

In Search of the Missing Top 10%

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Abstract

I collect and harmonize income surveys, new tax data, national accounts, and wealth rankings to correct survey-based inequality estimates that understate top incomes; estimate wealth distributions in the absence of direct data; and distribute non-fiscal components of national income across income groups to make distribution figures consistent with macroeconomic aggregates in Turkey. The study's main methodological contribution, which can be transferred to similar data-scarce settings, lies in leveraging top taxpayer lists where detailed tax tabulations are unavailable. I find that the historical evolution of fiscal income inequality follows a U-shaped pattern: a sharp decline in top-income concentration from the late 1960s to the late 1970s, followed by a sustained rise through the 1980s and 1990s, and a renewed acceleration in the 2010s, most notably after 2018. Under conservative assumptions, the national income share of the top 10 percent increased from 42.1% [39.8%, 53%] to 50.5% [42.2%, 59.7%] between 2005 and 2022. Wealth inequality was more pronounced, with the top 10% holding 75.6% [70.6%, 83.1%] of gross wealth in 2022. The most cautious lower-bound estimates, accounting for the uncertainty arising from multiple limitations, imply a significant upward revision of existing inequality estimates.

Keywords: income inequality, wealth inequality, Turkey, Türkiye

JEL Codes: O15, O53, O57, N3, N35

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1 Introduction

From 1960 onward, Turkey’s economic landscape has experienced substantial transformations. Challenges in maintaining the balance of payments—due to persistent trade deficits, volatile capital flows, and exposure to external shocks—and major shifts of power in both domestic and international politics prompted the adoption of different economic development strategies. These strategies evolved from import-substituting industrialization between 1960 and 1980 to a market-based outward-oriented approach following the 1980s, with the 1990s marked by financial liberalization. Turkey’s strong growth performance following the 2001 financial crisis and its relative resilience during the 2008–2009 global financial crisis contributed to its reputation as a success story. It has been described as “a source of inspiration for a number of developing countries, particularly, but not only, in the Muslim world” (World Bank, 2014), and as a country that has “achieved a welcome reduction of imbalances” (International Monetary Fund, 2013). However, the appreciation of the domestic currency and premature deindustrialization in the early 2000s (Rodrik, 2016; Yanikkaya, Altun, & Tat, 2019), together with an expansionary monetary policy pursued under tight global financial conditions in the late 2010s, increased vulnerabilities to sudden capital stops, balance-of-payments crises, currency instability, ultimately contributing to recent runaway inflation (Boratav & Orhangazi, 2022; Orhangazi, 2020; Orhangazi & Yeldan, 2021). It is essential for policymakers, researchers, and civil society worldwide to understand how transitions between these economic development patterns and macroeconomic regimes shape the distribution of income and wealth.

A considerable body of research has focused on measuring income inequality in Turkey since the 1960s (Boratav, 1966; Cavusoglu & Hamurdan, 1966; Celasun, 1989; Duygan & Güner, 2006; Esmer, Fişek, & Kalaycıoğlu, 1986; Filiztekin, 2015, 2020; Gürsel, Levent, Selim, & Sarıca, 2000; Işık, 2022; Kaçmaz, Kuzubaş, Tarlacı, & Torul, 2024; Tamkoç & Torul, 2020; Tekgüç, 2018; Torul & Öztunalı, 2018). However, most existing estimates are based on income surveys, which are now widely acknowledged to fall short in capturing the upper tail of the income distribution (Blanchet, Flores, & Morgan, 2022; Burkhauser, Feng, Jenkins, & Larrimore, 2012; Burkhauser, Hérault, Jenkins, & Wilkins, 2018; Lustig, 2020; Yonzan, Milanovic, Morelli, & Gornick, 2022). These estimates are also based on the distribution of survey income rather than national income, making it impossible to determine how economic growth is allocated across different income groups. By combining and harmonizing income surveys, national accounts, wealth rankings, and previously unexplored tax data, this study aims to address the downward bias in existing income inequality estimates and offer income distribution statistics consistent with national accounts.

Moreover, there are very few comparable studies on wealth distribution, and existing estimates are based typically on wealth rankings, standardized wealth distributions from other countries, or surveys with non-reporting bias. In this study, I employ income surveys to capitalize rental, financial, and business incomes. I then derive the wealth distribution through generalized Pareto interpolation and adjust the upper tail of these estimates using Forbes data.

The study contributes to the broader literature that seeks to produce distributional statistics comparable across countries (Alvaredo, Assouad, & Piketty, 2019; Alvaredo et al., 2024; Assouad, 2023; Bukowski & Novokmet, 2021; Chancel, Cogneau, Gethin, Myczkowski, & Robilliard, 2023; Chancel & Piketty, 2019; Novokmet, Piketty, & Zucman, 2018; Piketty, Yang, & Zucman, 2019). A methodological contribution of this paper to this broader literature is demonstrating that, even without detailed tax tabulations, lists of top taxpayers can be used to assess

the representativeness of income surveys and correct the downward bias. A second methodological contribution is illustrating that in the absence of wealth surveys and detailed financial accounts needed to derive income capitalization factors, market interest rates, and rental capitalization factors can be combined with wealth rankings to estimate wealth distribution.

Research on the downward bias in surveys in Turkey has been limited, with Alvaredo et al. (2019), who examined inequality in the Middle East, and the data series provided by the World Inequality Database (WID) being notable exceptions. A key distinction between Alvaredo et al. (2019), the WID, and this study is that the former two seek to adjust the survey-based income distribution in Turkey using survey correction profiles derived from fiscal data in Lebanon, allocate tax-exempt income based solely on billionaire lists, and extrapolate the series from 1994 back. In contrast, this study aims to employ unique Turkish tax tabulations and survey data from the pre-1980 period, alongside post-1980 lists of the top 100 taxpayers, and also estimates the wealth distribution for the post-2005 period by capitalizing survey incomes to allocate tax-exempt income.

In this context, I find that income inequality in Turkey was particularly high in 1968. A major explanation for this could be the lack of land reform, the exemption of agricultural income from progressive taxation, and the fact that a significant portion of Turkey’s wealthy population consisted of large landowners or farmers. Hence, rising agricultural prices and agriculture-focused policies in the 1950s likely benefited market-driven medium- and large-scale producers, contributing to high inequality that persisted until the late 1960s. Inequality saw a significant decrease between 1968 and 1979, a period marked by rapid state-led industrialization, massive strikes, and an external balance crisis. However, it rose again in 1987 and 1994, which were characterized by trade and financial liberalization.

From the early 2000s through the mid-2000s, income inequality remained relatively stable. In this period, Turkey experienced the expansionary phase of the Alejandro-Taylor cycles, with short-term capital inflows, currency appreciation, increased public spending, in a period characterized by several institutional reforms and productivity gains. After the 2008 global financial crisis, inequality began rising again, reaching higher levels by 2013. The upward trend continued, with the sharpest increase occurring after 2018, during a period of “low-quality” growth characterized by credit-driven expansion, construction booms, and rent-based redistribution. This later period corresponds to the contractionary phase of the Alejandro-Taylor cycle, marked by capital outflows, depreciation, rising interest rates, and austerity.

A key finding is that even the lower-bound estimates of the top 10 percent national income share presented in the paper exceed the official TUIK figures by 6.51 percentage points on average, challenging the narrative of recent development success. In 2005, the top 1 percent in Turkey accounted for a smaller portion of post-tax national income than their peers in Brazil, Colombia, India, Russia, Chile, and Lebanon. By 2022, however, Turkey’s top 1 percent had overtaken all these countries in income share. This is a noteworthy result, especially given the conservative assumptions behind the benchmark estimates. Turning from income to wealth inequality, the dynamics are similarly pronounced: the top 10 percent’s wealth share fell from 79.1 percent in 2005 to 73.3 percent in 2011, rose to 79.2 percent in 2019, and then declined again—reflecting shifts in average wealth relative to Forbes-listed wealth.

While the new income and wealth series for Turkey presented in this paper are more consistent and comparable than previous attempts, they can still be further improved as additional data sources become available and more sophisticated methodologies are developed. This study does not explore in detail the specific channels shaping

inequality, but such an investigation also remains an important and challenging task for future research. In particular, a thorough statistical analysis of factors like low female labor force participation, regional disparities, and the distributional effects of structural reforms and macroeconomic shocks could yield deeper insights. This would not only extend the findings presented here but also help clarify how these mechanisms amplify or mitigate inequality over time.

2 Data Sources

The methodology employed in this paper starts with survey-based income tabulations and uses generalized Pareto interpolation to recover the full distribution. It then corrects the top tail with tax data to obtain fiscal income. Finally, it incorporates tax-exempt income by using wealth distribution as a proxy and combining fiscal income with wealth to approximate the national income distribution. I first discuss the datasets used in the estimation process, followed by a discussion of unit and concept adjustments and the estimation methodology. Appendix Tables A1, A2, and A3 provide more comprehensive descriptions of the samples, units of observation, income definitions, differences across the datasets, and adjustments made to the raw data.

2.1 Household Income Surveys

Tabulated survey data for the pre-1994 period

To the best of available knowledge, the first income survey was conducted in 1968 by the Hacettepe University Institute of Population Studies (“Hacettepe Nüfus Etütleri Enstitüsü”, HUIP). Although the survey was primarily designed to study fertility, it included comprehensive questionnaires on disposable income at both personal and household levels. In urban areas, the data used for calculating income is based on individuals’ statements, whereas in rural areas, income estimates rely on the value of crops and livestock produced by farmers. A significant limitation of the HUIP survey is its exclusion of households with female members over 45 years old or unmarried, which accounts for approximately 17 percent of the population, due to its fertility focus.

According to Bulutay et al. (1971, p.3), the HUIP survey captures approximately 77 percent of disposable income recorded in the national accounts. Given that household surveys in most countries typically capture only 50–65 percent of national account income, the 1968 survey can be regarded as broadly consistent with international standards rather than unusually deficient in its income coverage. A further comparison with the 1965 population census supports this conclusion, showing that the survey is consistent with the census in regional composition,¹ settlement size distribution², and population³ (Bulutay et al. 1971, p.196). While it is still important to recognize that any estimates based on such incomplete data will be imperfect, orders of magnitude can offer valuable historical insights into income inequality in the 1960s. Indeed, the unadjusted inequality measure from the 1968 HUIP survey (Gini = 0.56) is very close to the 1963 estimate (Gini = 0.55) produced by the State Planning Organization using detailed administrative records (see Cavusoglu and Hamurdan (1966)).

To obtain a snapshot of income inequality in the 1970s, I use the Urban Places Household Income and

¹Central Anatolia: Census = 23.44% vs. HUIP = 23.48%; Aegean and Marmara: Census = 27.17% vs. HUIP = 26.44%; Eastern Anatolia: Census = 17.14% vs. HUIP = 16.58%; Mediterranean Census = 14.17% vs. HUIP = 14.37%

²< 2000: Census = 59.81% vs. HUIP = 60.07%; 2000-14999: Census = 14.71% vs. HUIP = 13.81%; 15000-49999: Census = 7.47% vs. HUIP = 6.76%

³Census = 31.391 million vs. HUIP = 33.840 million

Consumption Expenditures Survey in 1978-1979 (“Kentsel Yerler Hanehalkı Gelir ve Tüketim Harcamaları Anket Sonuçları”) conducted by the State Institute of Statistics (“Devlet İstatistik Enstitüsü”, DIE).⁴ As this survey focuses solely on urban incomes, I complement it with the Income Distribution and Consumption Expenditures in Rural Areas from 1973-1974 (“Kırsal Kesim Gelir Dağılımı ve Tüketim Harcamaları”). To combine both distributions, I assume their dependency is characterized by a Gumbel copula with parameter θ . Gumbel copulas capture upper tail dependence. In other words, they model the tendency of variables to jointly take extreme high values. Each survey gives a reliable estimate of the marginal distribution within its domain (rural or urban). The copula then encodes the rank-based dependence between the two distributions, allowing one to describe how ranks of high- or low-income households in rural areas correspond to ranks in the joint distribution (see [Alvaredo et al. \(2024, p.140\)](#)).⁵

In terms of representativeness, the 1973–74 and 1978–79 surveys were part of a series of DIE studies aimed at analyzing income distribution and consumption patterns in both rural and urban areas. They were instrumental in constructing Consumer Price Indices and assessing socio-economic conditions, using a consistent definition of disposable income. Compared to a 1973 study conducted by the State Planning Organization (SPO), which estimated rural incomes using administrative records, agricultural output, and livestock holdings, the 1973–74 survey reports lower total rural incomes. While further direct evidence on representativeness of the 1973–74 and 1978–79 surveys is limited, the surveys employed a standard, systematic sampling methodology, collecting direct household-level data across multiple settlements, which captures heterogeneity in household size, income sources, as well as regional variation in economic conditions. Even if aggregate totals are somewhat underestimated, the survey likely reflects relative income levels and inequality, since the raw Gini estimates derived from the surveys—0.47 for the rural sample and 0.40 for the urban sample—do not display any marked discontinuity with subsequent estimates, including 0.43 in the 1987 DIE survey.

To assess income inequality in the 1980s, I use the Household Income and Consumption Expenditure Survey from 1987 (“Hanehalkı Gelir ve Tüketim Harcamaları Anketi Sonuçları”) conducted by the DIE, capturing both rural and urban incomes. The survey results indicate that the GDP derived from the survey is 7.9% below the actual GDP (see Hanehalkı Gelir ve Tüketim Harcamaları Anketi Sonuçları, p.24), and that total income going to production factors exceeds the survey-based estimate by roughly 8% (p.25). This suggests that the survey captures the aggregate income fairly consistently. Moreover, the survey is close to the 1985 population census in terms of regional distribution⁶ and employment patterns.⁷

Overall, as summarized in Table A2, the surveys adopt a broadly comparable definition of disposable income, including wages, self-employment and agricultural earnings, property and transfer incomes, and pensions. While

⁴Another income survey was carried out by the State Planning Organization (“Devlet Planlama Teşkilatı”, SPO) in 1973. I opted not to use this dataset because my goal is to adjust the distribution of survey income with tax data, and there were interruptions in the tax data between 1970 and 1973 (see below). It is noteworthy that the inequality estimates obtained from this raw dataset are quite comparable to those from the 1968 HUIP survey.

⁵Households with rural incomes typically do not possess urban incomes; the two distributions cover distinct populations. The use of a copula in this context does not imply that individual units have simultaneous rural and urban incomes. The copula parameter quantifies the strength and nature of this rank-based dependence. A higher θ indicates a stronger dependence, where $\theta = 1$ represents complete independence and $\theta = +\infty$ shows perfect rank correlation. I use a benchmark value of $\theta = 2$. Assuming Gumbel parameters within the 2–5 range has only a minor effect on the dataset. Results can be provided upon request. This approach assumes that the inflation between 1973 and 1979 did not significantly affect the strength of rural-urban income dependency or the relative incomes in rural areas from 1973 to 1979. See also the limitations section below.

⁶Aegean and Marmara: Census = 42.4% vs. Survey = 36.96%; Mediterranean: Census = 11.3% vs. Survey = 13.44%; Eastern and South Eastern Anatolia: Census = 17% vs. Survey = 14.72%

⁷Wage employment: Census = 33.95% vs. Survey = 32.58%; Self-employment: Census = 22.68% vs. Survey = 24.57%

the surveys vary somewhat in coverage (e.g., exclusion of certain household types), they share similar sampling techniques and were explicitly designed to represent the income distribution of their target populations. Although they vary in units of observation, as discussed below, all series are harmonized on a per capita equal-split basis, ensuring that the resulting estimates are suitable for long-run comparison.

Microdata for the post-1994 period

Since 1994, the DIE, which later became known as TUIK, has offered microdata on income. The initial wave of Household Budget Surveys (“Hanehalkı Bütçe Anketi”, previously collected as “Hanehalkı Gelir ve Tüketim Harcamaları Anketi”) conducted in 1994 covered 174 rural settlements and 62 of 76 urban settlements. Its sampling frame was based on the General Population Census (1990) and local administrative records. Starting in 2002, TUIK has consistently conducted the HBS annually, across the entire country since 2004, making slight adjustments to the data collection methodology.⁸ The survey experienced interruptions in 2020 and 2021 due to the COVID-19 pandemic.

Since 2006, as part of efforts related to European Union candidacy, TUIK has also conducted the Survey of Income and Living Conditions (“Gelir ve Yaşam Koşulları Anketi”, SILC) in Turkey. The stated goal of TUIK is to generate data on income distribution, relative poverty, living conditions, and social exclusion that is comparable to that of European Union countries. Participants in the survey are monitored over a four-year period, and each year, two types of datasets —cross-sectional and panel data— are produced. Unlike the HBS, the SILC data collection continued without interruption during the pandemic. For the period after 2005, I generate estimates using both the HBS and the cross-sectional SILC datasets. Although each household has a known, non-zero probability of selection in both HBS and SILC—targeting national representativeness—Figure A2 indicates that the HBS has become increasingly limited in capturing top incomes over time. Therefore, the benchmark estimates rely on SILC data. A more detailed discussion is provided below.

2.2 Income Tax Data

Because this study relies on tax data to adjust the upper tail of the survey distribution, I here introduce the tax data. The institutional and legislative framework as the key data generating process is described in Appendix A1 and Figure A1.

Tabulated tax data for the pre-1980 period

From 1964 to 1980, the tax administration compiled and published tabulations derived from income tax returns.⁹ These tables generally presented data across various income brackets, specifying the number of taxpayers in each bracket, along with their total income and tax liability. The information was often organized by income

⁸In line with European Union candidacy and to lay the groundwork for a consumer price index to be harmonized with those in European Union in 2003, the estimation size was reassessed that year, leading to an expansion of the sample size. However, beginning in 2004, the annual sample size was once again reduced. In 2014, the sample design was revised to follow a new administrative division of urban and rural areas established by new legislation. According to the old administrative division, the urban rate was 72.3%, while in the new administrative division, this rate has increased to 86.5% (Turkstat, 2019).

⁹The Department of Revenues (“Gelirler Genel Müdürlüğü”), later renamed the Revenue Administration (“Gelir İdaresi Başkanlığı”) under the Ministry of Finance, published several statistical yearbooks titled Budget Revenues Bulletin (“Devlet Gelirleri Bülteni”) or Budget Revenues Yearbook (“Bütçe Gelirleri Yıllığı”), which provided detailed data on income tax revenue, including income tax tabulations. I would like to express my gratitude to Hasan Tekgüç for sharing these tabulations.

source, including categories like capital income, wage income, and business income. It thus offers comprehensive information on the top and very top of the income distribution.

Because the study aims to integrate surveys with tax data, the availability of only one survey from 1968 and 1979 restricts the use of income tax tabulations to two years. Since the income earned in 1968 (1979) was taxed in 1969 (1980), I use the tabulated tax data from 1969 and 1980.¹⁰

Taking into account the legislation of the time, one could argue that the 1969 and 1980 tabulations likely provide a reasonably representative order of magnitude for top agricultural incomes, financial incomes, real estate incomes, and even retained profits. However, there are three main challenges that remain. First, not all taxpayers are required to file an income tax return in Turkey; declarations are only required for those whose income surpasses specific thresholds when tax is not withheld at the source. Second, this data originates from a period when legislation was based on joint taxation, meaning that each unit corresponds to a tax unit (family or single individual) rather than an individual adult. Third, as far as available knowledge provided by the tabulations indicates, the 1969 data tabulates fiscal income, while the 1980 data tabulates taxable income. The methodology section describes how the study seeks to address these challenges on income concepts and units of observation.

Top 100 taxpayers lists for the post-1980 period

To the best of available knowledge, the Revenue Administration has not released any tabulated income tax data since 1980.¹¹ Instead, the administration has released a yearly list of the top 100 taxpayers at the national level, and the local tax authority has revealed the top 100 taxpayers within its jurisdiction. While tax tabulations offer insights into the incomes of various percentiles at the top of the distribution, tax lists specifically provide tax data only approximately for the 99.9999th percentile. This latter information can still be valuable for adjusting the very top of the income distribution and, given certain assumptions as discussed below, for adjusting the entire distribution. For the period before 1998, I compiled the national list of the top 100 taxpayers from various newspapers. From 1998 onwards, the Revenue Administration has released the national list online.¹²

The national list of top taxpayers includes information about tax jurisdiction, the taxpayer's name (when taxpayers choose not to keep it hidden), and the amount of tax paid. Since 2014, some top taxpayers have hidden their tax payments. To estimate this missing information, I use simple interpolation, which averages two known data points arranged in descending order. If the highest tax amount is concealed in the list, I substitute it with the next highest amount.

Since *distributed* profits were exempted from taxation between 1985 and 1994, the list used to adjust the top of the 1987 survey distribution of incomes is likely to substantially miss the very top. During this period, the top taxpayers were more likely to be earning income from real estate rents. For the following years, it can be argued that the top 100 taxpayers lists are more likely to capture the very top of the income distribution despite the fact that deductions and exemptions varied significantly with top marginal tax rates. It is important to keep in mind that these variations substantially influenced incentives for income reporting, thereby affecting both the

¹⁰More specifically, I use the Budget Revenues Bulletin, Fiscal Year 1971, p.183, Table: The distribution of annual income tax returns by income groups, 1969 and Budget Revenues Yearbook, 1979-1983, p.80, Table: The distribution of income taxpayers: Taxable income and tax amounts based on income brackets, 1980. The latter relies on random sampling with a sampling rate of 5%

¹¹I reviewed the statistical yearbooks published by the DIE and the Revenue Administration between 1981 and 1999 and made several attempts to contact the Revenue Administration. I was informed that they no longer compile and publish income tax tabulation data.

¹²Although the county-level lists could enhance the sample size at the top, they are not consistently published in a clear format. It remains challenging to compile the county-level information from sources such as local newspapers.

data generation process and the data itself.

2.3 Wealth Rankings

The Forbes billionaire list, with its global scope, remains the best available source of information for the wealth of the billionaire class (Piketty, Saez, & Zucman, 2022). These lists are compiled mainly using publicly accessible information regarding shareholdings in publicly traded companies, along with straightforward industry-based valuations for large private firms. While this approach is effective in identifying the largest fortunes, which typically originate from substantial ownership stakes in highly valued companies, it is likely to overlook other forms of wealth often consisting of more diversified portfolios that are more challenging to track using public information.¹³

2.4 Macroeconomic and Financial Data

For the population series, I rely on World Bank Development Indicators. Exchange rates used to assess the wealth of billionaires in Turkish Lira are obtained from the Central Bank of the Republic of Turkey’s Electronic Data Distribution System (EVDS). Similarly, the annual average interest rate of a one-year term deposit in TRY used to capitalize certain incomes is obtained through the EVDS. National income data comes from the World Inequality Database.

3 Methodology

This paper is based on, albeit with several key differences, the latest version of the Distributional National Account (DINA) guidelines (Alvaredo et al., 2024), which have been applied to estimate income inequality in Lebanon by Assouad (2023), in Africa by Chancel et al. (2023), in Poland by Bukowski and Novokmet (2021), in China by Piketty et al. (2019), in the Middle East by Alvaredo et al. (2019), in India by Chancel and Piketty (2019), and in Russia by Novokmet et al. (2018).

In summary, this method begins with tabulations from nationally representative income surveys and employs generalized Pareto interpolation techniques to estimate the full distribution of survey income. It then adjusts the upper tail of the income distribution using income tax data. This adjusted distribution represents the distribution of fiscal income (i.e., total income subject to tax before deductions). To incorporate tax-exempt income (i.e., non-taxable non-fiscal income including undistributed profits) and to derive the distribution of national income, the final step involves estimating the distribution of wealth as a proxy for the distribution of tax-exempt income and the joint distribution of fiscal income and wealth to represent the distribution of national income.

Figure A2 provides key evidence demonstrating the extent to which survey data from Turkey underrepresent top incomes, highlighting the need for going beyond the use of survey income to more accurately estimate inequal-

¹³Yet, it continues to be widely employed in the literature to measure top wealth. By drawing on Forbes’ World’s Billionaires data, Vermeulen (2018) produces new estimates of wealth concentration at the very top in the United States, the United Kingdom, and nine European economies. Similarly, Davies, Lluberas, and Shorrocks (2017) use Forbes lists to estimate the global distribution of household wealth. Singh and Singh (2024) analyze short-term dynamics and shifting sources of wealth among the Forbes 400 richest individuals in the United States, particularly in the aftermath of the 2008–2009 financial crisis. Anand and Kumar (2024) rely on the same source to generate new estimates of wealth concentration in India. Beyond these, Forbes lists have also been employed in studies of wealth and income inequality in Lebanon (Assouad, 2023), India (Chancel & Piketty, 2019), and Russia (Novokmet et al., 2018).

ity. Panel A in Figure A2 illustrates the ratio of the average income of the top 100 observations from the HBS and SILC surveys compared to the average estimated income of the top 100 taxpayers (additional details on how these top 100 taxpayer incomes are estimated are provided below). It reveals that the top 100 incomes reported in surveys generally represent only about 1% to 3% of the top 100 incomes estimated from the tax data, and that the ability of the HBS to accurately capture top incomes has diminished in recent years. Panel B in Figure A2 further illustrates the importance of using the tax data by showing that the average estimated income of the top 100 taxpayers was approximately 50 times the average national income in 1987, 120 times in 2002, and rose to about 200 times higher by 2022. The overall evidence is consistent with studies that highlight the downward bias present in the upper tail of income distribution surveys globally (Blanchet, Flores, & Morgan, 2022; Burkhauser et al., 2012, 2018; Lustig, 2020; Yonzan et al., 2022).

