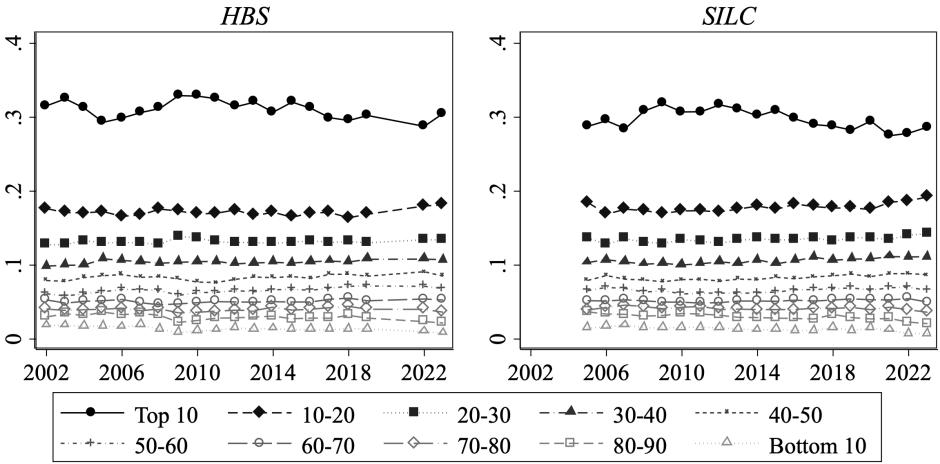
Back

Share of Deciles in Total Income



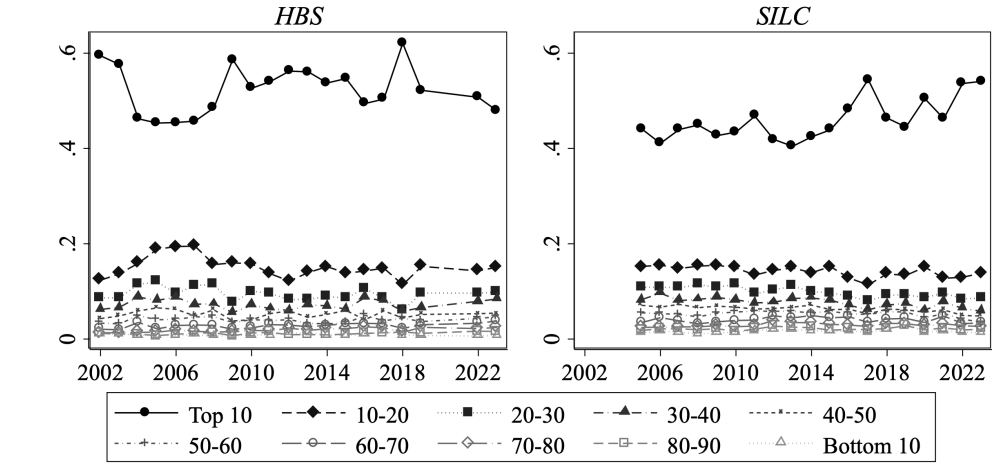
† *Notes*: Results are reported using the *HBS* and *SILC* data sets. The left panel displays results from the *HBS*, and the right panel shows results from *SILC*. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

Share of Deciles in Labor Income



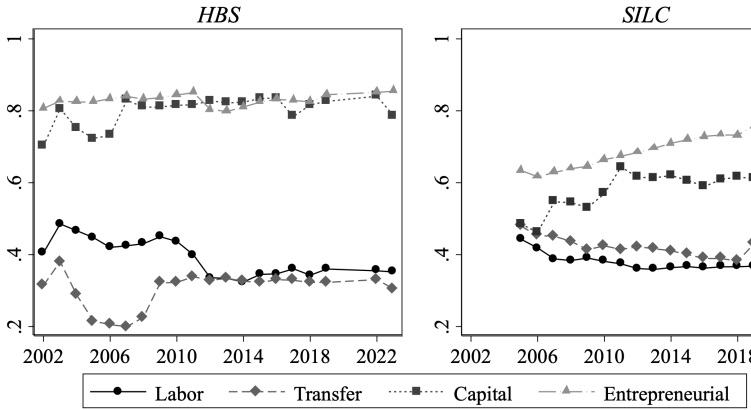
† *Notes*: Results are reported using the *HBS* and *SILC* data sets. The left panel displays results from the *HBS*, and the right panel shows results from *SILC*. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

Share of Deciles in Capital Income



† *Notes*: Results are reported using the *HBS* and *SILC* data sets. The left panel displays results from the *HBS*, and the right panel shows results from *SILC*. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