The remainder of the section outlines the methodology employed to address the downward bias in survey data.

3.1 Adjusting Units of Observation

Due to data limitations, there is often a trade-off between creating a time-consistent series and estimating a series consistent with the units typically employed in the literature. The preferred unit of observation in this study is the “per capita equal-split population”, which includes *all* individuals, including children, with income allocated proportionally across all household members to create a time-consistent series. I also provide the “equal-split adult” series, where income is evenly distributed among *adult* household members, aligning the estimates with the World Inequality Database (WID).

To be more specific, the tabulated survey data for the pre-1994 period display the income distribution of households—and occasionally individuals—within the total resident population. They do not offer any direct information regarding the distribution of the number of children per adult across percentiles. To prevent making assumptions about the child/adult ratio, I seek to distribute income to the population instead of the adult population. Although data limitations dictate this approach, it also offers a more accurate measure of inequality in terms of consumption capacity rather than income earned.¹⁴

The raw 1968 survey tabulation presents the distribution of personal incomes by allocating income to all household members (see Bulutay, Timur, & Ersel, 1971, p. 11). For the 1979 added-up survey (see Section 2.1), the raw tables in both the rural and urban surveys show how households are distributed across various income brackets. To transform the household distribution into a per capita equal-split income distribution, I use the average household size for each income bracket, without assuming a uniform household size across different income levels whenever feasible. When a survey does not provide the average household size for each income bracket, the conversion is conducted using a constant household size derived from the data.¹⁵ For the post-1994 microdata, I aggregate all individual incomes within the household and distribute the total equally among all household members to calculate per capita equal-split incomes.

Concerning the 1969 and 1980 tax tabulations, not everyone in Turkey is required to file an income tax return. As a result, a specific percentile at the top in the tax data corresponds to a higher percentile in population. And

¹⁴I refrain from using equivalence scales, since the goal of the study is to estimate inequality consistently with national income and total of all individuals’ incomes no longer equals the aggregate income when I assign each individual their equivalized income.

¹⁵It is also worth noting that when the average incomes within brackets are not consistent with the thresholds in the raw data during the conversion, the brackets are aggregated as needed to ensure internal consistency within the raw data.

the unit of observation in these tabulations is a tax unit, which may represent either a family or an individual. To distribute incomes on a per capita equal-split basis to the greatest extent possible, I begin by estimating the total number of tax units.¹⁶ Next, I apply declaration rate assumptions to the raw number of tax units in each bracket, in a way that the total unit in the data is consistent with the estimated total number of tax units and that the tax distribution mimics the lower tail of the survey distribution. Finally, to convert bracket thresholds to an individual basis, I uniformly apply the share of single adults in tax units from 1967 across all brackets,¹⁷ based on the assumption that the proportion of single adults remains relatively stable across brackets and over time.¹⁸

Finally, the top 100 taxpayer lists from 1987 and 1994 reflect taxes paid by families, whereas later lists report taxes paid by individuals. Given the data constraints, a reasonable approach is to divide the estimated income of the top taxpayer by an assumed average family size at the very top. However, this method has an important drawback: for the post-1998 individual taxation period, it throws out the baby with the bathwater by dividing individual incomes without fully accounting for total household income, which results in a notable downward bias in top income estimates in the post-1998 period. Further details on this are discussed in the limitations section.

3.2 Harmonizing Income Concepts

The surveys used in this study are based on the concept of disposable income, sometimes with slight variations.¹⁹ The disposable income refers to post-tax and post-social-contribution cash income and in-kind income from factor payments and transfers, including pensions while excluding in-kind transfers from public spending on health and education.²⁰ To ensure consistency with the tax tabulations, ideally, the survey’s income definition should be modified to fiscal income (total income subject to taxation *before* any deductions) or in some cases to taxable income (the total income to be reported on tax returns *after* deductions) depending on the type of income represented in the tax data. However, the surveys do not provide a breakdown of the specific taxes or contributions paid.

To workaroud this issue and derive the fiscal income concept used in the benchmark series in the paper, I integrate survey information into the tax data instead of integrating tax information into the survey data. More specifically, for the top taxpayers lists from the post-1980 period, the tax schedules for the relevant year are applied to the total tax paid to calculate taxable income. This taxable income is then converted to fiscal income using a benchmark taxable income to fiscal income ratio of 0.9, which accounts for social security contributions.²¹ The tax paid is then deducted from the fiscal income.

For the tabulations from the pre-1980 period, I use the information on taxes paid in the tabulations to

¹⁶The total control number of tax units is estimated by starting with an estimate of the total population, excluding individuals under 15 based on population data to estimate the total number of individuals relevant for tax purposes, and subtracting the number of married women to determine the final count of tax units.

¹⁷I obtained this data from the Statistical Yearbook of Turkey, 1977, p.348.

¹⁸More specifically, to individualize income, this approach uses the method proposed by Blanchet, Fournier, and Piketty (2022), where within each bracket, the income of singles is assumed to be equal to that of couples. While this is likely an approximation, it is effective in practice because the income inequality between singles and couples primarily takes place between brackets rather than within brackets.

¹⁹See Table A2 for a detailed description of the specific survey definition of income.

²⁰This income concept mimics what can be termed “post-tax post-replacement income”.

²¹As noted in Section A1, deductions and exemptions have varied over time. They likely increased from 1969 to 1980 and probably continued to rise during the 1990s. However, from 2004 to 2010, there appears to be fewer deductions. Between 2010 and 2022, tax reforms expanded deductions for private pension plans, health, and education expenses, which probably impacted the taxable income of middle and high-income earners. To minimize bias in correction profiles caused by the evolving nature of tax legislation, I adopt the most conservative assumption. See Section 3.7.

calculate the post-tax fiscal income brackets and achieve the fiscal income concept employed in the benchmark series.²² When income in the tabulation refers to taxable income as in the case of the 1980 tabulation, I assume a benchmark taxable income to fiscal income ratio of 0.9,²³ again factoring in social security contributions.

Even with these adjustments, tax-exempt income like undistributed profits and imputed rents are still absent from the tax data.²⁴ Although the exclusion of undistributed profits does not create an inconsistency between the tax and survey data—since the latter also omits undistributed profits—, the exclusion of imputed rents from the tax data creates a discrepancy with the survey data, as the surveys treat imputed rents as income while the tax data do not. In both cases, the tax data understate top incomes. To partially correct this downward bias in the benchmark series based on the fiscal income concept, I estimate an alternative series for a more recent period in which wealth distribution can be estimated and used as a proxy for the distribution of tax-exempt income. I provide additional details in the sections below on income and wealth distribution estimation and rescaling to national income.

3.3 Harmonizing Wealth Concepts

I define household wealth as the gross wealth, which I allocate equally among all members of the household. This total includes non-financial assets like housing and business properties, as well as financial assets such as currency, deposits, bonds, and equity. Due to data limitations, household debt is not available, resulting in an emphasis on gross wealth instead of net wealth.

3.4 Estimating Income Distributions

Once the concepts and units of observation across the datasets are aligned as closely as possible, the next step is to interpolate the survey and tax tabulations to estimate the full income distributions. While prior research generally estimated the parameters of the type-1 Pareto distribution using tabulated data to reconstruct full distributions (Charpentier & Flachaire, 2022), the approach taken by Blanchet, Fournier, and Piketty (2022) goes beyond merely applying predefined distributions like the type-1 Pareto to the tabulated data. Specifically, to interpolate the non-top/non-bottom brackets, Blanchet, Fournier, and Piketty (2022) use a set of polynomials passing through an interpolation function from which percentiles and quantile functions can be derived consistently with a smooth and convex generalized Pareto curve. As a result, this method does not impose any parametric assumptions for the non-top/non-bottom brackets. However, since the shape of the generalized Pareto curve becomes uncertain as percentiles approach one and zero, Blanchet, Fournier, and Piketty (2022) estimate a generalized Pareto distribution at both tails, deriving the parameters from the tabulated data.²⁵ For a comprehensive evaluation of

²²This approach disregards possible redistribution effects of tax and social contribution system. See the limitations section for a more detailed discussion.

²³See footnote 21.

²⁴In-kind income is also absent from the tax data, but I consider it to be a negligible source of income for the top earners.

²⁵Bharti, Chancel, Piketty, and Somanchi (2024) argue that brackets used as input for the generalized Pareto interpolation algorithm can be chosen arbitrarily particularly when micro data are available, provided that a sufficiently large number of brackets is used. However, the selection of the final bracket directly influences the interpolation results, because Blanchet et al.'s (2022) method applies a parametric adjustment to the last bracket. In practice, this parametric adjustment tends to lead to fluctuations in the thresholds of the uppermost brackets over time, producing irregular correction profiles. I thank the anonymous referee for drawing attention to the data irregularities. To stabilize the interpolation and make it fully consistent with the survey input, I constrain the last threshold used by the interpolation algorithm to the maximum income reported in the survey, after smoothing the extreme top by trimming the richest 0.0003 percent of observations. Because this trimming artificially reduces the maximum, I adjust the correction factor by multiplying it with a Pareto scaling. From a literature perspective, similar rescaling of top-tail estimates to account for missing or trimmed extreme

the reliability of this interpolation technique, which significantly outperforms standard interpolation methods commonly used in the literature, I refer to [Blanchet, Fournier, and Piketty \(2022\)](#).

For the **pre-1980 period**, I estimate the survey income distributions in terms of 127 generalized percentiles—or g-percentiles—using the tabulated survey data.²⁶ Similarly, I recover the full distributions of fiscal income from the tabulated tax data. The aim is to obtain the fiscal correction profiles $c_1(p)$, which indicate how much fiscal income exceeds or falls short of survey income for each percentile p . To be more specific, the correction profile is $c_1(p) = \frac{Q^F(p)}{Q^S(p)}$, where $Q^F(\cdot)$ represents the quantile function derived from the fiscal income distribution based on the tax tabulation data, while $Q^S(\cdot)$ denotes the quantile function obtained from the survey income distribution, with $p \in [0, 1]$. In short, constructing the profile simply involves dividing the quantile for each percentile of the fiscal income distribution by the corresponding quantile in the survey income distribution.

In the benchmark series, I assume that the survey data are reliable for percentiles below $p_1 = 0.95$, while the fiscal data are considered reliable for percentiles above $p_2 = 0.995$, and that the fiscal correction profile $c_1(p)$ increases piecewise linearly from $c_1(p_1) = 1$ to the observed correction ratio $c_1(p_2)$ between p_1 and p_2 .²⁷ The fiscal correction profiles are then used to impute the adjusted survey quantiles $\hat{Q}^S = c_1(p)Q^F$, bracket averages, and averages above each quantile to derive a smooth and convex generalized Pareto curve.

A major challenge for the **post-1980 period** is that the tax data—the lists of the top 100 taxpayers—represent only a very small portion of the population, approximately the top 0.0001%, depending on the population size in any given year. For this period, I tabulate the microdata and estimate the survey income distributions using 136 g-percentiles instead of 127, with the highest percentile set at 0.999999. The benchmark series is based on the assumption that the survey data are reliable for percentiles below $p_1 = 0.95$, while the fiscal data provide income information only for $p_2 = 1 - (100 * \text{family size at the top})/\text{population}$, which is 0.999999 for a typical year. I assume that the fiscal correction profile $c_1(p)$ increases piecewise linearly from $c_1(p_1) = 1$ to the observed correction ratio $c_1(p_2)$ between p_1 and p_2 . This assumption produces estimates that most closely resemble a smooth, convex Pareto curve. See section 3.7 for a detailed discussion of the benchmark assumptions.

In the post-1980 period, fiscal data are limited to the top 100 taxpayers, making any correction procedure highly sensitive to assumptions about how to extrapolate from the very top to the broader upper tail. To assess the robustness of this method, I apply it to Lebanon, where detailed tax tabulations compiled by Assoud (2023) provide additional fiscal information on the top 1 percent. Specifically, to simulate a counterfactual scenario in which tax data are available only for the top 0.0001 percent, I assume that the Lebanon fiscal correction profile rises piecewise linearly from $c_1(p_1) = 1$ to the observed coefficient at the top 0.0001 percent. I then apply Assoud (2023)’s original correction coefficients and profile, which are based on detailed tax tabulations assumed to be reliable above the 99th percentile. The results, shown in Figure A3 in the Appendix, indicate that while the share of the top 10 percent is roughly four percentage points higher in this counterfactual scenario in 2005 and 2006, the gap narrows in later years, reaching about 1.5 percentage points in 2014. The gap is smaller for other variables.

observations is widely used in income and wealth studies. Overall, this approach preserves the advantages of Blanchet et al.’s (2022) method while mitigating artificial interpolation fluctuations in the very top brackets.

²⁶The 127 g-percentiles include 99 for the bottom 99 percentiles, 9 for the bottom 9 tenth-of-percentiles of the top percentile, 9 for the bottom 9 one-hundredth-of-percentiles of the top tenth-of-percentile, and 10 for the 10 one-thousandth-of-percentile of the top one-hundredth-of-percentile.

²⁷See Section 3.7. Focusing on the cases of the US, Germany, and France [Yonzan et al. \(2022\)](#) show that total income, average income, income composition, and income shares from both survey data and tax records closely correspond for individuals above the 90th percentile and up to the top 1%. This suggests that surveys typically underestimate incomes beyond the 99th percentile. The authors also note that the top 1% threshold cannot be universally applied across different countries. Given the relatively poor quality of the survey data in Turkey, especially before 1994, I assume $p_1 = 0.95$. In the results section, I explore some alternative assumptions.

Although this validation exercise offers no information below the 99th percentile, it suggests that top taxpayer lists can reliably adjust survey data at least at the very top of the income distribution when more comprehensive fiscal data are unavailable.²⁸

While the tax data is imperfect and tends to underestimate top incomes as discussed in Section 3.1, the fiscal correction ratios, as presented in Figure A4, are substantial. Under the benchmark assumptions, the corrections can reach as high as 18.47 at the percentile 0.999999 in some years using the SILC, suggesting that the fiscal income at the very top reported in the tax data can be 18.47 times greater than that reported in the survey data. Although the correction profiles hover around 1 or even fall below 1 during survey years like 1987, which featured an exemption for distributed profits from taxation,²⁹ the average raw correction ratio at the percentile 0.99999 over the entire study period is 9.77 with a standard deviation of 3.69. Considering the evidence shown in Figure A2, which indicates that the top 100 incomes from the surveys usually represent only a minority of the top 100 incomes estimated from the tax data, this finding is not unexpected. The fiscal income series presented in this paper therefore relies on these fiscal corrections and employs the concept of fiscal income.

However, the benchmark fiscal income series does not consider tax-exempt income, of which undistributed profits represent a significant share.³⁰ In Turkey, undistributed profits of private corporations are typically not included in taxable income. This loss of fiscal income has probably been becoming more significant, especially as Turkey’s corporate tax rate has dropped to 25% as of 2024, which is considerably lower than the top marginal tax rate for individuals. This creates strong incentives for the rich to retain earnings within their corporations.

Since the fiscal income series in this study are designed to ensure time comparability throughout the study period, they do not adjust for this bias due to data limitations. To tackle it in an alternative series created for the more recent period, I assume that the marginal distribution of tax-exempt income is represented by the distribution of wealth estimated using the income capitalization technique and the generalized Pareto interpolation method applied to household income surveys and wealth rankings as detailed in the following section.

3.5 Estimating Wealth Distributions

I use the SILC dataset to estimate wealth distribution via the income capitalization method.³¹ The income capitalization approach, in its most typical application, aims to derive wealth distribution from income flows by applying fixed or varying rates of return for each asset class. Rates of returns are calculated by scaling flow data to stock data from national accounts. Due to limited data from Turkey’s national and financial accounts,³² I follow a slightly different approach.

²⁸I would like to thank the anonymous referee for recommending this validation exercise.

²⁹For the year 1987, where the raw correction profile ratio is below one, the fiscal data is considered unrepresentative. The benchmark assumption is thus that the correction profiles are one (see below for a detailed discussion of assumptions). Notably, examining the top 50 taxpayers in the fiscal year 1985, the ratio of their average estimated income to the national average falls sharply from 85 in 1985 to 55 in 1987, before rebounding to 70 by 1994. This pronounced dip in 1987 suggests that the exemption of undistributed profits rendered tax data from that year largely unrepresentative of the true top incomes. In some alternative estimations presented below, I apply the correction profile from 1994 to adjust the top incomes for 1987. I would like to thank the anonymous referee for bringing the year 1987 to attention.

³⁰Alvaredo et al. (2024) estimate that in Turkey, retained profits made up roughly 10% of national income in 2010, decreasing to 5% by 2019, while other forms of tax-exempt capital income represented around 20% in 2010 and rose to approximately 25% by 2019, with a combined 30% tax-exempt income share. In comparison, the world average was approximately 24% in 2019.

³¹While the financial income concept employed in the SILC remains relatively stable over time, this is not true for the HBS. For instance, equity income was discontinued starting in 2011.

³²First, financial accounts are only available from 2010 onward. Second, these accounts lack sufficient detail to calculate the rate of return for each asset class in the surveys.

I first capitalize self-reported rental income and imputed rents to estimate housing wealth. Rental income comes from renting out real estate properties such as apartments, shops, warehouses, and land, ineyards, gardens, or plots during the reference period, after deducting all expenses incurred to generate this income (such as insurance, taxes, repair and maintenance costs, etc.). Imputed rental income is recorded through a self-reporting method, with the SILC surveying households to estimate imputed rents based on the rental value of comparable properties in the same neighborhood and location. To compute price-to-rent multipliers in order to capitalize these incomes, I collect data on house prices and rents in 81 municipalities in 2021 and 2022 from Sahibinden.com.³³ I employ the CPI rental index and the TCMB housing index to extrapolate Sahibinden.com prices and rents back to 2005. Although the CPI covers the entire study period, the house price index is available only from 2012 onward. To extend it back to 2005, I use households' self-reported housing property values from the Household Budget Surveys, which, while available for 2002–2022, provide self-reported values only for 2002–2014. The resulting price-to-rent multiplier rises from 146 in 2005 to 205 in 2014, and further reaches 340 by 2022. I use this multiplier to capitalize both rental income and imputed rents.³⁴ This method applies a uniform multiplier across all housing types, even when actual ratios can differ by property characteristics. If the multiplier is more (less) representative of urban markets than of average housing, the values of middle- and lower-tier properties may be overstated (understated). In such a case, measured inequality would likely be understated (overstated), as middle households would appear relatively wealthier (asset-poorer). However, the method accounts for temporal price variation and thus reflects shifts in housing wealth driven by inflation and macroeconomic fundamentals.

To capitalize financial income—such as interest from term deposits, dividends, or distributed profits from financial institutions and joint-stock companies—I rely on the average annual interest rate on one-year deposits. Evidence from countries with richer data, such as the United States, shows that the aggregate return on financial wealth—when computed by scaling observed flows to stocks in the national accounts—closely tracks deposit interest rates (Saez and Zucman, 2016, p.547).

Finally, business assets are calculated by capitalizing employer income, defined as the net revenue derived from business operations (excluding self-employed individuals),³⁵ after subtracting all relevant expenses during the reference period, such as operating costs, taxes, and social security contributions. The capitalization is performed using the average annual interest rate on one-year deposits.

Applying the interest rate to capitalize business income leads to two opposing biases. First, the interest rate may overestimate the wealth of the top, since business wealth often yields returns exceeding the safe rate (Jordà, Knoll, Kuvshinov, Schularick, & Taylor, 2019). Second, business wealth is highly concentrated among the wealthy, and incomes surveys typically fail to capture large business incomes due to underreporting and undersampling at the top, leading to an underestimation of the top wealth. The overestimation bias is likely smaller than the underestimation bias, since even modest capitalization rates at the top tends to understate the top wealth (Saez & Zucman, 2016, 2020).

³³Sahibinden.com is one of Turkey's most widely used online platforms for real estate transactions. Its extensive user base and high traffic volume contribute to a significant number of property listings, which can provide a broad overview of market trends. The site provides average monthly prices and rents per square meter for each municipality over the past four years. At the time of writing, data for 2021–2024 were available.

³⁴While surveys ask homeowners to estimate their property's market value and rent, Naidin, Walzl, and Ziegelmeier (2025) show that these self-reports often deviate from actual market conditions due to owners' limited market knowledge. Indeed, on average, the imputed rents reported in the SILC are about 2.13 times lower than the rents I estimate based on Sahibinden listings, the housing price index, and the CPI rental index. I therefore adjust the self-reported imputed rents to the average rent before moving on to capitalize incomes.

³⁵Including self-employed individuals could risk conflating business wealth with human capital, as in the case of dentists, accountants, or lawyers who report themselves as self-employed.

After estimating household wealth through the capitalization approach, I distribute the total wealth equally among all members of the household, which I refer to as the per capita equal-split wealth distribution. Because wealth estimates from surveys tend to underestimate the wealth of the top tail—since wealthier households are less likely to participate in surveys (Vermeulen, 2018)—I adjust the top end of the distribution using Forbes wealth rankings. Vermeulen (2018) shows that even a few extreme wealth observations are enough to correct much of the downward bias in the Pareto tail index, which typically results from non-response survey bias. More directly, following a similar approach to that used in estimating income distribution, I tabulate the microdata and estimate wealth distributions in g-percentiles à la Blanchet, Fournier, and Piketty (2022), setting the highest percentile at 0.9999999. The benchmark series assumes that the survey data are reliable for percentiles below $p_1 = 0.95$, while the Forbes data provide wealth information only for $p_2 = 1 - (\text{number of billionaires} \times \text{family size at the top}) / \text{population}$. To produce estimates that better approximate a smooth, convex Pareto distribution, I employ an exponential weighting scheme that interpolates the wealth correction profile from $c_2(p_1) = 1$ to the observed correction ratio c_2 more strongly near p_2 .³⁶

3.6 Rescaling to National Income

Figure 1 shows the share of total national income captured by each data source. Survey income accounts for roughly 60 percent on average. Fiscal adjustments raise this share closer to total national income, by 8 percent in 2005 and 19 percent in 2021. Adding retained earnings contributes about 10 percent in the early years, falls to 5 percent by 2014, and then jumps to 14 percent in 2022, reflecting their growing importance in recent years. Despite these adjustments, around 20 percent of national income remains unaccounted for, with undercoverage accelerating in the latest years. This undercovered income consists of both capital income and other earnings that escape or are exempted from taxation, as well as income generated in the informal sector, while survey data typically capture the informal earnings of lower-income households. A substantial portion of this missing component likely belongs to the top income groups.

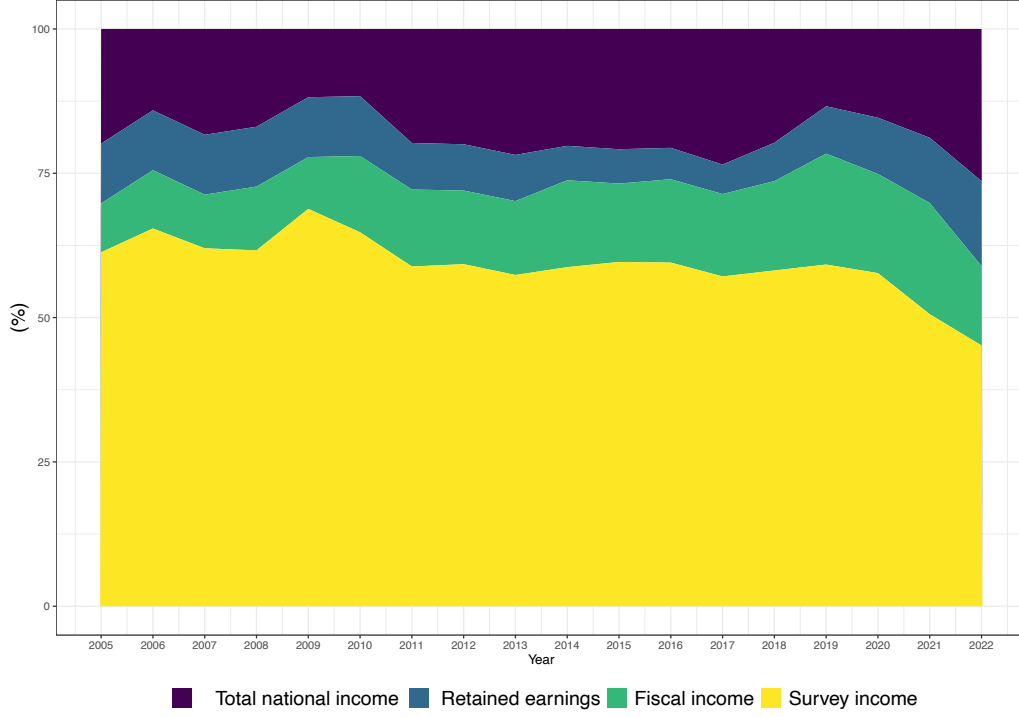
In the “fiscal income distribution” series, I allocate all income components other than fiscal income—such as retained earnings, other capital income absent from both survey and tax data, and production taxes—proportionally by directly adjusting the distribution of fiscal income to match national income. This approach maintains the overall distribution of fiscal income while enhancing the comparability of average incomes and growth rates across countries and over time. It is important to recognize that this is a conservative approach. Incorporating unreported income typically leads to higher inequality levels, mainly because retained earnings and other tax-exempt capital income are often concentrated among the rich (Alvaredo et al., 2024).