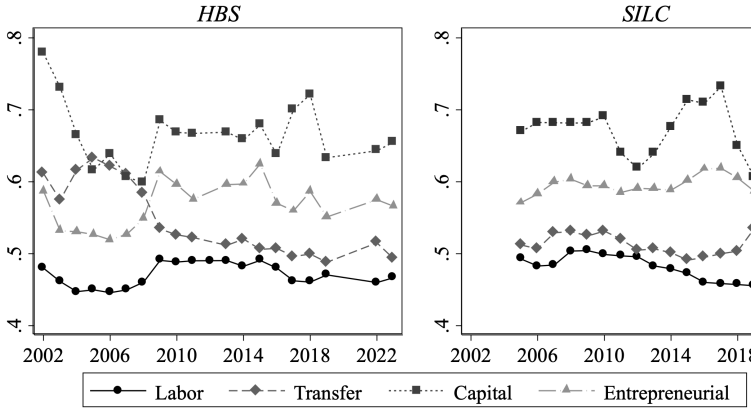
Share of Households with Zero Income Components



† *Notes*: This figure illustrates the evolution of the share of households with zero labor, transfer, capital, and entrepreneurial income. Results are reported using the *HBS* (left panel) and *SILC* (right panel) data sets. The unit of observation is the household. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

Back

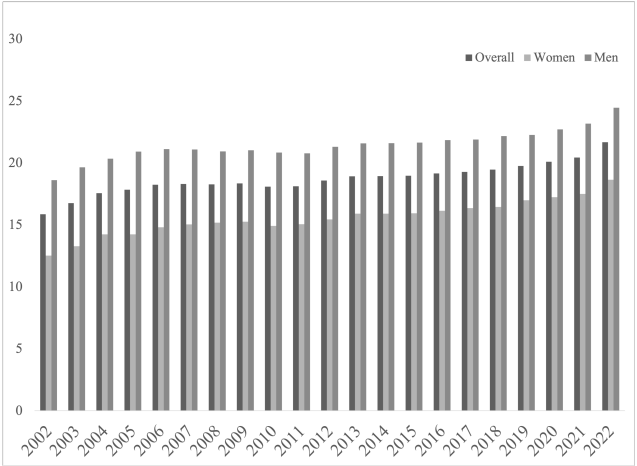
Gini for Income Components among Households with Positive Income



† *Notes*: This figure illustrates the evolution of labor, transfer, capital, and entrepreneurial income inequality. Gini coefficient results are reported using the *HBS* (left panel) and *SILC* (right panel) data sets. The unit of observation is the household, with income component series equalized using the *OECD* equivalence scale. For this analysis, we excluded households that did not report any relevant income component. The analysis period covers 2002-2023 for *HBS* and 2005-2023 for *SILC*. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are available only from *SILC*.

Back

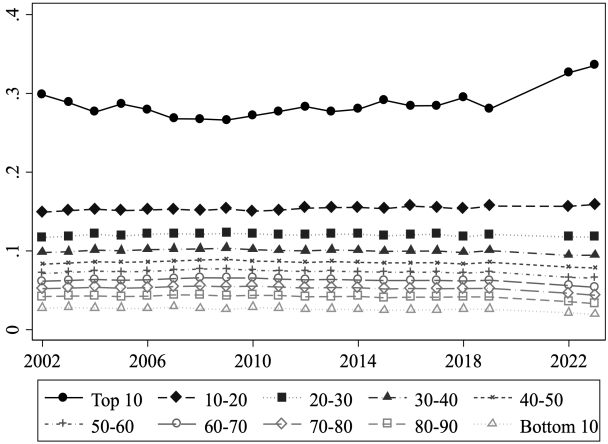
Upper Secondary Education (% of 25-64 Year-Old Population) by Year



†*Source*: OECD Education Database. The estimates for 2020 are interpolated linearly using the neighboring years.

Back

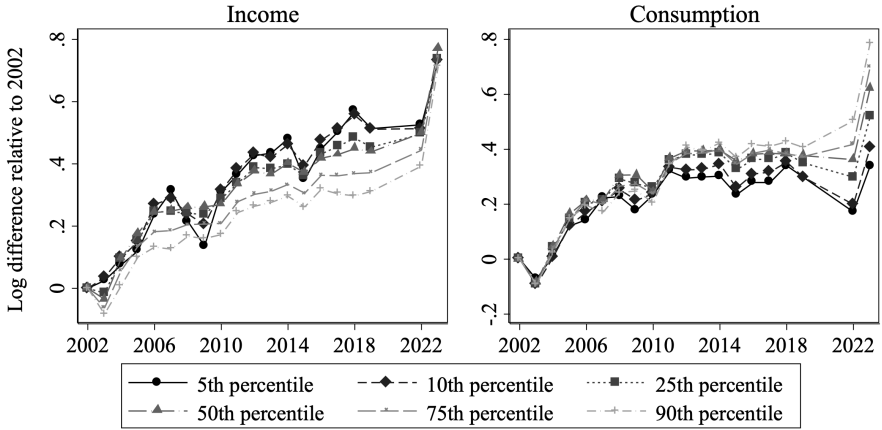
Share of Deciles in Total Consumption



† *Notes*: Results are reported using the *HBS* data set. The study period spans from 2002 to 2023. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are unavailable.

Back

Real Changes in Income and Consumption



† *Notes*: This figure illustrates the real changes in income and consumption across different percentiles relative to 2002 levels. Results are reported using the *HBS* data set. Due to the suspension of *HBS* data collection during the pandemic in 2020 and 2021, estimates for these years are unavailable.

Income/Consumption Ratio by Year Back