In an alternative “national income distribution” series created only for the more recent period due to data limitations, which aims to correct the downward bias in the fiscal income distribution series caused by the omission of tax-exempt income, national income is divided into two components: a fiscal income component and a tax-exempt income component.³⁷ In the benchmark national income distribution series, I limit tax-exempt income

³⁶Beyond its ability to generate a smoother and more convex profile, this approach is also motivated by empirical evidence showing that survey underreporting of wealth rises disproportionately in the upper tail (Bricker, Henriques, Krimmel, & Sabelhaus, 2016; Vermeulen, 2018). Alternative assumptions are tested below.

³⁷By omitting government net capital income, which includes the government’s portion of undistributed profits and indirect taxes collected by the government, from the decomposition, I proportionally allocate it. As highlighted in footnote 30, Alvaredo et al. (2024) project that retained profits accounted for about 10% of Turkey’s national income in 2010, falling to 5% by 2019, while other types of tax-exempt capital income represented around 20% in 2010 and increased to roughly 25% by 2019, resulting in a total tax-exempt income share of 30%. I augment their estimates using more recent national

Figure 1: Share of Average Income Relative to Total National Income Across Survey, Fiscal, and Final Distributions



Note: Survey income is drawn from the Survey of Income and Living Conditions (SILC). Fiscal income represents survey-reported income adjusted using tax data. National income figures are sourced from the World Inequality Database.

to retained earnings and assume that its marginal distribution follows the wealth distribution. I then model the joint distribution of retained earnings and wealth using a Gumbel copula with parameter $\theta = 2$ to estimate the overall distribution.

3.7 Benchmark and Bound Assumptions

In this section, I provide a detailed discussion of the selected benchmark assumptions and explore alternative assumption sets, summarized in Table 1, to estimate the upper and lower bounds of inequality, thereby assessing the uncertainty of the benchmark estimates (see Section 4.7).

Taxable/fiscal income ratio Relying on taxable income—income subject to taxation after deductions and exemptions—in the fiscal data introduces an initial source of uncertainty when estimating fiscal income, which represents total income subject to taxation before any deductions or exemptions. As discussed in Section A1, deductions and exemptions in Turkey tend to change over time. However, the taxable-to-fiscal income ratio of 0.9 represents a conservative average that captures the typical impact of deductions across income groups over time: Education and health expenses are typically deductible up to 10% of declared income, while life and personal insurance premiums can be deducted up to 15% of income, though the actual amount is lower due to the annual minimum wage cap. Charitable donations are generally limited to 5% of income. Additional deductions, such as small sponsorships or approved fund contributions, typically account for 1–2% of income. Average deductions are unlikely to reach these maximums. When aggregated, these components tend to result in a total deduction of accounts data from TUIK, which indicate a substantial rise in the share of retained earnings, to decompose national income.

approximately 10% of an average taxpayer’s income, reflecting both legal limits and common expenditure patterns in Turkey. I use a ratio of 0.95 for the lower bound and 0.8 for the upper bound scenario as often assumed in studies using incomplete fiscal data (Assouad, 2023; Piketty et al., 2019).

Family size at the top Because the top taxpayer lists do not report family-level income, I divide the estimated income of the top taxpayer by an assumed family size to make it consistent with a per capita equal-split framework. The benchmark case assumes four members (two adults and two dependents). This choice is conservative for three reasons: average household size in Turkey has been lower than four since 2008; households at the top of the distribution are typically smaller; and dividing reported income by family size understates individual incomes at the top since total household income is unaccounted for. The lower bound scenario is based on an assumed household size of six, and the upper bound scenario assumes only two members.

Survey coverage and correction profiles Empirical comparisons for high-income countries show that survey and tax data measures typically agree well up to roughly the 90th percentile, with systematic under-reporting in surveys becoming most severe only beyond the 99th percentile (Yonzan et al., 2022). However, survey data are typically less reliable in Turkey, since income underreporting for tax purposes is more prevalent in less developed countries, and survey participation may raise concerns about revealing undeclared earnings. For this reason, both benchmark and lower-bound assumptions assume that surveys are reliable up to the 95th percentile and that corrections profile increases piecewise linearly. In the upper-bound scenario, reliability is assumed only up to the 80th percentile, consistent with assumptions commonly made in other studies that rely on lower-quality survey data (Assouad, 2023; Piketty et al., 2019). In this latter scenario, the correction coefficients—assumed to follow a convex profile—adjust a larger share of incomes within the top 10% and results in a higher top 10% share.³⁸

Copula dependence Based on observed marginal distributions in countries with high-quality fiscal data, such as the United States and France, the copula parameter θ is generally found to lie between 2.5 and 3.5 (As-

³⁸For the top 1%, this latter scenario represents the lower bound: when the top 10% share rises due to gains among the 90–99% group, the top 1% share falls in relative terms.

Table 1: Benchmark and Bound Scenarios for Top Income and Wealth Shares

Dimension	Data impacted	Data points impacted	Lower bound assumptions	Benchmark assumptions	Upper bound assumptions
Taxable/Fiscal income ratio	top taxpayer lists, tax tabulations	fiscal income series (1979-2022), national income series (2005-2022)	High ratio (= 0.95), i.e., most top income already reported.	Medium ratio (= 0.90).	Lower ratio (= 0.80), more top income hidden or exempt.
Top family size	top taxpayer lists, Forbes lists	fiscal income series (1987-2022), national income series (2005-2022), wealth distribution series (2005-2022)	6 individuals; top incomes overshared within family.	4 individuals	2 individuals; top incomes undershared within family.
Survey undercoverage of top and correction profile	income surveys, wealth distribution estimated from income surveys	fiscal income series (1968-2022), national income series (2005-2022), wealth distribution series (2005-2022)	Minimal undercoverage assumption $c_1(p_1) = 0.95$; linear profile (top 10%) Severe undercoverage assumption $c_1(p_1) = 0.8$; convex profile (top 1%).	$c_1(p_1) = 0.95$; linear profile	Severe undercoverage assumption $c_1(p_1) = 0.8$; convex profile (top 10 %). Minimal undercoverage assumption $c_1(p_1) = 0.95$; linear profile (top 1%)
Tax-exempt and fiscal income copula dependence (θ)	income surveys, wealth distribution estimated from income surveys	national income series (2005-2022)	$\theta = 1.5$; Weaker rank dependence between tax-exempt and fiscal income.	$\theta = 2$; Medium dependence	$\theta = 4$; Stronger dependence.
Rural and urban income copula dependence (θ)	1979 income survey	1979 in fiscal income series (1968-2022)	$\theta = 1.5$; Weaker rank dependence.	$\theta = 2$; Medium dependence	$\theta = 4$; Stronger dependence.
Amount of missing income	income surveys	national income series (2005-2022)	Only retained earnings are considered; a smaller portion of national income is allocated based on the wealth distribution.	Only retained earnings are considered.	Other tax-exempt income is considered; a higher portion of national income is allocated based on the wealth distribution.
Declaration rates	tax tabulations	1968 and 1979 in fiscal income series (1968-2022)	Lower declaration rate toward bottom and higher declaration rate toward top = smaller correction coefficients.	Lower declaration rate for bottom and top = mid-range correction coefficients.	Higher declaration rate for bottom and top = larger correction coefficients.
Tax tabulation undercoverage of top	tax tabulation	fiscal income series (1968-2022), national income series (2005-2022), wealth distribution series (2005-2022)	Minimal undercoverage assumption $c_1(p_2) = 0.995$, linear profile.	$c_1(p_2) = 0.995$; linear profile	Severe undercoverage assumption $c_1(p_1) = 0.9999$; convex profile.

souad 2023). The benchmark case is conservative and assumes $\theta = 2$. To account for uncertainty, the lower-bound scenario assumes $\theta = 1.5$, and the upper-bound scenario uses $\theta = 4$.

Allocation of tax-exempt income Alvaredo et al. (2024) estimate that retained earnings constituted approximately 10% of Turkey’s national income in 2010, declining to 5% by 2019, whereas other forms of tax-exempt capital income accounted for around 20% in 2010 and rose to roughly 25% by 2019, bringing the total share of tax-exempt income to about 30%. I extend their estimates with more recent national accounts data from TUIK, which show a notable increase in the share of retained earnings to around 15%. In the benchmark and lower-bound scenarios, I assume that only retained earnings—a smaller portion of national income—are allocated according to the wealth distribution. This assumption is more conservative than what is commonly assumed in studies that rely on incomplete national account data (Assouad 2023; Novokmet et al. 2018). In the upper-bound scenario, a larger portion, including other tax-exempt capital income, follows the wealth distribution.

Income declaration rates and tax tabulation coverage The tax tabulations employed for the pre-1980 period do not cover the entire population, because filing an income tax return in Turkey is not universal. As a result, the observed distribution in the tax data overrepresents higher-income taxpayers relative to the full population. I apply declaration rate assumptions to the raw number of tax units in each bracket to adjust for this undercoverage. This correction is standard practice in income distribution analysis in contexts with partial tax coverage (see Novokmet et al. 2018).

Tax tabulation coverage The benchmark case $p_2 = 0.995$, as in Piketty et al. (2019), ensures that the correction relies on fiscal data only where coverage is likely more complete. The upper-bound assumption $p_2 = 0.9999$ anchors the fiscal correction profile to actual tax data for only the top 0.01% of the population. In this case, the correction coefficients for the remaining upper tail below the top 0.01% are obtained via piecewise-linear interpolation rather than directly from observed fiscal data. Because interpolation spans a wider range of percentiles in this upper bound case, the resulting coefficients tend to be larger than the empirically observed ratios, effectively overestimating the adjustment needed for the bulk of the upper tail.

3.8 Limitations

Key limitations of the datasets and the methodology used in the study should be highlighted. One limitation is the limited availability of surveys: with only one survey per decade before 2002, each is assumed to represent its respective decade. As a result, any significant fluctuations within a decade would not be captured in the analysis of inequality across decades.

While the raw surveys used in the paper employed the regular sampling techniques of their time and were often instrumental in constructing price indices and evaluating socio-economic conditions by applying broadly consistent definition of disposable income, the variation in the samples and specific variable definitions constrains the full consistency of the data. A key limitation of the 1968 data is that it was primarily designed to study fertility. Households with female members over 45 years old or unmarried, which make up around 17 percent of the population, are excluded. If wealthier individuals are more likely to be single, this exclusion may lead to an underestimation of per capita equal-split income inequality in the raw survey. However, Bulutay et al. (1971) argue that the survey is still sufficiently representative and that its validity for relative comparisons remains

intact, suggesting that orders of magnitude in the data can still provide valuable historical insights into income inequality during the 1960s. Indeed, the survey captures approximately 77 percent of disposable income reported in the national accounts, a level of coverage that falls within the range typically observed in household surveys internationally. A comparison with the 1965 population census indicates broad consistency in regional composition, settlement size distribution, and population. Moreover, the unadjusted inequality measure from the 1968 data is nearly identical to an earlier 1963 estimate and closely matches the later 1973 value, suggesting no discontinuity arising from a data issue.

Another limitation is that the 1979 data covers only urban incomes. I supplement it with the rural survey from 1973. If the relative incomes of urban and rural regions shifted in favor of the urban areas between 1973 and 1979, the benchmark series tends to underestimate income inequality. Also, in the 1979 survey, the conversion from household units to individual units is done using a constant household size derived from the data. If higher-income households have fewer members than the average, this method may result in an underestimation of inequality, or vice-versa. However, the unadjusted Gini estimates for the rural and urban samples remain consistent with later estimates based on alternative surveys, showing no substantial breaks.

The tax tabulation data used for estimating income inequality during the pre-1980 period has three limitations. First, not all individuals in Turkey were required to file an income tax return, meaning that a specific top percentile in the tax data actually represents even a higher percentile in the population. To address this, I apply assumptions about the declaration rate, assuming the fraction of taxpayers who file returns at each percentile. While this introduces some additional uncertainty to the income inequality estimates, I test alternative assumptions and confirm that the results are not significantly affected by the declaration rate assumptions. Second, the data in tax tabulations are organized by tax units, which could represent either a family or an individual. To adjust the bracket thresholds to an individual level, I apply the share of single adults in tax units from 1967 uniformly across all brackets, assuming that the proportion of single adults remains fairly consistent across brackets and over time. If single adults are more prevalent among wealthier households, the actual correction coefficients will tend to be larger, implying an underestimation of inequality in the benchmark series. Third, inequality might still be underestimated because the survey adjustment coefficients are likely lower than they should be, since there were significant tax exemptions on income components.

Another major limitation of this study is the significant decline in the quality of tax data after 1980, primarily because I need to rely solely on the list of the top 100 taxpayers to adjust the survey-based income distribution in this period. As a result, income inequality estimates for the top 0.1%, 1%, and even 10% are derived from information representing only about the top 0.00012%, depending on the population size in a given year. Although I attempt to mitigate this uncertainty by employing conservative and flexible assumptions affecting the correction profiles, a substantial level of uncertainty remains. Nevertheless, considering the evidence in Figure A2 showing that relying solely on raw survey data tends to underestimate inequality, it is crucial to note that, to the best of current knowledge, this study is the first to employ this fiscal data and marks a significant improvement over studies that either make no adjustments or rely on corrections derived from fiscal data from other countries. Moreover, to assess the reliability of this method, I apply it to Lebanon, where detailed tax tabulations compiled by Assoud (2023) provide additional fiscal information. The analysis confirms that top taxpayer lists can effectively adjust survey data at the very top of the income distribution when more comprehensive fiscal data are unavailable.

Finally, a number of limitations introduce uncertainty to wealth inequality estimates and, consequently, to income inequality estimates that rely on wealth distributions to account for tax-exempt income. Since no direct surveys of household wealth are available in Turkey, wealth must be estimated by capitalizing survey income. Due to the limited data from Turkey’s national and financial accounts, I use the average annual interest rate for one-year term deposits as the capitalization factor for financial and business assets. Given that the annual global return on equity is typically higher than other financial assets (Jordà et al., 2019), using the interest rate to capitalize dividend income may overestimate the value of equity. Furthermore, if real returns vary across individuals and tend to increase with wealth, there is an added risk of overestimating wealth at the top of the distribution. However, because even modest capitalization rates at the top tend to understate top wealth, this overestimation bias is likely smaller than the underestimation bias from undersampling and underreporting at the top (Saez & Zucman, 2016, 2020). The absence of debt data remains another limitation and compels the use of the gross wealth concept. Although the wealth inequality estimates in this study carry the most significant uncertainty, it is worth noting that the income capitalization approach represents an improvement over previous studies on late industrialized countries. For example, some studies estimating wealth inequality in countries like Russia (Novokmet et al., 2018) and Lebanon (Assouad, 2023) rely on average standardized wealth distributions for the US, France, and China from WID.world series, applying the same normalized distribution below the 99th percentile from these countries.

The benchmark estimates are designed to mitigate these limitations by incorporating explicit and conservative assumptions. To quantify the uncertainty arising from the limitations, I also provide upper- and lower-bound estimates based on alternative sets of assumptions. I hope that future research will yield more accurate estimates once Turkey’s Revenue Administration begins releasing official tax tabulation series and TUIK conducts representative wealth surveys.

4 Results

In the subsections that follow, I first introduce the fiscal income distribution series, which shows the long run evaluation of income inequality from 1968 to 2022. This series focuses on providing a consistent comparison over time but excludes tax-exempt income due to data limitations, leading to an underestimation of actual inequality. I thus also analyze the national income distribution series that incorporates tax-exempt income for the more recent period from 2005 to 2022. Next, I provide an overview of the distribution of economic growth consistent with national accounts from 1968 to 2022 and the distribution of wealth, followed by reconciliation of the estimates with existing literature. I then compare Turkey’s income and wealth inequality trends to those of other countries with high-quality inequality data. Finally, I evaluate the uncertainty of the estimates.

4.1 Fiscal Income Inequality in the Long Run

Figure 2 illustrates the distribution of post-tax fiscal income, using data from both the HBS and SILC datasets for the post-2005 period. Before moving on, it is important to note that the HBS increasingly underrepresents top incomes over time (See Figure A2). Applying corrections to it consequently amplifies measured inequality, as larger correction factors affect incomes up to the 95th percentile. For this reason, I treat the SILC estimates as

the primary benchmark.

Focusing on the benchmark series, the figure shows that inequality was extremely high in 1968,³⁹ followed by an extraordinary shift in the share of the top from 1968 to 1979: the top 10 percent share dropped from 55.4 percent to 31.9 percent, the top 1 percent share from 25.4 percent to 8.6 percent, and the top 0.1 percent share from 6.4 percent to about 3 percent. While the scale of the decline is unusually steep by international comparison and should be interpreted cautiously, the overall trajectory is consistent with Turkey's 1970s context: This was a decade shaped by import-substitution industrialization, extensive state intervention, and capital controls. At the same time, union strength and collective bargaining reached unprecedented levels, and wage earners secured real gains, which together likely limited the scope for accumulation at the very top.⁴⁰

The period of rapid decline in inequality was followed by a modest increase in the share of the top 10 percent in 1987, mirroring the decline in the income share of the middle 40 percent.⁴¹ The top decile share further rose from 32.5% in 1987 to 34.9% in 1994 and continued climbing into the early 2000s, reaching 37.8% by 2005.⁴²

Between 2005 and 2009, the share held by the very top, the Gini coefficient (about 0.45), and the top 10 percent share (around 37%) remained relatively stable.⁴³ Inequality began rising during the post-2008 financial crisis recovery, eventually stabilizing at a higher Gini coefficient of 0.47 by 2013. It resumed its upward trend thereafter, with the most pronounced increase occurring after 2018: by 2022, the Gini coefficient had reached 0.513, the top 10 percent captured 45 percent of fiscal income, the middle 40 percent received 35.5 percent, and

³⁹A key factor contributing to the high inequality observed in 1968 was most likely the dominant agricultural sector. A large portion of Turkey's wealthy population in the 1940s consisted of larger landowners or farmers (Derviş & Robinson, 1980, p.120). By the 1960s, land ownership in Turkey was more concentrated than in 49 of the 98 countries examined by Oyvat (2016, pp. 229–230). Thus, during the 1950s marked by agricultural commercialization and rapidly increasing agricultural prices, government programs that supported crop prices and subsidized certain input costs likely benefited medium- and large-scale, market-oriented farmers the most—and particularly in the absence of land reform and with agricultural income shielded from progressive taxation until the late 1960s (Pamuk, 2018, p.229). Figure A5 reinforces this conclusion, offering suggestive evidence that regions with greater land concentration in 1968 experienced higher income inequality.

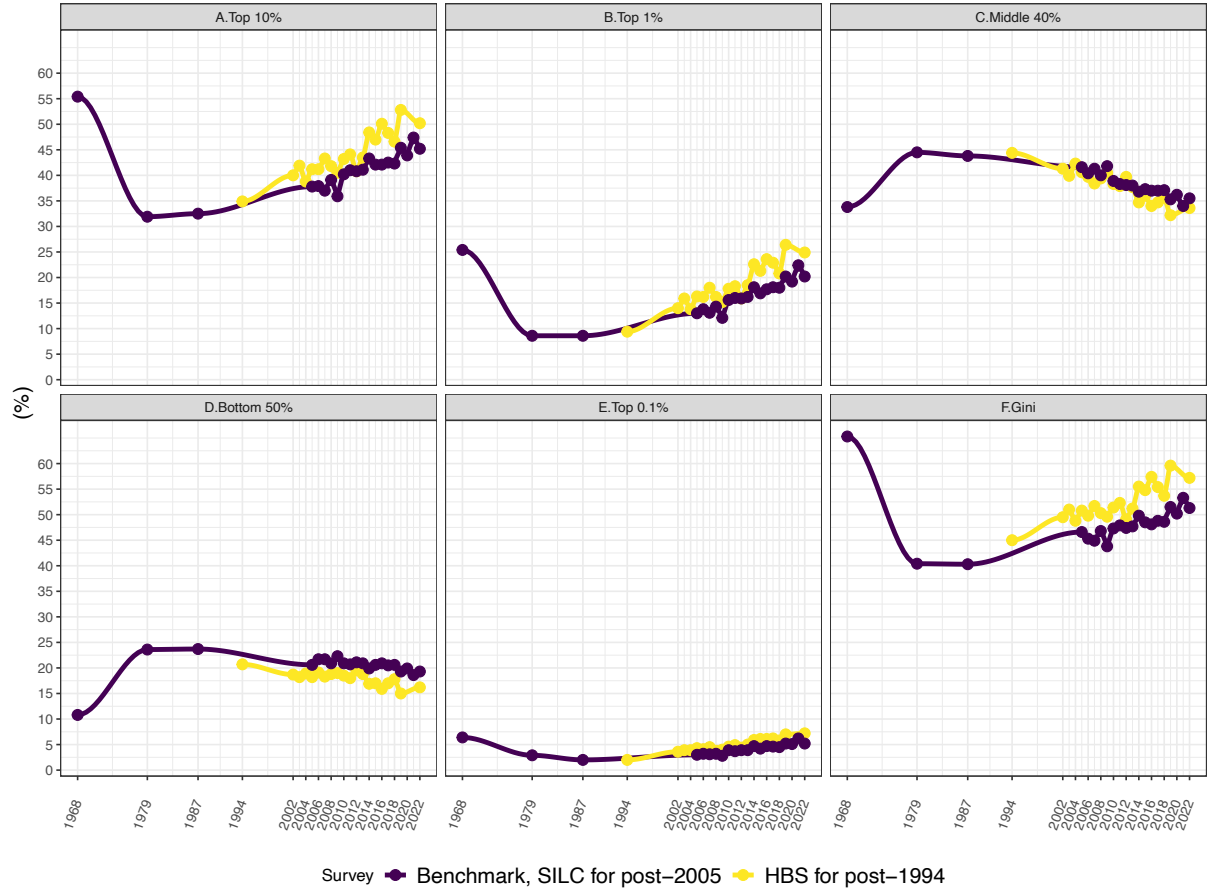
⁴⁰Also, this shift is not necessarily an artifact of the paper's methodologies or datasets; the decline is consistent with later surveys, such as DIE (1990). A more specific explanation for the decline can be found in Turkey's industrialization experience: During the 1970s, Turkey underwent rapid urbanization, partly driven by import substitution industrialization (ISI) (Danielson & Keleş, 1980, p.269). From 1970 to 1976, intensified domestic production and massive strikes in mining, textiles, metal, and construction sectors led to significant wage increases for industrial workers (Karacan, 1983, p.84). The collapse of ISI in 1979, driven by currency overvaluation and import dependence, further amplified the labor share in value-added (Yeldan, 2001, p.42). Combined with urban-rural migration (Kuran, 1980, p.370), the rising wage share likely drove the sharp decline in income inequality from 1968 to 1979. An explanation that focuses primarily on wage growth is consistent with Figure A6, shows wage share is increasing at the bottom while entrepreneurial income share rises at the top in the 1979 survey.

⁴¹This modest increase should be interpreted cautiously, since correction profiles drop below 1 in 1987, in which distributed profits were exempt from taxation, as shown in Figure A1. Thus, fiscal data likely underestimate the actual levels of inequality in the 1980s characterized by the rapid liberalization of trade, which relied on internal devaluation through restrictions on unions (Boratav, Yeldan, & Köse, 2001). Combined with tax exemptions on distributed profits, the internal devaluation was associated with a decline in the private manufacturing wage share from 27.5% to 17% and with an increase in profit margins from 31% to 38% (Yeldan, 2001, p.44), likely reinforcing inequality because entrepreneurial income accrued to the top in 1987 (Figure A6). However, the decline in agricultural exports (Tokucu & Yüce, 2013, p.53) and the removal of subsidies (Pamuk, 2023, p.287) probably weakened large-scale farmers, most likely limiting the overall increase in inequality. In Section 4.7, I report alternative estimates using the 1994 correction coefficients for 1987.

⁴²The 1989 liberalization of the capital account marked a turning point with significant distributional consequences. Financial liberalization can heighten inequality by fostering instability that disproportionately harms lower-income groups—as seen in Turkey's crisis-prone growth fueled by short-term inflows in the 1990s (Öniş & Şenses, 2022, p.210)—and by primarily benefiting the wealthy through expanded financial opportunities (Li & Su, 2021, p.405). In Turkey, financial income became increasingly concentrated at the top between 1979 and 1994 (Figure A6), while speculation-driven banking activities thrived under real interest rates above 20 percent (Yeldan, 2022, pp.244–245).

⁴³After the 2000–2001 crisis, the AKP pursued IMF-backed reforms while benefiting from the Fed's loose monetary policy and Turkey's 2004 EU candidacy, which attracted capital and boosted the lira (Pollin, 2005, p.90); (Taymaz & Voyvoda, 2022, pp.268–269); (Orhangazi, 2020, pp.105–135). Lower interest costs freed fiscal space for expanded health, pensions, and social assistance, with per capita transfers rising 53% between 2006 and 2011 (Pamuk, 2014, p.333); (Buğra, 2020); (Tekgüç, 2018, p.13). These transfers likely contributed to the stabilization of inequality (Tekgüç & Eryar, 2023). Also, Acemoğlu and Üçer (2021)'s conceptual framework is consistent with this evidence: Inequality can stabilize when institutional reforms and productivity gains overpower extractive dynamics.

Figure 2: The Distribution of Post-Tax Fiscal Income, Rescaled to National Income, Per Capita Equal-Split Population



Note: All income concepts in tax and survey data are harmonized to derive fiscal income, which is then allocated to all members of households equally including children. For the pre-1980 period, tax tabulations are used to correct the top of the distribution of survey income estimated through generalized Pareto curve interpolation. For the post-1980 period, the lists of top 100 taxpayers are used to correct the upper tail of the survey distribution of income again estimated through generalized Pareto interpolation. There are two different surveys available after 2005: HBS and SILC. *Key benchmark assumptions:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data, household size is assumed to be 4. Taxable-to-fiscal income ratio is 0.9.

the bottom 50 percent accounted for 19.3 percent.⁴⁴

Over the long run of history, the distribution of fiscal income in Turkey exhibits a U-shape trajectory, a pattern widely documented in studies of advanced economies reviewed by [Atkinson, Piketty, and Saez \(2011\)](#). In the Turkish context, this trajectory is characterized by a sharp decline in top-income concentration between 1968 and 1979, followed by a resurgence of inequality during the 1980s, 1990s, and a renewed acceleration in the 2010s, most notably after 2018. From 2005 to 2022, the fiscal income shares of the top decile and the top percentile rose relative to both the middle 40 percent and the bottom half of the population. The erosion of the middle class is particularly striking: the share of the middle 40 percent fell from 41.6 percent in 2005 to 35.5 percent in

⁴⁴Turkey's economy follows the Alejandro-Taylor cycle in approximately 10-year cycles ([Yeldan, 2022](#), p. 231), where short-term capital inflows first appreciate the currency and finance public spending, but outflows trigger devaluation, higher interest rates, austerity, and demand contraction. After 2008, global liquidity encouraged foreign-currency borrowing by firms and banks ([Boratav & Orhangazi, 2022](#), p. 288), leaving the economy vulnerable to shocks such as the 2013 Fed "taper tantrum" ([Orhangazi & Yeldan, 2021](#), p. 487), the 2018 US-Turkey tensions ([Boratav & Orhangazi, 2022](#), p. 306), and the Covid-19 pandemic. These episodes of capital flight, currency depreciation, and policy interventions coincided with rising income and wealth inequality. [Acemoglu and Üçer \(2021\)](#) identify the driver of worsening inequality as an unequal and elite-favoring growth model, reinforced by state intervention and institutional degradation.

2022, whereas the bottom 50 percent’s share remained relatively stable within the distribution, highlighting an intensifying polarization within the income distribution. In what follows, I examine this recent period using the full distribution of national income.

4.2 National Income Inequality

Table 2 presents estimates of the distribution of post-tax national income in Turkey for 2022, based on data from both the HBS and SILC. Focusing on the SILC estimates, the average income of the bottom 50 percent, representing approximately 42.5 million individuals, amounts to about 33.4 percent of the national average income. The bottom 50 percent collectively receives around 16.7 percent of the total income (33.4 percent multiplied by 50 percent). In contrast, the top 10 percent has an average income exceeding 5.05 times the national average, accounting for roughly 50.5 percent (5.05 times 10 percent) of the total income. Meanwhile, the middle 40 percent earns approximately 32.8 percent of the total income, with their average income below the national average income.

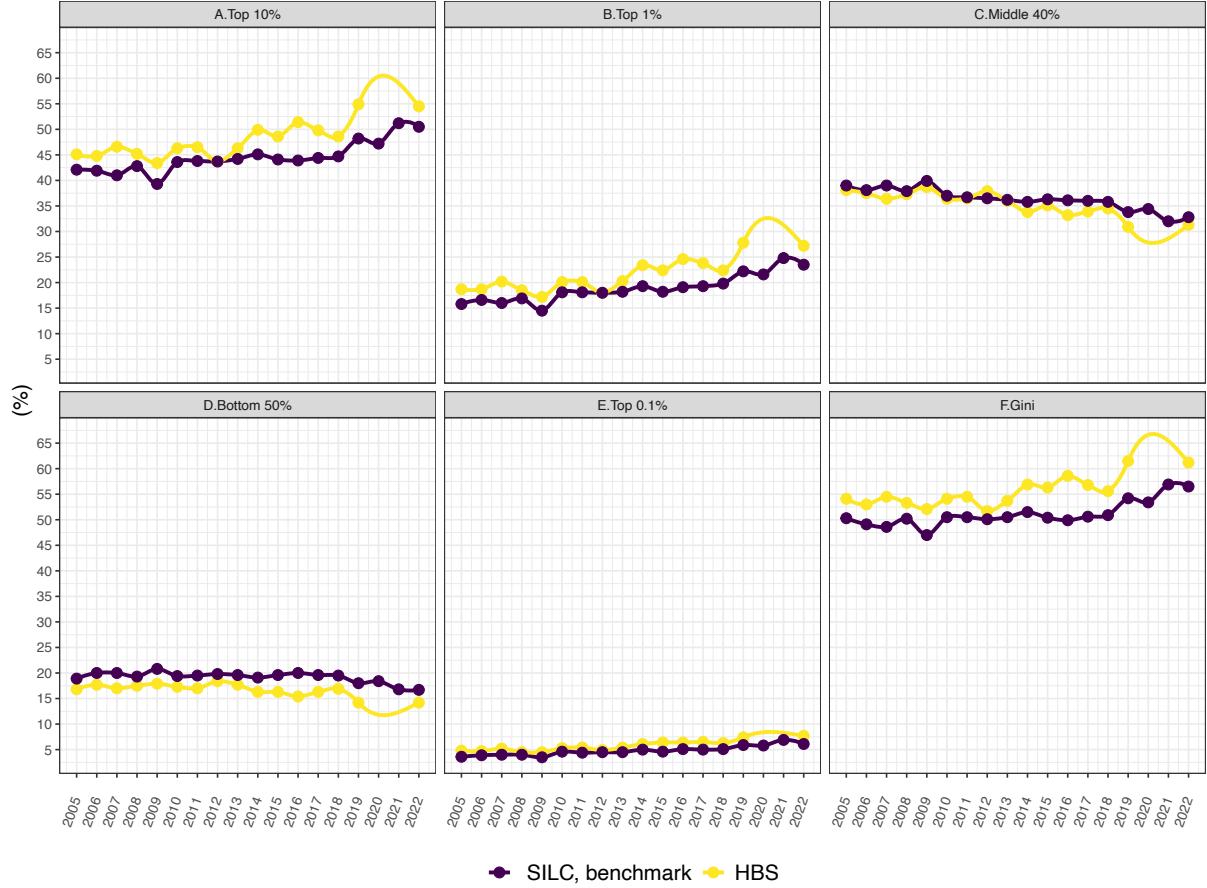
Table 2: Post-Tax National Income Quantiles and Shares in Turkey in Euros (2023 PPP), Accounting for Tax-exempt Income, Per Capita Equal-Split Population, 2022

Income groups	Number of individuals	Income share	Threshold	Average income
Population	84,979,913	100%		€20,715
Using SILC				
Bottom 50%	42,489,956	16.7%	0	€6,919
Middle 40%	33,991,965	32.8%	€8,301	€16,987
Top 10%	8,497,991	50.5%	€21,552	€104,613
Top 1%	849,799	23.5%	€165,805	€486,811
including Top 0.1%	84,980	6.1%	€596,582	€1,263,636
including Top 0.01%	8,498	1.3%	€1,334,500	€2,692,994
including Top 0.001%	849	0.4%	€1,983,942	€8,284,186
including Top 0.0001%	85	0.2%	€17,609,536	€41,420,929
Using HBS				
Bottom 50%	42,489,956	14.2%	0	€5,883
Middle 40%	33,991,965	31.3%	€7,631	€16,210
Top 10%	8,497,991	54.5%	€20,706	€112,899
Top 1%	849,799	27.2%	€174,838	€563,458
including Top 0.1%	84,980	7.7%	€728,385	€1,595,081
including Top 0.01%	8,498	1.5%	€1,636,402	€3,107,301
including Top 0.001%	849	0.4%	€2,271,748	€8,284,186
including Top 0.0001%	85	0.2%	€17,910,169	€41,420,929

Note: The table provides an overview of income distribution in Turkey for 2022. The analysis uses a per capita equal-split approach, with income defined as post-tax national income and allocated equally among all household members including children. In 2022, the exchange rates were 1 euro = 17.38 TRY (market rate) and 1 euro = 7.23 TRY (purchasing power parity). *Key benchmark assumptions:* The marginal distribution of tax-exempt income is represented by the distribution of wealth estimated using the income capitalization technique and the generalized Pareto interpolation method applied to capitalized incomes and Forbes wealth rankings. The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data and Forbes data, household size is assumed to be 4. Taxable-to-fiscal income ratio is 0.9 and the copula parameter θ is 2.

Figure 3 presents estimates of national income distribution from 2005 to 2022. Notably, relative to the 2022 fiscal income distribution, including tax-exempt income raises the Gini coefficient from 0.51 to 0.56. According to the benchmark national income distribution series, the top 10 percent’s share rose from 42.5 percent in 2005 to 50.5 percent in 2022, while the top 1 percent’s share increased from 15.8 percent to 23.5 percent. The middle 40 percent saw their share decline by roughly 5 percentage points by 2020, whereas the bottom 50 percent experienced a negligible loss of 0.05 percentage points. Inequality has intensified in the most recent period: between 2020 and 2022, the middle 40 and bottom 50 each saw their income shares shrink by a further 2 percentage points.

Figure 3: The Distribution of Post-Tax National Income, Per Capita Equal-Split Population

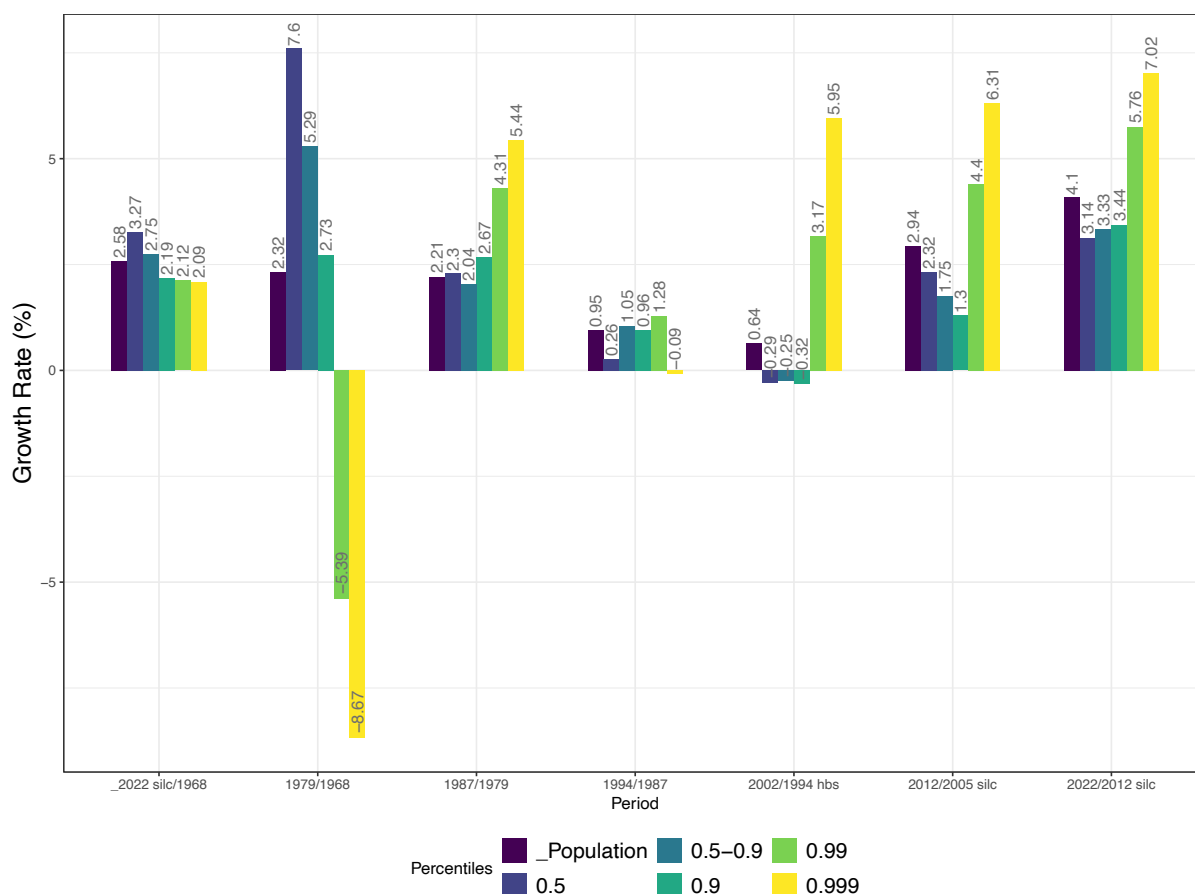


Note: National income distribution series addresses the downward bias in the fiscal income distribution series caused by excluding tax-exempt income. National income is separated into two components: fiscal income and tax-exempt income. The estimation assumes that the marginal distribution of tax-exempt income mirrors the distribution of wealth, while the joint distribution of the two components is modeled using a Gumbel copula. All the series are based on a per capita equal-split approach, with income equally allocated to all members of the household, including children. *Key benchmark assumptions:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data and Forbes data, household size is assumed to be 4. Taxable-to-fiscal income ratio is 0.9. Gumbel copula is with a parameter of $\theta = 2$.

4.3 The Distribution of Economic Growth

Since I allocate post-tax national income to different income groups, it is possible to break down the growth in national income by these groups.⁴⁵ I begin by providing a long-term, time-comparable summary decomposition based on the post-tax fiscal income series, which excludes tax-exempt income, and then proceed to decompose the full national income, including tax-exempt income, for the post-2005 period.

Figure 4: The Long-Run Distribution of Growth in National Income, Post-Tax Fiscal Income Rescaled to National Income, Per Capita Equal-Split Population



Note: All income concepts in tax and survey data are harmonized to derive fiscal income, which is then allocated to all members of households equally including children. All missing income components are proportionally allocated by adjusting the fiscal income distribution to match national income. Real growth rates are computed using the formula $((\text{bracketaverage}_{pt}/(\text{bracketaverage}_{pt-1})/(\text{nominalaverage}_t/\text{nominalaverage}_{t-1})) * (1 + (\text{realaverage}_t/\text{realaverage}_{t-1} - 1)) - 1$, where p denotes the percentile and t denotes the period. *Key benchmark assumptions:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data, household size is assumed to be 4. Taxable-to-fiscal income ratio is 0.9.

Figure 4 shows that the average annual real growth rate from 1968 to 2022 was 2.58 percent, with the bottom 50 percent benefiting the most from economic growth, while the top benefited the least. A comparison of different periods indicates that this long-term pro-poor growth is largely due to the growth seen between 1968 and 1979.

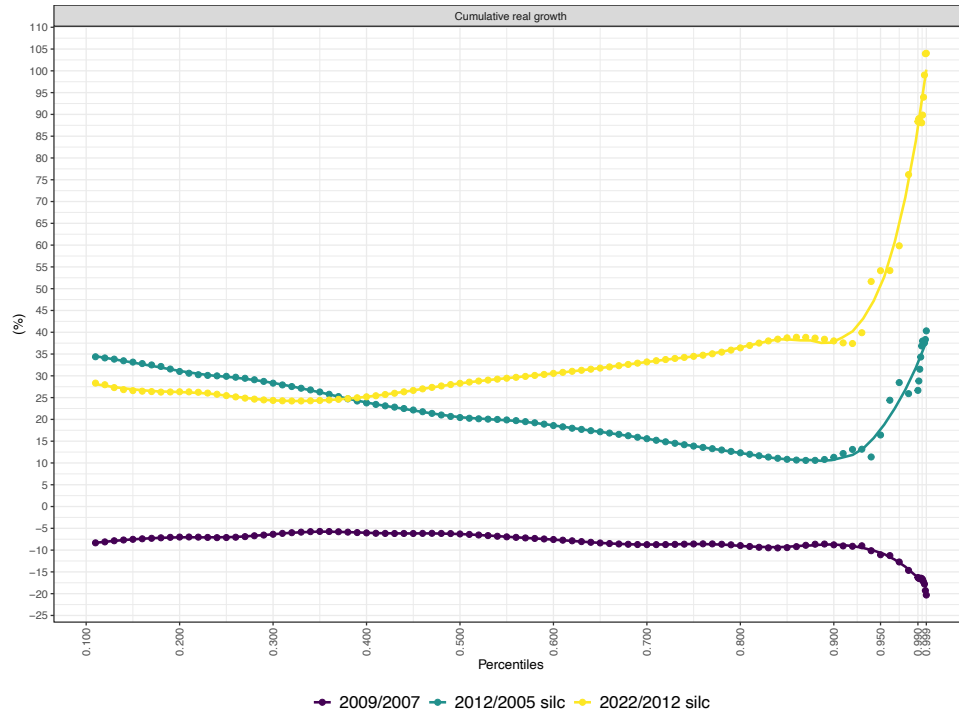
Although overall growth weakened between 1979 and 1987, a period of rapid trade liberalization, the top and very top recorded comparatively larger gains. During the “lost decade” from 1987 to 1994, growth was sluggish, and the burden of stagnation was distributed fairly evenly across income groups. Between 1994 and 2002, in

⁴⁵It is crucial to note that overlooking the value of unpaid family labor represents a major limitation here, as accounting for the time spent solely on child care could boost Gross Domestic Product by approximately 43% even in richer countries like the United States (Suh & Folbre, 2016).

the aftermath of the 2001 financial crisis and continuing stagnation, top income groups prospered while the rest of the population saw declines in real income. From 2005 to 2012, growth outpaced the long-term average for 1968–2022, with the bottom half of the population achieving the fastest growth among the bottom 99 percent. Finally, between 2012 and 2022, growth exceeded the long-run average by a wide margin, but its benefits were concentrated overwhelmingly at the top.

Figure 5 examines the period 2005–2022, incorporating tax-exempt income and showing the full distribution of growth across percentiles. Between 2005 and 2012, growth was relatively pro-poor, yet the middle 40 percent saw more modest gains compared to the substantial increases enjoyed by the top 10 percent, particularly the very top. In the following decade, 2012–2022, the middle 40 achieved higher growth rates, but the top groups continued to capture a disproportionate share of the overall gains. The impact of the 2008 financial crisis was distributed fairly evenly across the bottom 90 percent, whereas the very top incurred greater cumulative losses between 2007 and 2009.

Figure 5: The Full Distribution of Growth in National Income, Accounting for Tax-Exempt Income, Per Capita Equal-Split Population



Note: National income is separated into two components: fiscal income and tax-exempt income. The distribution of survey income is proportionally scaled to aggregate fiscal income, while the wealth distribution is proportionally scaled to aggregate tax-exempt income. The joint distribution of the two components is modeled using a Gumbel copula. The series is based on a per capita equal-split approach, with income equally allocated to all members of the household, including children. Real growth rates are computed using the formula $((\text{bracketaverage}_{pt}/(\text{bracketaverage}_{pt-1}))/(\text{nominalaverage}_t/\text{nominalaverage}_{t-1})) * (1 + (\text{realaverage}_t/\text{realaverage}_{t-1} - 1)) - 1$, where p denotes the percentile and t denotes the period. *Key benchmark assumptions:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data and Forbes data, household size is assumed to be 4. Taxable-to-fiscal income ratio is 0.9. Gumbel copula is with a parameter of $\theta = 2$.

4.4 Wealth Distribution

Table 3 presents estimates of Turkey's wealth distribution in 2022. Per capita wealth amounts to €109,656 (2023 PPP), approximately 5.3 times the average income. Wealth distribution is markedly more unequal than income distribution, with the top 10 percent holding 75.6 percent of total wealth, compared to 50.5 percent of

total income. The top 1 percent—about 850,000 people—control 43.8 percent of total wealth, while the middle 40 percent—roughly 34 million individuals—account for 22.4 percent. The top 0.01 percent (8,498 individuals) control 2.7 percent of the wealth, higher than the share owned by the bottom 50 percent (42.5 million individuals).

Table 3: Wealth Quantiles and Wealth Shares in Turkey in Euros (2023 PPP), Per Capita Equal-Split Population, 2022

Wealth group	Number of individuals	Wealth share	Threshold	Average wealth
Population	84,979,913	100%		€109,656
Bottom 50%	42,489,956	2.0%	0	€4,386
Middle 40%	33,991,965	22.4%	€22,191	€61,408
Top 10%	8,497,991	75.6%	€128,801	€829,003
Top 1%	849,799	43.8%	€1,636,687	€4,802,953
including Top 0.1%	84,980	10.8%	€7,497,313	€11,842,883
including Top 0.01%	8,498	2.7%	€12,149,986	€29,607,208
including Top 0.001%	849	1.5%	€16,708,380	€164,445,785
including Top 0.0001%	85	0.8%	€572,412,385	€877,044,187

Note: The table provides an overview of wealth distribution in Turkey for 2022. The analysis uses a per capita equal-split approach, with wealth defined as *gross* wealth and allocated equally among all household members including children. In 2022, the exchange rates were 1 euro = 17.38 TRY (market rate) and 1 euro = 7.23 TRY (purchasing power parity). *Key benchmark assumptions:* The distribution of wealth estimated using the income capitalization technique and the generalized Pareto interpolation method applied to capitalized incomes and Forbes wealth rankings. The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the Forbes data, household size is assumed to be 4.

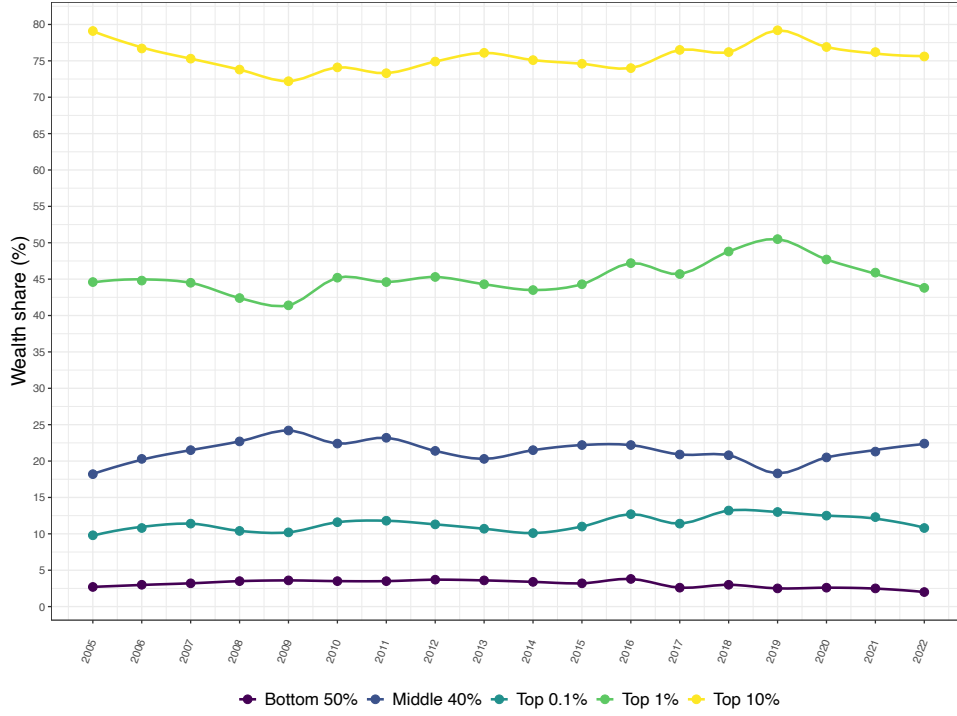
Figure 6 illustrates that the wealth share of the top 10 percent fell from 79.1 percent in 2005 to 73.3 percent in 2011, largely because average wealth expanded more rapidly than Forbes wealth (see Figure A7). The share then rose to 79.2 percent in 2019, driven by a sharp increase in Forbes wealth relative to average wealth, and subsequently declined as the Forbes-to-average wealth ratio fell most likely due to a rapid increase in house prices—closely tracking the movements in the top 1 percent share while moving in the opposite direction of the middle 40’s share.

4.5 Reconciliation with Past Research

To the best of available knowledge, with the exception of [Alvaredo et al. \(2019\)](#), who examined inequality in the Middle East, and of the series provided by the World Inequality Database (WID), no study has estimated the long-term evolution of income inequality in Turkey. A key difference between [Alvaredo et al. \(2019\)](#), the WID, and this study is that the former two aim to adjust the survey distribution of income in Turkey using survey correction profiles derived from fiscal data in Lebanon, allocates tax-exempt income based solely on billionaire lists, and extrapolates the series from 1994 to 1980. In contrast, this study employs unique Turkish tax tabulations and survey data from the pre-1980 period as well as post-1980 lists of the top 100 taxpayers, and also estimates the wealth distribution for the post-2005 period by capitalizing survey incomes to distribute the tax-exempt income.

When analyzing inequality before 1980, most evidence comes from cross-sectional estimates. A comparison of the DIE (1990) survey with Cavusoglu and Hamurdan’s (1966) earlier study on the year 1963 points to a marked decline in inequality between the 1960s and 1980s, in line with the fiscal income distribution series. The main exception here is Celasun (1989), who reported a much higher Gini coefficient for 1983, derived by interpolating annual income growth to 1978 census-based figures rather than using a representative household income survey (p. 214). The comparison between DIE (1990) and DIE (1996) indicates a rising trend in inequality from the 1980s to the 1990s, a pattern also reflected in the fiscal distribution series, while the historical WID series shows a decline by employing extrapolations based on key macroeconomic indicators rather than estimates derived from

Figure 6: The Distribution of Wealth, Per Capita Equal-Split Population



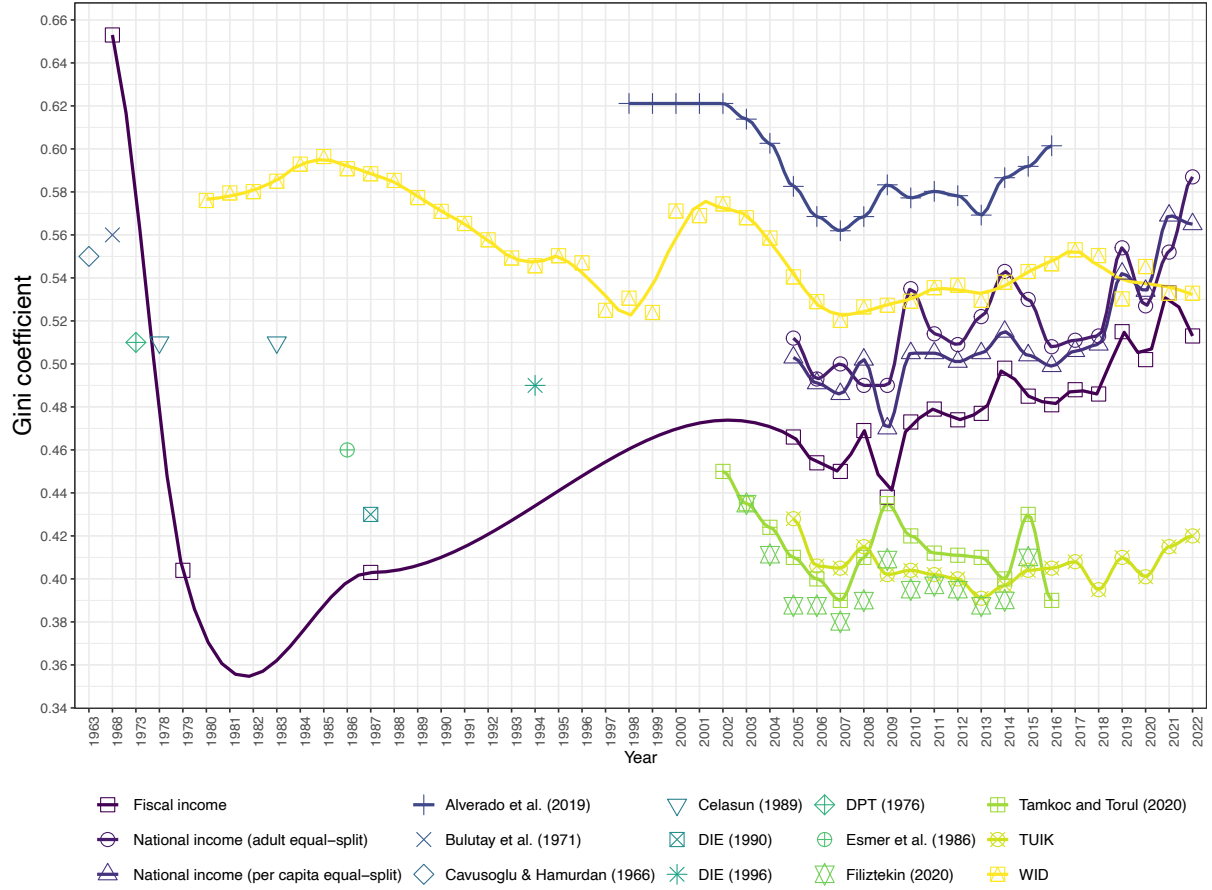
Note: Household wealth is estimated by capitalizing the SILC survey income and distributing it equally among household members, including children. Wealth distributions are then estimated across g-percentiles via the generalized Pareto curve interpolation approach. To address the underrepresentation of the top tail in survey data, the upper distribution is adjusted using Forbes wealth rankings. *Key benchmark assumptions:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the Forbes data, household size is assumed to be 4.

combined micro and fiscal data.

For the more recent period from 2005 to 2022, several studies provide estimates of regular and internally consistent inequality series, with the Gini coefficient generally ranging between 0.4 and 0.6. Tamkoç and Torul (2020) use both the HBS and SILC datasets to measure disposable income inequality among single-adult equivalents, whereas Filiztekin (2020) relies on the HBS to assess disposable income inequality among individuals, applying the OECD-modified equivalence scale. Both studies, along with TUIK, do not make fiscal corrections and do not distribute tax-exempt income. Their Gini estimates fluctuate around 0.41. Applying fiscal corrections and allocating tax-exempt income, as in my national income distribution series, raises the Gini coefficient to approximately 0.5 on average. Although the national income series in this period remains quantitatively comparable to the WID series and suggests marginally lower inequality, their post-2016 inequality trends move in different directions. The WID series indicates a decline in inequality from 2016 to 2022, whereas the national income distribution series shows an upward trend. This discrepancy arises for several reasons: first, the WID applies a fixed correction coefficient based on Lebanon, whereas fiscal data in this study suggest increasing correction coefficients over time; second, WID likely distributes a fixed portion of national income as tax-exempt income based on wealth distribution, while the share of retained earnings has grown significantly; third, they rely on standardized wealth distributions from other countries rather than estimating a more representative domestic distribution.

There are very few comparable studies on wealth distribution. Ceritoğlu, Cilasun, Küçükbayrak, and Sevinç (2023) rely on the Household Finance and Consumption Survey (HFCS), a novel dataset compiled in 2019-2020 by the Central Bank of Türkiye (CBRT) in line with the ECB-coordinated Eurosystem HFCS, which spans mul-

Figure 7: Income Gini Coefficients Across Different Studies



Note: “Fiscal income” corresponds to the series shown in Figure 2, while “National income (per capita equal-split)” refers to the series in Figure 3. The World Inequality Database (WID) series uses post-tax national income as the income concept and equal-split adults as the unit of observation. Alverado et al. (2019) adopt pre-tax national income as the income concept and equal-split adults as the unit of observation. Tamkoç and Torul (2020), Filiztekin (2020), and TUIK employ raw survey disposable income as the income concept and equivalent individuals as the unit of observation. Cavusoglu and Hamurdan (1966) use administrative records. Bulutay et al. (1971) and DPT (1976) use raw survey disposable income as the income concept and individuals and households as the unit of observation. Esmer et al. (1986) estimate disposable income of households. DIE (1990) and DIE (1996) are raw TUIK surveys based on disposable income of households and individuals.

multiple countries and survey waves. The CBRT-HFCS provides detailed information on Turkish households' income and wealth and employs oversampling of high-wealth households. Based on this data, they estimate the top 10% wealth share at 55.3% in 2019—considerably lower than the 79.2% figure reported in this study and below typical estimates for similar countries. This discrepancy stems in part from the HFCS's failure to correct for differential unit non-response. As Vermeulen (2018) shows, reweighting sample observations does not sufficiently correct for unit non-response. He also shows that incorporating even a small number of extreme wealth observations can substantially reduce the downward bias in the Pareto tail index caused by differential non-response—an approach also adopted in this study using Forbes data.

The WID, on the other hand, estimates that in 2022 the top 10 percent and top 1 percent held roughly 65.7 and 32 percent of net wealth, whereas this study places both groups' shares about ten percentage points higher. Moreover, while the WID suggests rising wealth inequality between 2019 and 2022, this study finds a decline, likely reflecting the faster growth of average wealth relative to Forbes wealth, largely driven by housing prices. A key source of this discrepancy lies in the methodology: in the absence of reliable wealth survey data, the WID estimates wealth inequality by using average standardized wealth distributions by giving more weight to countries that have a similar level of income inequality. In contrast, this study estimates wealth by capitalizing survey income.⁴⁶

4.6 Comparative Inequality

Figures 8-11 shift the focus from a per capita equal-split approach to one based on equal-split adults, allowing for comparable cross-country inequality data series and comparisons between Turkey and various countries, including those in Latin America, Europe, Lebanon, the United States, Russia, and China. These countries are chosen to represent their respective regions and because they possess relatively high-quality inequality data. All WID series are constructed using a consistent DINA methodology, combining national accounts, surveys, and fiscal data to estimate the distribution of post-tax national income (including tax-exempt income) among equal-split adults.

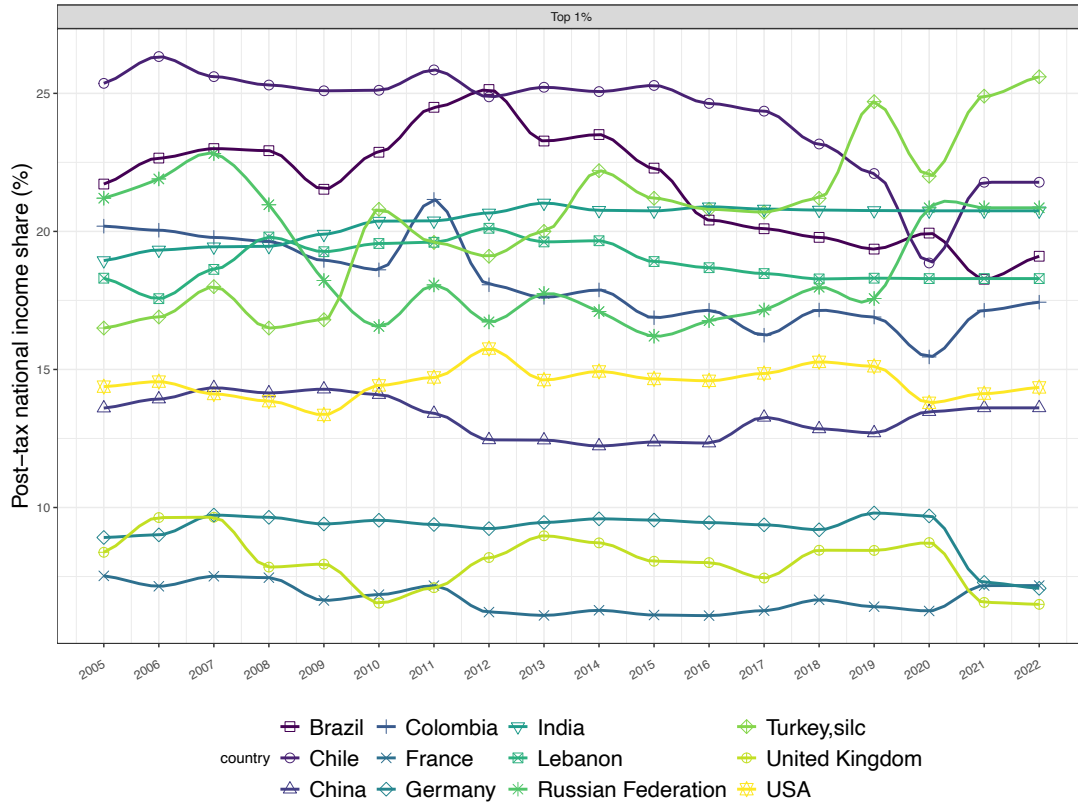
As shown in Figure 8, in 2005, the top 1 percent in Turkey held a smaller share of post-tax national income compared to their counterparts in Brazil, Colombia, India, Russia, Chile, and Lebanon. However, by 2022, the top 1 percent's income share in Turkey had surpassed that of these countries. This is because, excluding India, Turkey is the only country in the sample where the top 1 percent's income share grew from 2005 to 2022. Given the conservative assumptions underlying the benchmark estimates, this is a particularly striking finding.

Focusing on the top 10 percent in Figure 9, Turkey is again one of the few countries that saw an increase in the income share of the top 10 percent from 2005 to 2022. In 2022, only Latin American countries and India recorded higher inequality, with Turkey leading the rest, including Russia.

Figure 10 shows countries by the wealth share of the top 1 percent. Due to the lack of debt data, Turkey's wealth distribution is based on gross wealth rather than net wealth, making it less comparable with other countries. Assuming the distribution of debt does not affect the country rankings, Turkey ranks behind Chile, Brazil, Lebanon, and Russia in 2022. Compared to income concentration at the top, India fares relatively better in wealth concentration, despite seeing a significant increase in the wealth share of the top 1 percent. With the

⁴⁶The Global Wealth Report 2024, drawing on data from UniCredit's CEE Households' Wealth and Debt Monitor and the Central Bank of the Republic of Turkey, highlights Turkey's remarkable growth in wealth per adult, exceeding 157 percent between 2022 and 2023. However, the reports covering the period from 2021 to 2024 do not provide specific estimates for the wealth shares of the top 1 percent and top 10 percent, to the best of my knowledge.

Figure 8: Top 1% Income Share in Selected Countries, Equal-Split Adults



Note: Data for other countries are obtained from the World Inequality Database (WID), using post-tax national income as the income concept, net wealth as the wealth concept, and equal-split adults (20 years and older) as the unit of observation, where household wealth is evenly distributed among adult members. For Turkey, wealth refers to *gross* wealth. Countries are selected from major regions, meeting the criterion that the WID quality grade of the series is at least 3/5 (5/5 for high-quality tax microdata and survey data; 4/5 for tax tabulations and survey microdata; 3/5 for survey and tax tabulations). *Key benchmark assumptions for Turkey:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the Forbes data, household size is assumed to be 4.

exception of Colombia and Turkey, all countries in the sample saw an increase in the top 1 percent wealth concentration from 2005 to 2022. Turkey stands out in this case because the Forbes-to-average wealth ratio declined, most likely as a result of the sharp rise in housing prices. Looking at the top 10 percent wealth share in Figure 11, the picture changes only slightly, with Russia overtaking Turkey in 2022.

4.7 Evaluating the Uncertainty of the Estimates

4.7.1 Varying Individual Assumptions

In the series shown in figures A8 to A10, which are presented separately for the Gini coefficient, the top 10 percent, and the top 1 percent, I vary one assumption while keeping the other parameters at their benchmark values. Taking the per-capita split national income series in the lower left panel of Figure A8 as an example, setting $p_1 = 0.8$ raises the Gini coefficient from its benchmark value of 0.565 to 0.705 in the 2022 national income distribution, while setting $p_1 = 0.99$ lowers it to 0.514. When assuming a household size of two at the top, the Gini rises to 0.608 relative to the benchmark, whereas assuming six members brings it down to 0.509. By contrast, adjusting the copula parameter shows only a modest effect: increasing it to 4 raises the coefficient to 0.575, while

Figure 9: Top 10% Income Share in Selected Countries, Equal-Split Adults

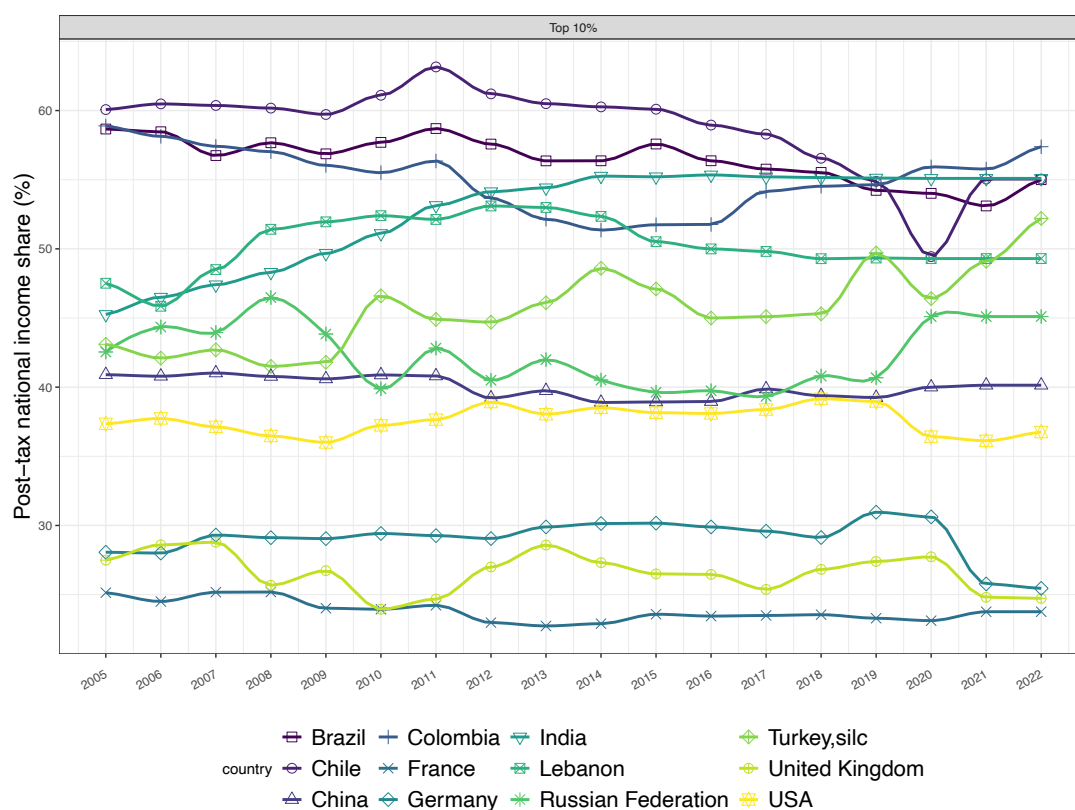


Figure 10: Top 1% Wealth Share in Selected Countries, Equal-Split Adults

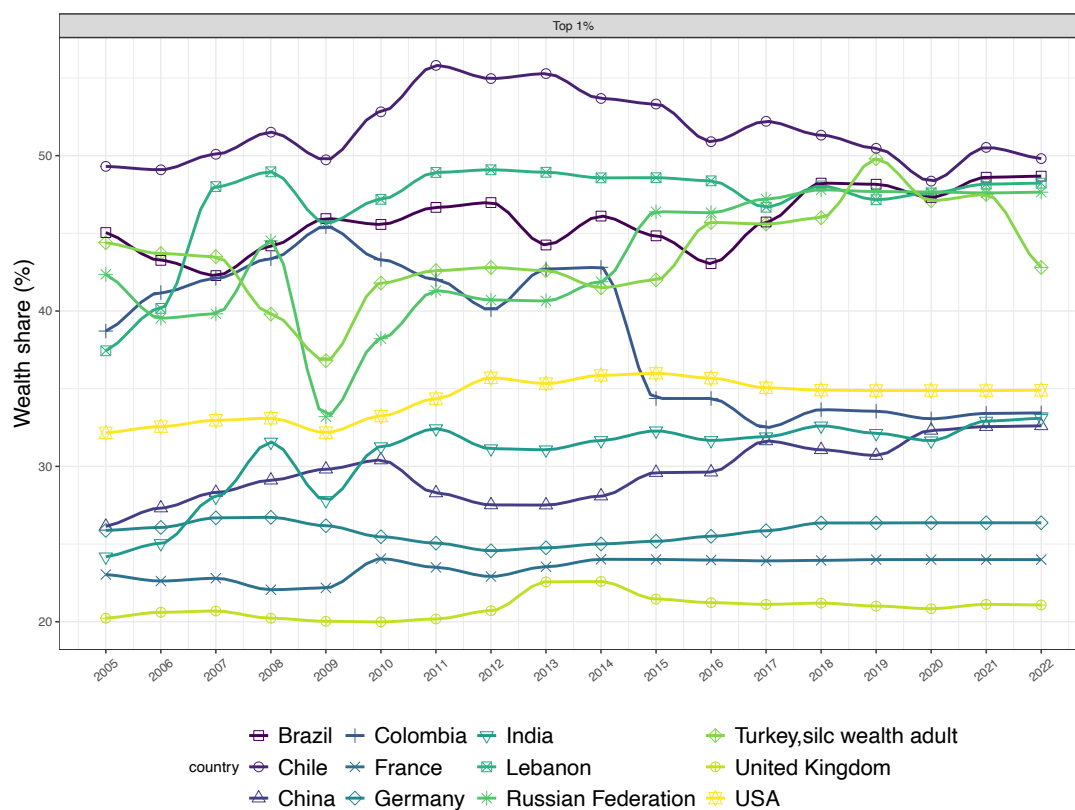
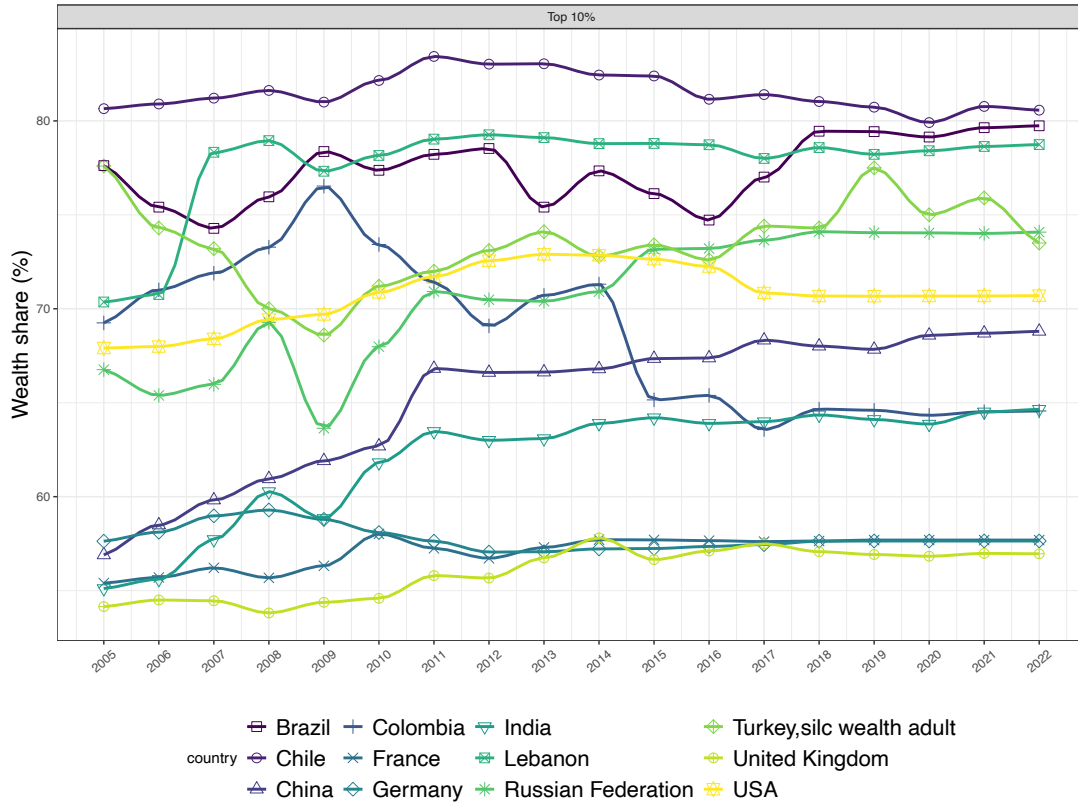


Figure 11: Top 10% Wealth Share in Selected Countries, Equal-Split Adults



reducing it to 1 lowers it to 0.524. Likewise, changing the taxable-to-fiscal income ratio from the benchmark of 0.9 to 0.8 increases the Gini from 0.565 to 0.583, whereas reducing it to 0.7 increases it further to 0.603. For the wealth distribution figures (with 2022 as a representative example), the effects of varying assumptions are somewhat smaller. Raising the top household size from 4 to 6 lowers the Gini coefficient by 0.03 points, whereas reducing it to 2 increases the coefficient by 0.028 points. All in all, these figures indicate that inequality is highest when the survey data are considered reliable only up to the 80th percentile rather than the 95th percentile, and when the household size for the top 100 taxpayers and Forbes billionaires is assumed to be smaller, with the greatest uncertainty arising in estimates of the wealth share of the top 1 percent. The impact of changing the other parameters is less significant.

Figure A11 demonstrates how varying declaration rate assumptions impact the final distribution of fiscal income. Under Assumption 1, the general pattern of the benchmark assumption is preserved, but the magnitudes differ. Specifically, for 1968, the declaration rate increases linearly from 5 percent in the lowest bracket to 10 percent in the seventh bracket, reaching 100 percent in the top bracket. For 1979, the rate rises from about 0.01 percentage point in the lowest bracket to 10 percent in the fifth bracket, reaching 100 percent at the top. Assumption 2 assumes relatively higher declaration rates for lower brackets, while Assumption 3 posits higher declaration rates for the upper brackets in 1968 and for the middle brackets in 1979. The impact of these different assumptions on Gini coefficient estimates appears to be minimal.

4.7.2 Cumulative Effects of Assumptions and Bounding Inequality

In this section, I discuss sensitivity bounds using structured variation of assumptions. Rather than varying individ-

ual assumptions at a time, this approach employs multiple sets of alternative assumptions, enabling a principled evaluation of uncertainty without depending on point identification. The resulting upper and lower bounds capture the range of inequality estimates compatible with alternative assumptions. A full discussion of these assumptions relative to the empirically grounded benchmark case is provided in Section 3.7.

The lower-bound scenario assumes that tax data captures nearly all fiscal income, that top households are much larger than the average household, that survey undercoverage is minimal, that the correlation between tax-exempt and fiscal income is weak, and that tax-exempt income consists solely of retained earnings. For the pre-1980 period, declaration rates are set to produce smaller correction coefficients. The upper-bound scenario assumes the opposite extremes for all these factors and additionally applies higher correction factors for 1987, when distributed profits were exempt from taxation.

Focusing on the top 10 percent share in the fiscal income series in Table 4, in the pre-1980 period, key uncertainty arises from the assumptions about tax declaration rates, with the benchmark scenario lying roughly 2–3 percent above the lower bound. Using assumptions that imply larger correction factors and greater adjustments to survey data increases the top 10 percent income share by 12.6 percent in 1968 and 6.4 percent in 1979. For 1987, the benchmark scenario coincides with the lower bound because, in that year, surveys better capture top incomes than tax data—due to the exemption of distributed profits—resulting in zero correction factors and no adjustments. The upper-bound scenario for 1987 applies the 1994 correction factor along with other assumptions favoring higher inequality, raising the top 10 percent share by 11.1 percent. In the post-1994 period, the main sources of uncertainty arise from incomplete survey coverage, the size of top households, and the relationship between taxable and total income. Over time, uncertainty—the difference between lower- and upper-bound estimates—grows, reflecting the widening gap between fiscal and survey data.

Table 4 shows that the highest uncertainty is observed in the top 1% shares across all series. Because survey-based estimates of top wealth or income are much lower than those from Forbes or top-taxpayer data, correction factors are typically large. Therefore, if survey reliability is assumed to be up to a lower percentile, the share of the top 10 percent rises while that of the top 1 percent falls, and the reverse holds as well. Consequently, different assumptions about the distribution and magnitude of these correction factors can lead to considerable variation in estimates for the very top income and wealth groups.

A central finding, however, is that even the lower-bound fiscal income inequality estimates—which do not yet include tax-exempt income—exceed the official TUIK figures on the top 10 percent share by 3.8 percentage points on average. For the national income series, additional uncertainty arises from the share and distribution of tax-exempt income and its rank dependence with fiscal income, leading to wider bounds. Nevertheless, the lower-bound top 10 percent national income share estimate remains, on average, 6.51 percentage points higher than the official TUIK figures.

It is important to note that the lower-bound scenario is overly conservative. Studies using incomplete fiscal data often assume a much lower taxable-to-fiscal income ratio and a higher copula parameter, typically between 2.5 and 3.5. Assuming six members per top-income household is also unrealistic, as average household size in Turkey has been lower than four since 2008, and households at the top of the distribution tend to be smaller. Moreover, dividing reported household income by family size underestimates individual incomes at the top, since total household income is not fully accounted for. The benchmark case lies between the two extremes, is supported by empirical evidence, and still relies on conservative assumptions that are closer to the lower-bound scenario.

Table 4: Upper- and Lower-Bound Estimates for Top Income and Wealth Shares by Year

Year	Top 1%									Top 10%									
	Fiscal income			National income			Wealth			Fiscal income			TUIK	National income			Wealth		
	Lower bound	Bench mark	Upper bound	Lower bound	Bench mark	Upper bound	Lower bound	Bench mark	Upper bound	Lower bound	Bench mark	Upper bound		Lower bound	Bench mark	Upper bound	Lower bound	Bench mark	Upper bound
1968	0.212	0.217	0.4							0.52	0.554	0.68							
1979	0.063	0.086	0.141							0.296	0.319	0.383							
1987	0.086	0.086	0.219							0.325	0.325	0.436							
1994	0.08	0.094	0.14							0.341	0.349	0.389							
2005	0.098	0.13	0.209	0.107	0.158	0.266	0.256	0.446	0.508	0.366	0.378	0.454	0.325	0.398	0.421	0.53	0.756	0.791	0.853
2006	0.103	0.138	0.218	0.113	0.166	0.273	0.274	0.448	0.508	0.366	0.379	0.454	0.316	0.397	0.419	0.527	0.735	0.767	0.839
2007	0.097	0.131	0.212	0.106	0.16	0.265	0.253	0.445	0.493	0.357	0.37	0.451	0.309	0.385	0.41	0.521	0.698	0.753	0.821
2008	0.09	0.143	0.227	0.101	0.169	0.278	0.255	0.424	0.495	0.353	0.391	0.475	0.322	0.381	0.428	0.543	0.694	0.738	0.826
2009	0.079	0.121	0.196	0.091	0.145	0.249	0.267	0.414	0.492	0.327	0.359	0.434	0.309	0.356	0.393	0.503	0.701	0.722	0.82
2010	0.087	0.156	0.216	0.101	0.181	0.273	0.299	0.452	0.527	0.342	0.402	0.456	0.313	0.371	0.436	0.526	0.697	0.741	0.831
2011	0.088	0.16	0.22	0.1	0.181	0.289	0.148	0.446	0.552	0.347	0.41	0.468	0.311	0.372	0.438	0.543	0.488	0.733	0.836
2012	0.087	0.159	0.222	0.099	0.18	0.289	0.298	0.453	0.532	0.346	0.408	0.468	0.313	0.371	0.437	0.548	0.707	0.749	0.839
2013	0.089	0.162	0.226	0.099	0.182	0.289	0.136	0.443	0.528	0.348	0.411	0.472	0.303	0.373	0.442	0.551	0.503	0.761	0.851
2014	0.099	0.181	0.251	0.104	0.193	0.303	0.268	0.435	0.497	0.364	0.433	0.494	0.31	0.378	0.451	0.568	0.698	0.751	0.835
2015	0.093	0.169	0.234	0.101	0.182	0.298	0.291	0.443	0.516	0.357	0.421	0.48	0.32	0.373	0.441	0.561	0.704	0.746	0.835
2016	0.097	0.177	0.246	0.105	0.191	0.316	0.337	0.472	0.548	0.353	0.421	0.481	0.325	0.369	0.439	0.564	0.698	0.74	0.834
2017	0.097	0.181	0.247	0.103	0.193	0.31	0.3	0.457	0.519	0.354	0.425	0.479	0.326	0.37	0.444	0.564	0.729	0.765	0.842
2018	0.094	0.18	0.246	0.104	0.198	0.322	0.32	0.488	0.568	0.35	0.423	0.481	0.312	0.371	0.447	0.565	0.719	0.762	0.841
2019	0.104	0.202	0.273	0.114	0.222	0.338	0.308	0.505	0.56	0.372	0.454	0.516	0.325	0.398	0.482	0.591	0.74	0.792	0.85
2020	0.099	0.192	0.26	0.112	0.216	0.323	0.305	0.477	0.533	0.36	0.439	0.498	0.315	0.39	0.472	0.578	0.719	0.769	0.84
2021	0.114	0.224	0.301	0.129	0.248	0.355	0.303	0.459	0.516	0.384	0.474	0.539	0.332	0.42	0.512	0.616	0.714	0.762	0.839
2022	0.106	0.202	0.275	0.124	0.235	0.333	0.268	0.438	0.494	0.373	0.452	0.51	0.339	0.422	0.505	0.597	0.706	0.756	0.831

Notes: This table reports benchmark, lower-bound, and upper-bound estimates of the income and wealth distribution in Turkey based on the SILC, covering the top 1% and top 10%. Fiscal income estimates are based on tax data, national income series integrate additional macroeconomic adjustments, and wealth distribution is derived by income capitalization. Official inequality measures are reported by TUIK.

5 Concluding Remarks

The evidence presented in this paper points to a notable downward bias in existing income inequality metrics for Turkey. Moreover, existing wealth inequality estimates are based on wealth rankings, proxy distributions from other countries, or cross-sectional surveys with under-reporting bias. A discrepancy also exists between income inequality estimates and national accounts, complicating efforts to determine how economic growth is distributed among various income groups. Existing income inequality estimates also rely on relatively recent microdata, which poses challenges for making long-term comparisons of inequality. This limitation is particularly significant as it restricts our ability to analyze income distribution across different development trajectories.

Although the quality of the available raw data remains notably inadequate, this paper has attempted to address limitations by integrating and harmonizing various existing data sources, including tax data for high-income earners, which, to the best of current knowledge, have not been used previously. According to the evidence presented, income inequality was notably high in 1968. Given Turkey’s predominantly agrarian economy at the time, one can seek to explore the roots of high inequality in land distribution. Recent research supports the notion that land and wealth distribution dynamics were more complex than previously understood (Firat & Genç, 2023). This calls for a reevaluation of the role of agrarian structures in shaping inequality during the mid-20th century. Future research should aim to fill the knowledge gap concerning land and wealth distribution from the 19th century through to the 1960s, offering a more nuanced understanding of how agrarian economies contributed to persistent inequality and economic disparities in Turkey.

The evidence in the paper also highlights the unique nature of the period between 1968 and 1979, marked by a significant decline in income inequality. A possible explanation for the decline lies in Turkey’s 1970s context. During this decade, import-substitution policies, strong government control, an active and militant labor movement, and strict limits on capital flows limited the scope for accumulation at the very top. In the 1970s, rapid urbanization—partly fueled by import substitution industrialization (ISI)—transformed the labor market (Danielson & Keleş, 1980, p.269). Between 1970 and 1976, increased domestic production and widespread strikes in sectors like mining, textiles, metal, and construction led to notable wage gains for industrial workers (Karacan, 1983, p.84). The eventual breakdown of ISI in 1979—triggered by an overvalued currency and heavy import dependence—further increased labor’s share in value-added (Yeldan, 2001, p.42). This transformation took place alongside significant migration from rural to urban areas (Kuran, 1980, p.370).

This account also sheds light on the later drive for rapid liberalization in the 1980s—a period characterized by slower economic growth and increasing inequality—by implying that extensive state intervention and its effects on the top income group in the 1970s may have generated incentives for supporting liberalization in the 1980s. In this later period, tax exemptions on distributed profits and the internal devaluation—which relied on restricting wage growth through bans on union activity—likely led to a decline in the private manufacturing wage share (Yeldan, 2001, p.44), probably intensifying inequality as entrepreneurial income increasingly accumulated at the top. However, the rapid drop in agricultural exports (Tokucu & Yüce, 2013, p.53) and the removal of agricultural subsidies (Pamuk, 2023, p.287) most likely weakened large-scale farmers, limiting the overall increase in inequality during this period.

Evidence indicates that inequality rose in the 1990s, a period often referred to as a “lost decade” marked by financial liberalization. Such liberalization can exacerbate inequality by creating economic instability that

disproportionately affects lower-income groups—as reflected in Turkey’s crisis-prone growth driven by short-term capital inflows during the 1990s (Öniş Şenses, 2022, p.210)—while primarily benefiting the wealthy through expanded access to financial opportunities (Li Su, 2021, p.405). In Turkey, financial income became increasingly concentrated among the top earners between 1979 and 1994, and speculative banking activities flourished since real interest rates exceeded 20 percent (Yeldan, 2022, pp.244–245).

During the early 2000s, the income shares of the top 10 percent and top 1 percent remained relatively stable, at levels above those usually reported. This period represents the expansionary phase of the Alejandro-Taylor cycles (Yeldan, 2022, p. 231), characterized by short-term capital inflows that appreciated the currency and financed increased public spending. Acemoğlu and Üçer (2021) describe this era as one of inclusive growth, supported by institutional reforms and productivity gains.

Inequality began to rise during the recovery from the 2008 global financial crisis, reaching a higher level by 2013. The upward trend persisted, with the sharpest increase taking place after 2018. This later period reflects what Acemoğlu and Üçer (2021) term “low-quality” growth, characterized by credit-driven expansion, construction booms, and rent-based redistribution. It also marks the contractionary phase of the Alejandro-Taylor cycle, during which initial capital inflows give way to outflows, triggering depreciation, rising interest rates, and austerity, since the economy’s growing reliance on foreign-currency borrowing by firms and banks heightened its vulnerability to external shocks, including the 2013 Federal Reserve “taper tantrum” (Orhangazi & Yeldan, 2021, p. 487), the 2018 U.S.-Turkey tensions (Boratav & Orhangazi, 2022, p. 306), and the Covid-19 pandemic.

Analysis of these mechanisms is beyond the scope of this paper. Their detailed statistical examination represents a valuable avenue for future research.

Statements and Declarations

Not available.

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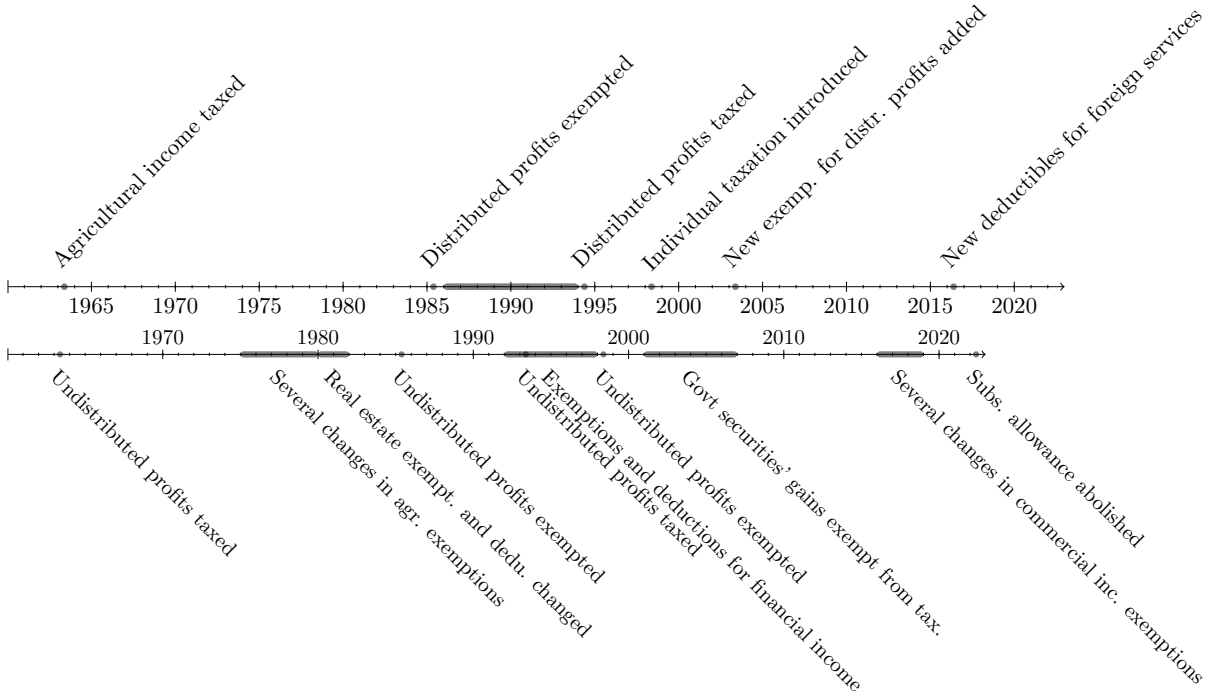
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ONLINE APPENDIX

A1 Tax Data Generating Process: Income Tax Legislation

Income taxation in Turkey began with the "earning tax" ("kazanç vergisi") established in 1934, which initially excluded agricultural income and many financial assets, resulting in a low effective tax rate on income. The income tax system evolved in the 1950s with the introduction of a new income tax legislation that aimed to differentiate between labor and capital income and implement progressive tax rates.⁴⁷

Figure A1: Some Significant Updates to Income Tax Legislation



Throughout this early stage, exemptions and deductions were common, particularly for small-scale farmers and specific sectors, which limited the overall tax revenue derived from income tax. The taxation of agricultural income became relatively significant in the 1960s, with reforms leading to the inclusion of this income category in tax liabilities starting in 1962. Various legislative changes throughout the following decades aimed to address loopholes, such as the elimination of certain deductions for real estate income. The 1980s and 1990s saw a shift towards financial liberalization and increased government borrowing, resulting in a decline in income tax revenue as exemptions for financial assets were expanded. By the 2000s, income tax rates varied and typically declined, with an emphasis on standardizing tax policies for financial income. Various reforms, including the introduction of tax incentives for green energy and modifications to tax liabilities for online sellers, were implemented in the following decades. As of 2024, the proportion of income tax revenue in the total tax revenues is approximately 33%, with most of this amount derived from taxes that are withheld at the source, while tax return declaration is practiced by only about 4% of the population.⁴⁸

For tax data purposes, several significant legislative changes, some of which are highlighted in Figure A1, warrant attention. An essential development took place concerning distributed and undistributed profits. While undistributed profits were deemed to be taxable from 1963 to 1985 and from 1994 to 1998,⁴⁹ they were not

⁴⁷The majority of the discussion regarding the history of income tax legislation is based on my interpretation of Küsmenöğlu (2010)'s description of Turkey's personal income tax system.

⁴⁸This can be compared to India, where about 7% were filing tax returns in 2019.

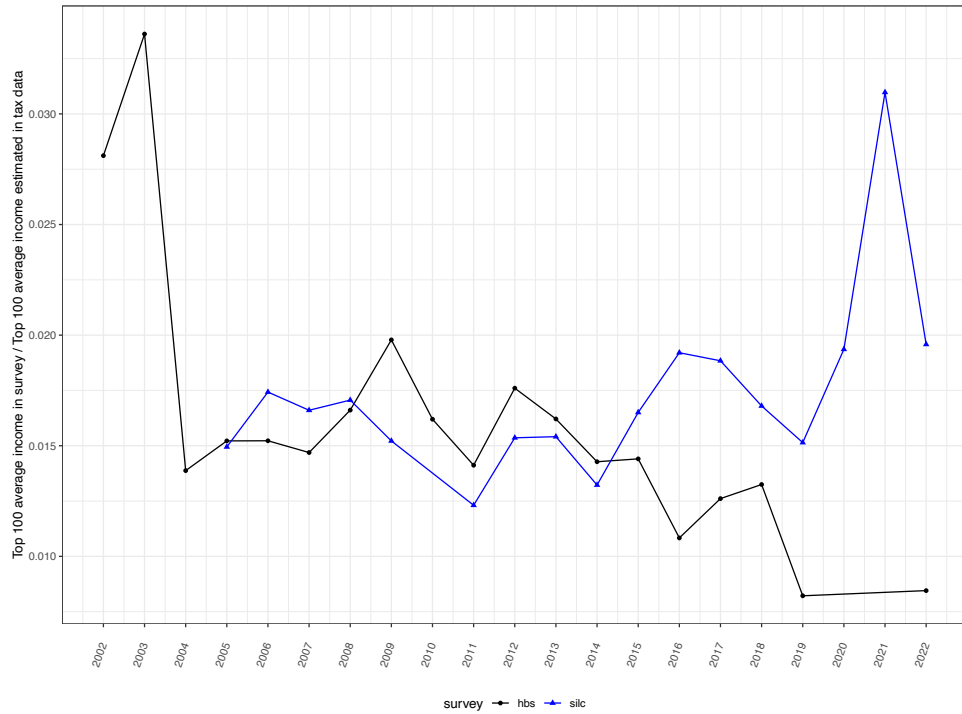
⁴⁹Before 1960 both dividend earners from corporates and cooperatives were liable to pay income tax based on their net profits post-corporate tax, irrespective of whether the profits were distributed or retained. This remained unchanged in 1961

subject to taxation from onward. Distributed profits have been exempted from taxation between 1985 and 1994. While they have been taxed without interruption since 1994, additional deductions for these profits were introduced in 2003. And significant exemptions were provided for interest income during the 1990s and 2000s. Another important update took place in 1998 when joint taxation of families ("aile reisi beyanı") was replaced by individual taxation.

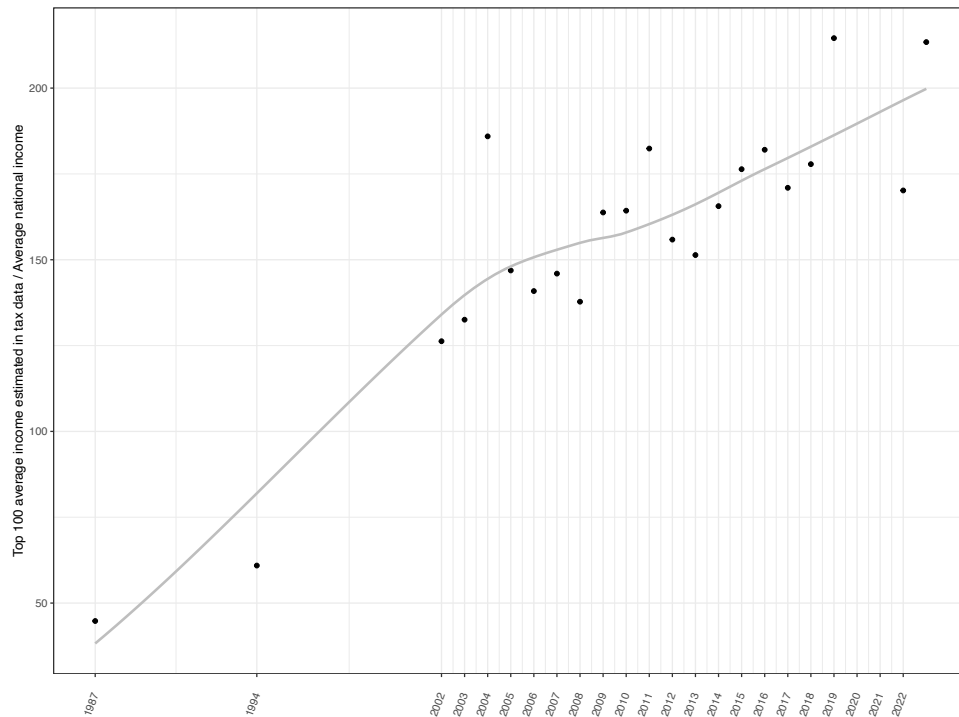
during a significant overhaul of income tax legislation. Both distributed ("dağıtılmış sayılan") and retained ("dağıtılabılır sayılan") profits were still subject to income tax. Due to debates surrounding the definition of retained profits for tax purposes, clarity was sought through a new legislation in 1969, which explicitly outlined the definition of retained profits.

A2 Additional Figures

Figure A2: Survey Underestimation of Top Incomes



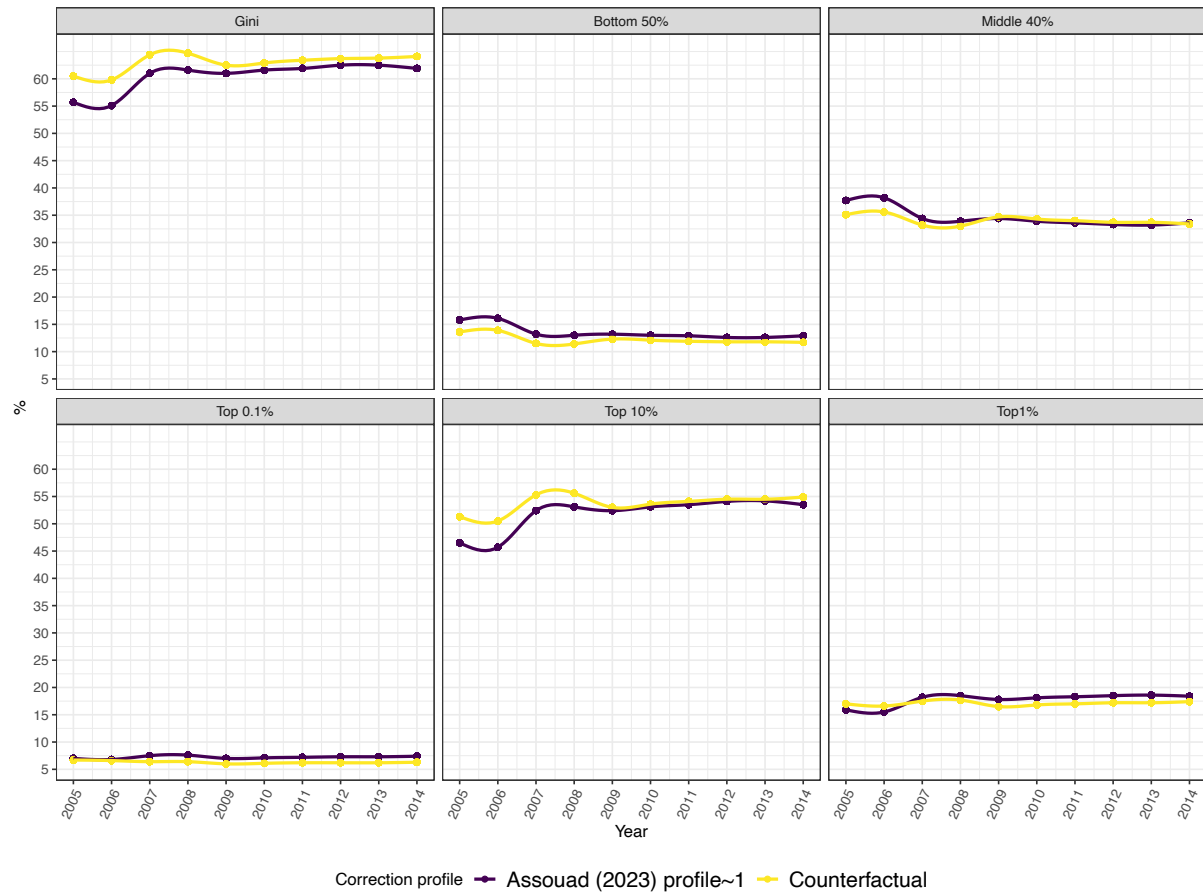
((a)) Top 100 average raw survey income relative to top 100 taxpayers' average income estimated



((b)) top 100 taxpayers' average income estimated relative to average national income

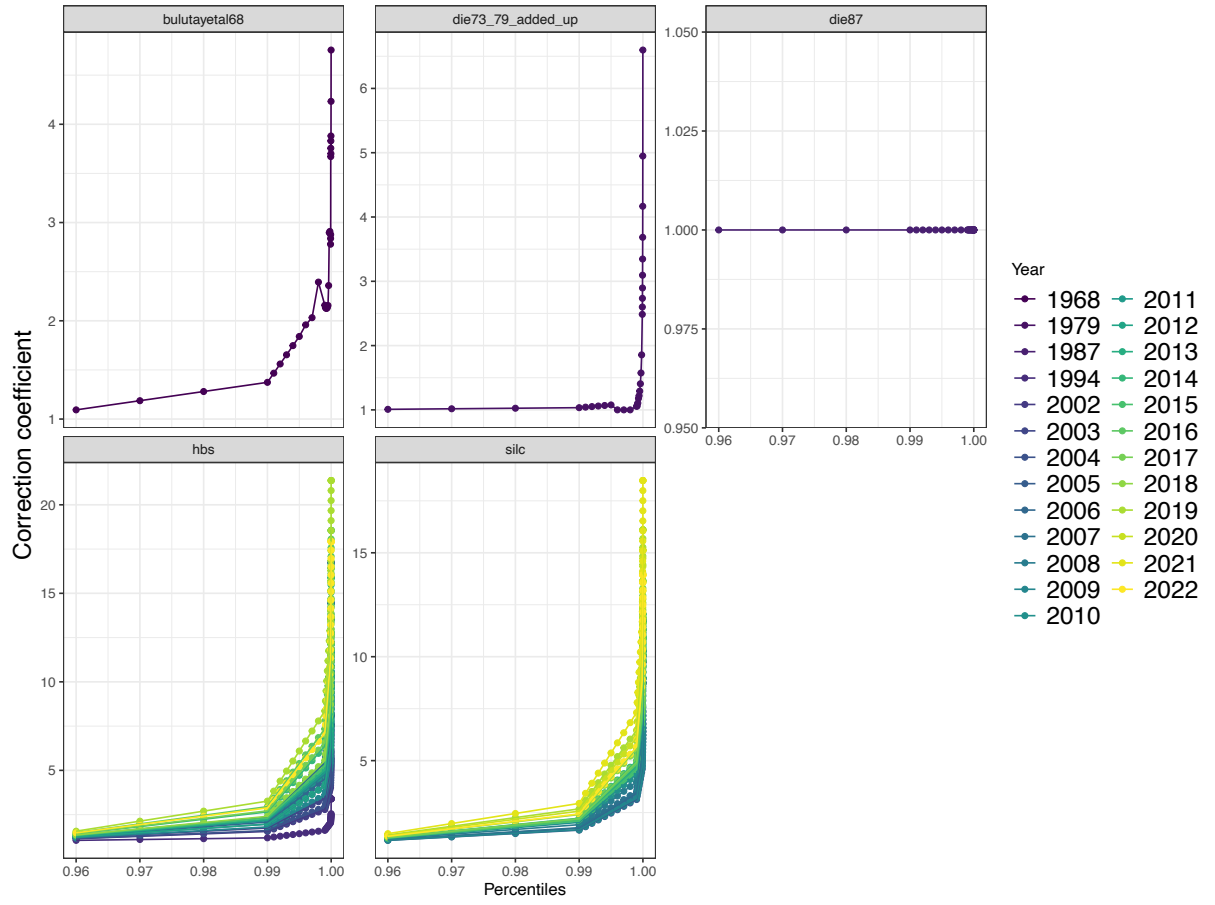
Note: In panel (a), "hbs" and "silc" refer to the Household Budget Survey and Survey of Income and Living Conditions respectively, while survey income refers to the post-tax disposable income. The survey unit of observation is the individual, with income allocated to each person according to their personal earnings. A more detailed definition of survey income can be found in Appendix Table A2. To estimate the post-tax income of the top 100 taxpayers from the tax data, the total taxes paid are adjusted using the tax schedules for each year to derive taxable income. This taxable income is then converted into fiscal income by applying the benchmark taxable-to-fiscal income ratio assumption of 0.9. In Panel (b), the average national income is expressed in the current local currency unit and is sourced from the World Inequality Database. The gray line represents the locally weighted scatterplot smoothing trend.

Figure A3: Validation



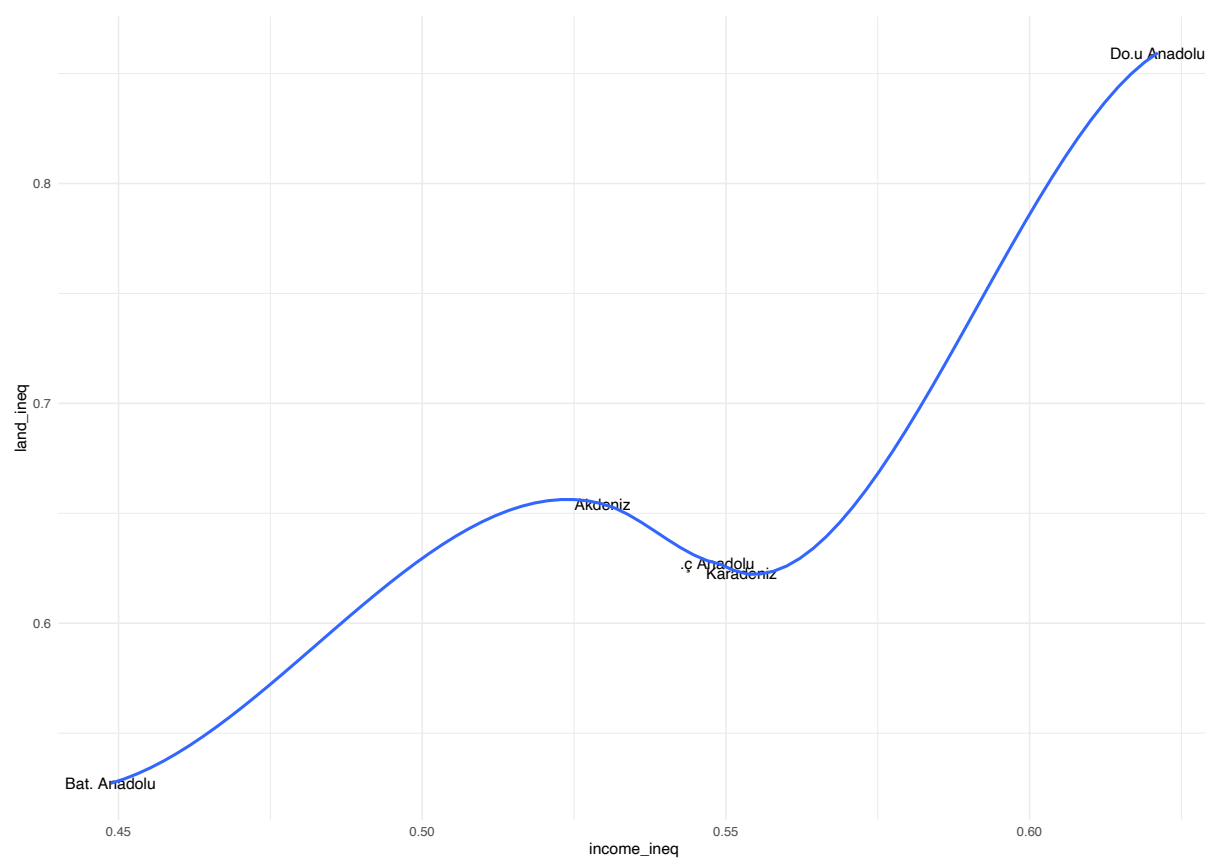
Note: Validation of fiscal correction using taxpayer data in Lebanon. The figure compares the estimated share of the top 10 percent under a counterfactual scenario where tax data are available only for the top 0.00001 percent with estimates based on Assouad (2023)'s detailed tax tabulations.

Figure A4: Survey Correction Profiles, Per Capita Equal-Split Population



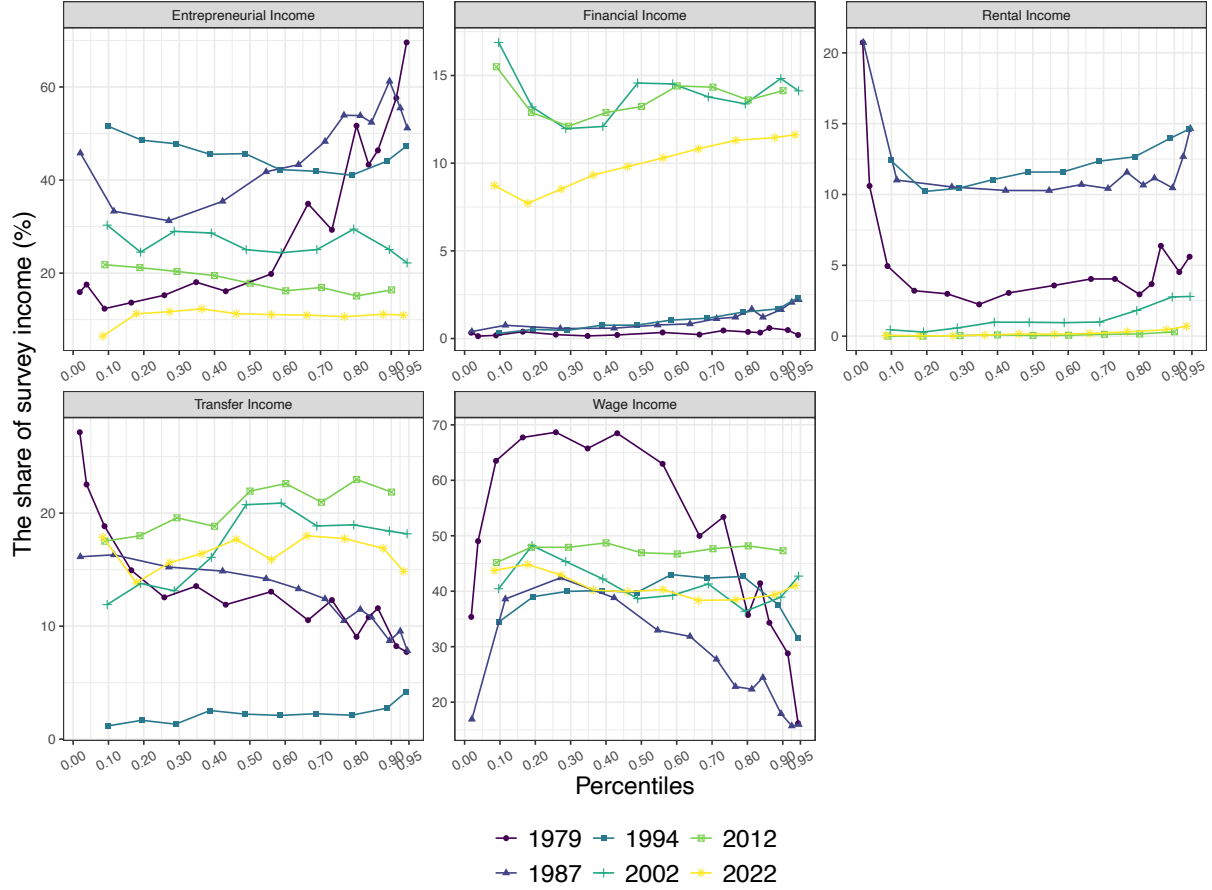
Note: Estimating the profiles involves calculating the ratio of quantile function in each percentile in the fiscal income distribution to the corresponding quantile in the survey income distribution. *Key benchmark assumptions for Turkey:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data, household size is assumed to be 4. Taxable-to-fiscal income ratio is 0.9.

Figure A5: Land Inequality vs. Income Inequality in 1968



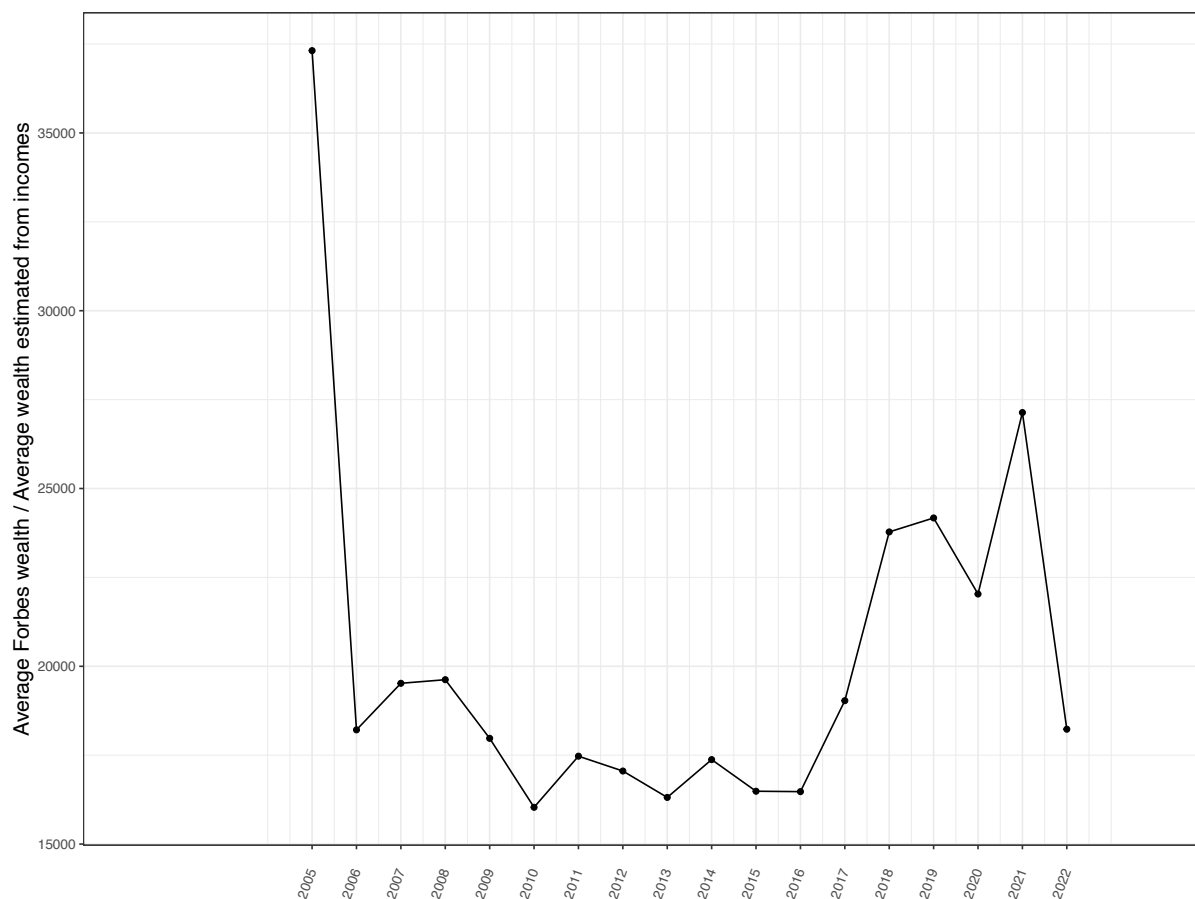
Note: Based on Bulutay et al. (1971).

Figure A6: The Decomposition of Survey Income, Per Capita Equal-Split Population



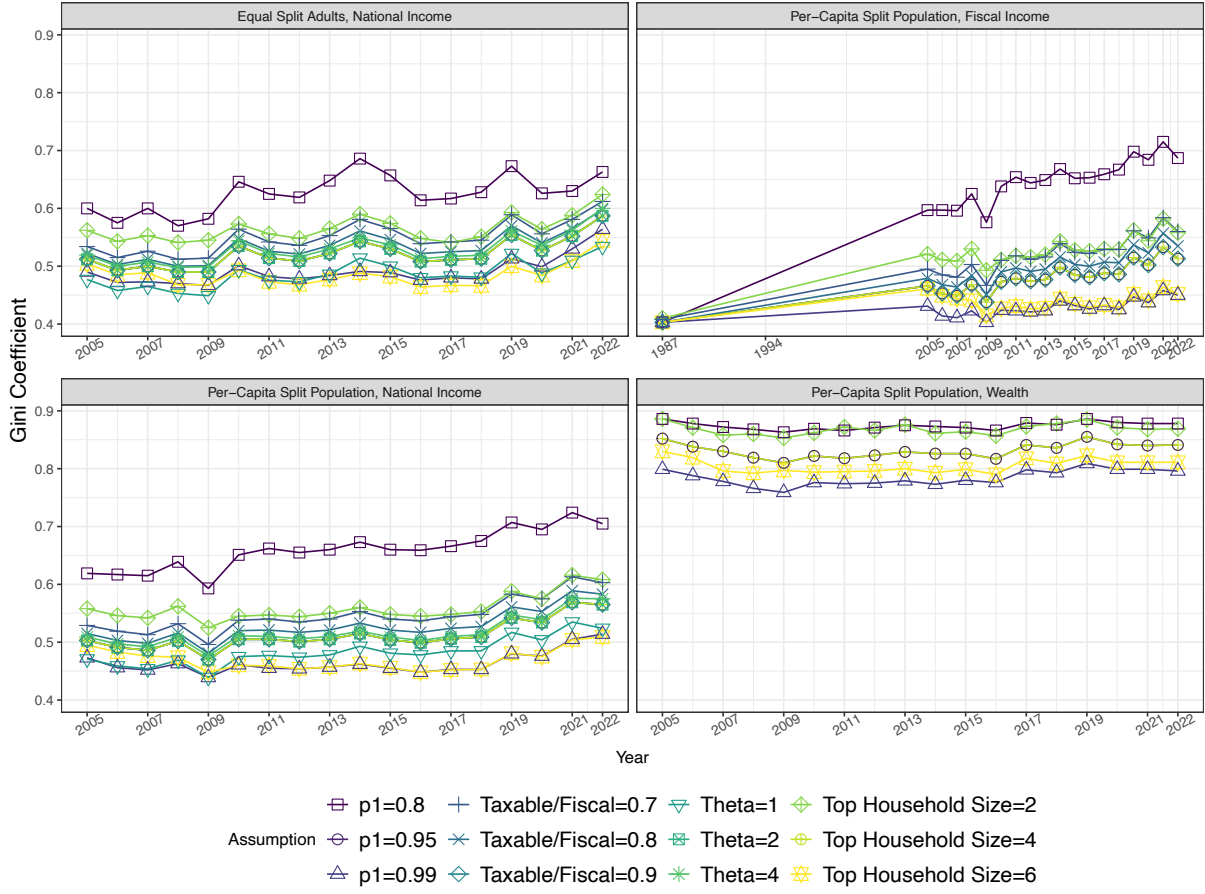
Note: This figure decomposes *post-tax disposable survey cash and in-kind income*, equally allocated to household members including children, rather than national or fiscal income. For 1979, the survey does not provide detailed definitions of income types. However, as an urban-focused survey, it likely excludes agricultural income from entrepreneurial earnings. In other years, wage income generally refers to net annual earnings from primary and secondary jobs, including bonuses and in-kind employer benefits. Entrepreneurial income typically includes earnings from service, commercial, agricultural, and non-agricultural activities. Financial income includes income from leasing machinery, equipment, and vehicles (limited to pre-1994), typically returns on shares and bonds, dividends, profit-sharing certificates, and bank deposit interest. Rental income is derived from leasing buildings, land, and other real estate. Transfer income includes pensions, elderly pay, widow and orphan benefits, disability and sickness benefits, unemployment benefits, scholarships, remittances, and similar sources. For the post-2005 period, the source is the HBS.

Figure A7: The Forbes Wealth Relative to the Average Wealth



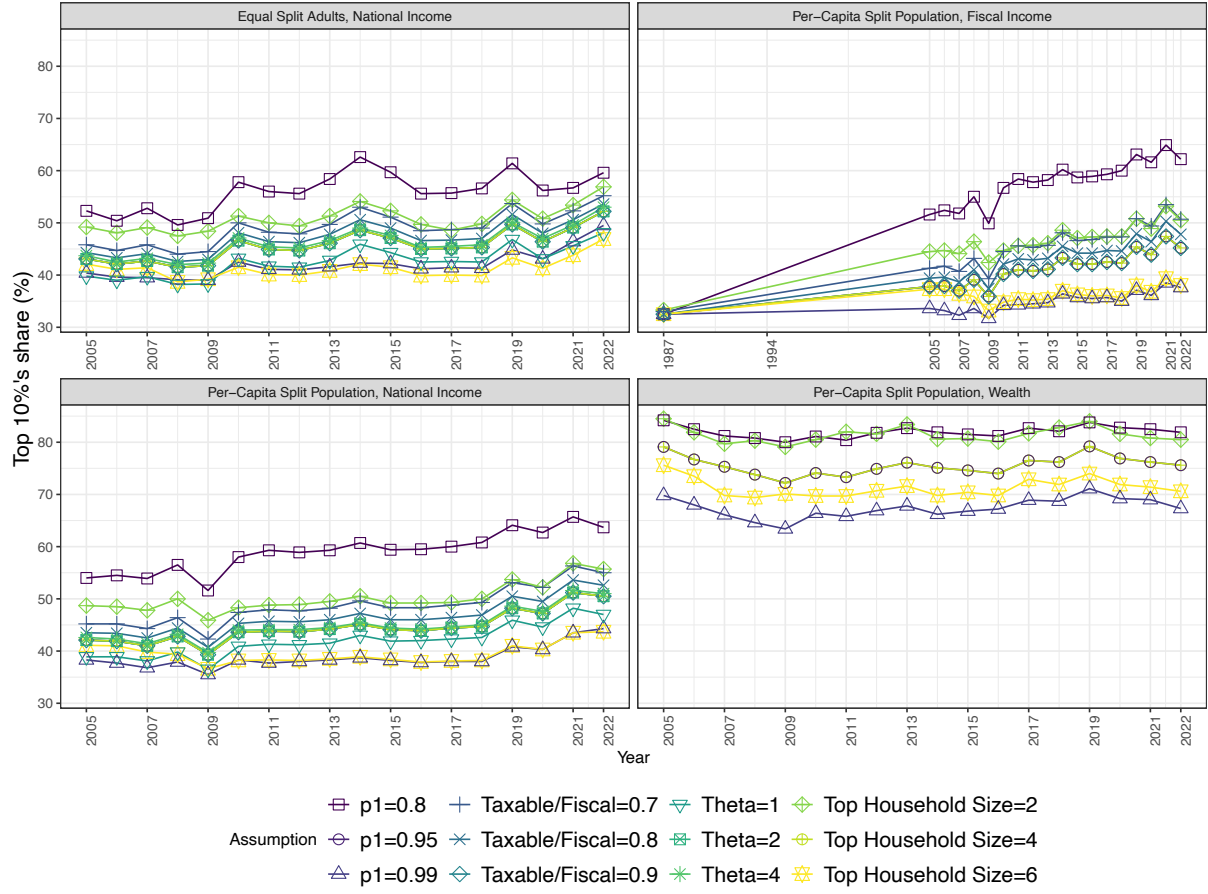
Note: The average wealth is estimated by capitalizing the SILC survey income and distributing it equally among household members including children. Business assets are capitalized from self-employment income, which represents net revenue from business activities, after deducting all relevant expenses incurred during the reference period, such as business costs, taxes, and social security contributions, using the market interest rate. Financial assets are capitalized based on financial income, including earnings from term deposit interest, dividends, and distributed profits from financial institutions or joint-stock companies, among other sources, again using the market interest rate. Housing assets are capitalized from rental income derived from leasing real estate properties, including apartments, shops, warehouses, land, vineyards, gardens, or plots, after deducting expenses required to generate this income, such as insurance, taxes, and repair or maintenance costs, and imputed rental income determined through self-reporting.

Figure A8: Gini Coefficient in Alternative Series based on Alternative Assumptions, SILC



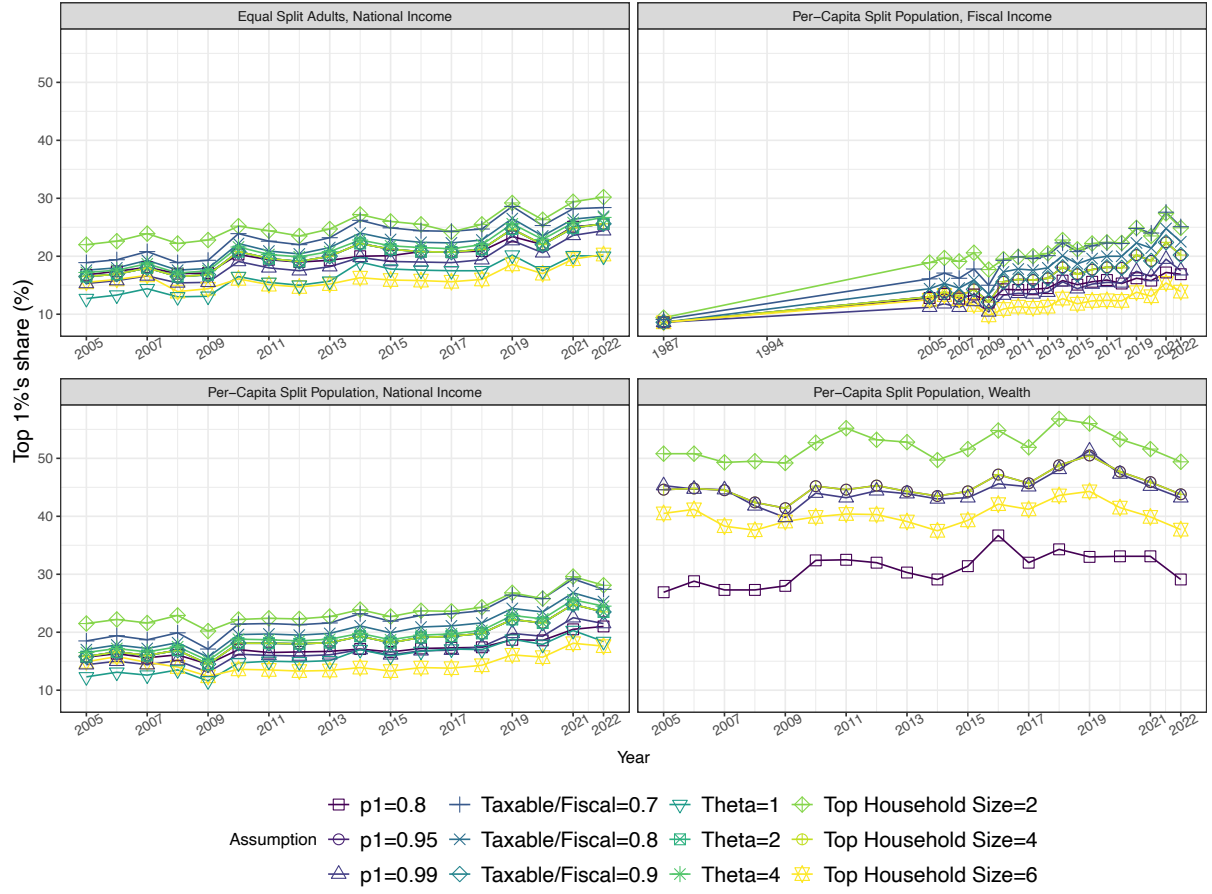
Note: The series are based on the SILC. Each series adjusts one key assumption while maintaining the remaining assumptions at their benchmark values. $p1$ denotes the percentile at which the fiscal correction profile starts increasing piecewise linearly. *Taxable/Fiscal* represents the ratio of taxable income to fiscal income. *Theta* refers to the Gumbel copula parameter. *Top Household Size* indicates the household size used in the tax data and Forbes data. *Key benchmark assumptions:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data, household size is assumed to be 4. For the fiscal+taxexempt income series, the copula parameter θ is 2.

Figure A9: Top 10% Share in Alternative Series based on Alternative Assumptions, SILC



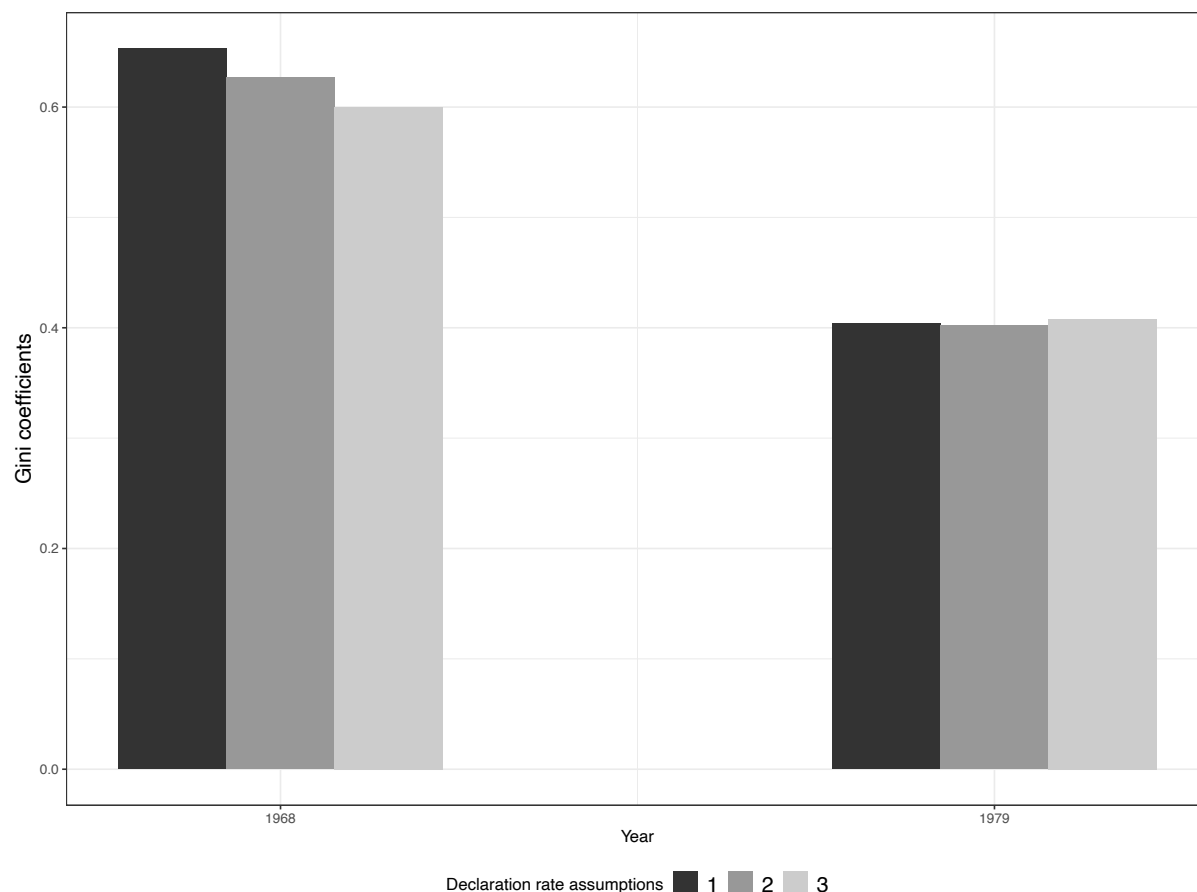
Note: The series are based on the SILC. Each series adjusts one key assumption while maintaining the remaining assumptions at their benchmark values. $p1$ denotes the percentile at which the fiscal correction profile starts increasing piecewise linearly. *Taxable/Fiscal* represents the ratio of taxable income to fiscal income. *Theta* refers to the Gumbel copula parameter. *Top Household Size* indicates the household size used in the tax data and Forbes data. *Key benchmark assumptions:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data, household size is assumed to be 4. For the fiscal+taxexempt income series, the copula parameter θ is 2.

Figure A10: Top 1% Share in Alternative Series based on Alternative Assumptions, SILC



Note: The series are based on the SILC. Each series adjusts one key assumption while maintaining the remaining assumptions at their benchmark values. p_1 denotes the percentile at which the fiscal correction profile starts increasing piecewise linearly. *Taxable/Fiscal* represents the ratio of taxable income to fiscal income. *Theta* refers to the Gumbel copula parameter. *Top Household Size* indicates the household size used in the tax data and Forbes data. *Key benchmark assumptions:* The survey data are considered reliable for percentiles below $p_1 = 0.95$. For the tax data, household size is assumed to be 4. For the fiscal+taxexempt income series, the copula parameter θ is 2.

Figure A11: Gini Coefficients Across Different Series Using Varying Declaration Rate Assumptions in the Tax Tabulation Data



Note: In the tax tabulations for 1969 (fiscal year 1968) and 1980 (fiscal year 1979), not everyone in Turkey was obligated to file an income tax return. Consequently, a given percentile in the tax data represents a higher actual percentile in the population. To account for this, the study applies assumptions about declaration rates to the raw number of tax units in each income bracket. This figure illustrates how different declaration rate assumptions affect the final distribution of fiscal income. Under Assumption 1, the general pattern of the benchmark assumption is maintained, but the magnitudes vary. Specifically, for 1968, the declaration rate rises linearly from 5% in the lowest bracket to 10% in the seventh bracket and reaches 100% in the top bracket. For 1979, it increases from approximately 0.01% in the lowest bracket to 10% in the fifth bracket, reaching 100% at the top. Assumption 2 posits relatively higher declaration rates for lower brackets, while Assumption 3 assumes higher declaration rates for the upper brackets in 1968 and the middle brackets in 1979.

A3 Data Description

Table A1: Tax data sources and income definitions

Data	Income earned in	Income concept	Tax unit	Adjustment to raw data
Budget Revenues Bulletin (1972), Fiscal Year 1971, p.183, Table: The distribution of annual income tax returns by income groups, 1969	1968	Fiscal income, i.e., the total income subject to taxation before any deductions and taxes, net of expenses.	Family ('Aile reisi beyanı')	To align fiscal income thresholds with survey disposable income thresholds, effective tax rates are computed from the raw data for each bracket using tax paid by bracket, and then applied to thresholds. To exploit the data, considering that not all taxpayers are required to submit an income declaration in Turkey, first, the total control number of tax units is estimated by: (1) starting with an estimate of the total population, (2) excluding individuals under 15 based on population data to estimate the total number of "individuals" relevant for tax purposes, and (3) subtracting the number of married women to determine the final count of "tax units.". Second, assumptions about the declaration rate are applied to the raw number of tax units in each bracket so that their total match the total estimated number of tax units. To convert thresholds to an individual basis, the share of single adults in tax units from 1967 (not 1968 due to data limitation) is applied uniformly across all brackets, based on the assumption that the share of single adults is relatively consistent across brackets.
Budget Revenues Yearbook, 1979-1983, p.80, Table: The distribution of income tax payers. Taxable income and tax amounts based on income brackets, 1980	1979	Taxable income, i.e., the total income subject to taxation after any deduction before taxes, net of expenses.	Family ('Aile reisi beyanı')	To align fiscal income thresholds with survey disposable income thresholds, first, taxable income is converted into fiscal income using a benchmark assumption that the ratio of taxable income to fiscal income is 0.9. Second, effective tax rates are computed from the raw data for each bracket using tax paid by bracket, and then applied to the updated fiscal income thresholds. To exploit the data, considering that not all taxpayers are required to submit an income declaration in Turkey, first, the total control number of tax units is estimated (see above). Second, assumptions about the declaration rate are applied to the raw number of tax units in each bracket so that their total match the total estimated number of tax units. To convert thresholds to an individual basis, the share of single adults in tax units from 1967 (not 1979 due to data limitation) is applied uniformly across all brackets, based on the assumption that the share of single adults is relatively consistent across brackets.
The list of the top 100 taxpayers, 1988 and 1995, compiled from newspaper archives	1987, 1994	Total tax paid	Family (Aile reisi beyanı)	To estimate individual post-tax income, the tax schedules for the relevant year are applied to the total tax paid in order to derive taxable income. This taxable income is then converted to fiscal income using a benchmark taxable income/fiscal income ratio of 0.9. The tax paid is subtracted from the fiscal income. This final income is divided by the average tax unit size to reach individual income.
The list of the top 100 taxpayers, 2002-2022, compiled from the Turkish Revenue Administration	2002-2022	Total tax paid	Individual	Since 2014, certain high-income taxpayers have managed to conceal the amount of taxes they paid. This missing data is estimated using linear interpolation, calculated by averaging between two known points arranged in descending order. If the highest tax paid is missing, the next available highest tax amount is used as a replacement. To estimate the individual post-tax income of the top 100 taxpayers, the tax schedules for the relevant year are applied to the total tax paid in order to derive taxable income. This taxable income is then converted to fiscal income using a benchmark taxable income/fiscal income ratio of 0.9. The tax paid is subtracted from the fiscal income.

Table A2: Survey samples and income definitions in surveys

Data	Unit and income ref. year	Income concept and sample	Specific income definition	Adjustment to raw data	Difference
Bulutay et al. (1971)	Individual, 1968	Income: Disposable income. Sample: 4,505 households, both rural and urban. Households with female members who are either over 45 years old or unmarried, which make up 17 percent of the population, are excluded. The sample covers about 83% of households.	N/A	N/A	Excludes households with female members who are over 45 years old or unmarried, accounting for 17 percent of the population.
"Urban Places Household Income and Consumption Expenditures Survey Results, 1978-1979" combined with "Income Distribution and Consumption Expenditures in Rural Areas, 1973-1974"	Household. Rural: June 1973 - June 1974. Urban: October 1978 - September 1979	Income: Disposable income. Urban survey sample: A sample consisting of 822 households, which varies each month, has been surveyed, and 40 provinces have been selected. Turkey's population has been divided into five geographical regions, each with settlements of 10,000 or more people. Rural survey sample: From each of the 67 provinces in Turkey, 2 districts have been selected using simple random sampling.	For the rural survey: Cash income and in-kind income, the total value of materials consumed from the household's own production, the difference between the value of inputs and the value of bakery products produced by the household, the total expenses from the household's own production, and the inventory difference for finished products. Costs related to production, wages, rent, interest paid by the household, and tax payments are deducted from the total. For the urban survey: N/A	Raw tables in the rural survey and the urban survey display the distribution of households across different income brackets. Because they do not provide a distribution of personal income, the household distribution is converted into a personal income distribution. For the rural survey, this is done using the average household size for each income bracket as obtained from the data, without assuming a constant household size across different income levels. For the urban survey, the average household size for each income bracket is not given. Hence, the conversion is done using a constant household size derived from the data. Notice also that when bracket averages are inconsistent with thresholds in the raw data, brackets are aggregated sufficiently to make the raw data internally consistent.	Since rural incomes are missing from the urban survey for 1978-79, I use a Copula parameter of 2 to estimate the total income distribution for 1978-79, linking rural income from 1973-74 with urban income from 1978-79. This assumes that rural incomes in 1973-74 serve as a good proxy for rural incomes in 1978-79, despite the rapid increase in inflation from 23.9 percent in 1974 to 63 percent in 1979. Note also that I use the year 1979 as the survey year since the urban survey covers the period from October 1, 1978, to September 30, 1979, which is mostly 1979.
"Household Income and Consumption Expenditures Survey Results, 1987"	Household, 1987	Income: Disposable income	The net annual income earned by income earners (wages, profit excluding undistributed profits, interest, rent), pension, widow and orphan pensions, payments to the elderly, scholarships and similar transfers, and the total of in-kind net incomes. Imputed rent is included in the definition. If a household lives in a parental or relative's home without paying rent, the imputed rent value of the dwelling is considered as in-kind real estate income. Per diem allowances and fringe benefits that are of a continuous nature are included in the wage income. Borrowing money, lending money, money won or lost from gambling, money withdrawn from savings in the bank, income from the purchase and sale of movable and immovable properties, inheritance, lottery winnings, retirement gratuities, and severance payments are not included in the scope of income. One-time gifts are also excluded.	Raw tables display the distribution of households across different income brackets. Because they do not provide a distribution of personal income, the household distribution is converted into a personal income distribution. This is done using the average household size per income bracket derived from the data, without assuming household size remains constant across income levels. Monthly income is translated into annual income.	Wage bonuses, allowances, and premiums that are deemed to be irregular in nature are excluded from disposable income.
HBS (1994)	Individual and household, 1994	Income: Disposable income. Sample: A total of 2,188 households have been surveyed monthly—1,522 from urban areas and 666 from rural areas. Annually, this amounts to 26,256 households.	Net annual wage income from primary job (b5bs24) and from secondary job (b5bs41+b5bs42+b5bs06), bonuses from employer (b5bs25), in-kind income from employer (b5bs26+b5bs07), self-employment, entrepreneurial, agricultural income (b5bs33 + b5bs34), interest and financial income (b5bs48), rent and real estate (b5bs45+b5bs46), transfer income (b5bs49), in-kind transfers (b5bs50), remittances from abroad (b5bs55+b5bs56), imputed rent (b2d200*12)	N/A	Since some income variables are not fully explained, the default survey definition of income is applied.
HBS (2002)	Individual and household, 2002	Income: Disposable income. Sample: A total of 800 households have been surveyed monthly—650 from urban areas and 150 from rural areas. Annually, this amounts to 9,600 households.	Net annual wage income from primary job (UCRN.YIL) and from secondary job (EKGLN.YL+EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YIL+PRIM.YIL), in-kind income from employer (UCRA.YIL), entrepreneurial and self-employment income (MUTSN.YL + MUTSA.YL), agricultural income (TARG.YL)+ interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+VIADE.YL+YASLL.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ IS-SIZ.YL+ DGBRS.YL+DGNFK.YL), in-kind transfers (DAYNL.YL+DGAYN.YL), remittances from abroad (YDDOV.YL+ YDBRS.YL+ YDAYN.YL), imputed rent (IZAFILK*12)	Hereafter, instead of using the surveys' default household disposable income, which typically subtracts non-consumption expenditures and gifts to other households from the income, a disposable income consistent with previous surveys is calculated. Also, individual incomes are combined to calculate household income, which is then divided by the total number of household members (or by the number of adults or couples, based on the chosen assumption) to derive per capita equal-split incomes.	N/A
HBS (2003)	Individual and household, 2003	Income: Disposable income. Sample hereafter: The sample collection method used by TÜİK is comparable to the one described for 2002.	Net annual wage income from primary job (UCRN.YIL) and from secondary job (EKGLN.YL+EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YIL+PRIM.YIL), in-kind income from employer (UCRA.YIL), entrepreneurial and self-employment income (MUTSN.YL + MUTSA.YL), agricultural income (TARG.YL)+ interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+VIADE.YL+YASLL.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ IS-SIZ.YL+ DGBRS.YL+DGNFK.YL), in-kind transfers (DAYNL.YL+DGAYN.YL), remittances from abroad (YDDOV.YL+ YDBRS.YL+ YDAYN.YL), imputed rent (IZAFILK*12)	N/A	N/A
HBS (2004)	Individual and household, 2004	Disposable income	Net annual wage income from primary job (UCRN.YIL) and from secondary job (EKGLN.YL+EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YIL+PRIM.YIL), in-kind income from employer (UCRA.YIL), entrepreneurial and self-employment income (MUTSN.YL + MUTSA.YL), agricultural income (TARG.YL)+ interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+VIADE.YL+YASLL.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ IS-SIZ.YL+ DGBRS.YL+DGNFK.YL+DSEMK.YL+SOSY.YL), in-kind transfers (DAYNL.YL+DGAYN.YL), remittances from abroad (YDDOV.YL+ YDBRS.YL+ YDAYN.YL), imputed rent (IZAFILK*12)	N/A	Hereafter, annual other private pension income and annual social assistance fund and family assistance (DSEMK.YL+SOSY.YL) are included separately.

Data	Unit and income ref. year	Income concept and sample	Specific income definition	Adjustment to raw data	Difference
HBS (2005)	Individual and household, 2005	Disposable income	Net annual wage income from primary job (UCRN.YL) and from secondary job (EKGLN.YL+EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YL+ PRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL+ MUTSA.YL), agricultural income (TARG.YL+DDESTEK.YL), interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+ GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+VIADE.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+ DG-BRS.YL+DGNFK.YL+DSEMK.YL+SOSY.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL+ YDBRS.YL+ YDAYN.YL), imputed rent (IZAFLK*12)	N/A	Hereafter, direct income support and fuel support paid to farmers (DDESTEK.YL) are recorded separately.
HBS (2006)	Individual and household, 2006	Disposable income	Net annual wage income from primary job (UCRN.YL) and from secondary job (EKGLN.YL+EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YL+ PRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL+ MUTSA.YL), agricultural income (TARG.YL+DDESTEK.YL), interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+ GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+VIADE.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+ DG-BRS.YL+DGNFK.YL+DSEMK.YL+SOSY.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL+ YDBRS.YL+ YDAYN.YL), imputed rent (IZAFLK*12)	N/A	N/A
HBS (2007)	Individual and household, 2007	Disposable income	Net annual wage income from primary job (UCRN.YL) and from secondary job (EKGLN.YL+EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YL+ PRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL+ MUTSA.YL), agricultural income (TARG.YL+DDESTEK.YL), interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+ GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+VIADE.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+ DG-BRS.YL+DGNFK.YL+DSEMK.YL+SOSY.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL+ YDBRS.YL+ YDAYN.YL), imputed rent (IZAFLK*12)	N/A	N/A
HBS (2008)	Individual and household, 2008	Disposable income	Net annual wage income from primary job (UCRN.YL) and from secondary job (EKGLN.YL+EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YL+ PRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL+ MUTSA.YL), agricultural income (TARG.YL+DDESTEK.YL), interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+ GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+VIADE.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+DGNFK.YL+DSEMK.YL+SOSY.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL), imputed rent (IZAFLK*12)	N/A	Hereafter, other aid and scholarship income (DGBRS.YL) and other in-kind income and aid and scholarship income from abroad (YD-BRS.YL+ YDAYN.YL) are discontinued and aggregated into relevant variables.
HBS (2009)	Individual and household, 2009	Disposable income	Net annual wage income from primary job (UCRN.YL) and from secondary job (EKGLN.YL+ EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YL+ PRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL+ MUTSA.YL), agricultural income (TARG.YL+DDESTEK.YL+ORTAKCL.YL), interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+ GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+VIADE.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+DGNFK.YL+DSEMK.YL+SOSY.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL), imputed rent (IZAFLK*12)	N/A	Hereafter, income from land rented to sharecroppers (ORTAKCL.YL) is included separately.

Data	Unit and income ref. year	Income concept and sample	Specific income definition	Adjustment to raw data	Difference
HBS (2010)	Individual and household, 2010	Disposable income	Net annual wage income from primary job (UCRN.YL) and from secondary job (EKGLN.YL+ EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YL+ PRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL + MUTSA.YL), agricultural income (TARG.YL+DDESTEK.YL+ORTAKCL.YL), interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+ GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+DGNFK.YL+DSEMK.YL+SOSY.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL), imputed rent (IZAFLK*12)	N/A	Hereafter, tax refund (VIADE.YL) is discontinued.
HBS (2011)	Individual and household, 2011	Disposable income	Net annual wage income from primary job (UCRN.YL) and from secondary job (EKGLN.YL+ EKGLA.YL+ DIGLN.YL+DIGLA.YL), bonuses and premiums from employer (IKR.YL+ PRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL + MUTSA.YL), agricultural income (TARG.YL+DDESTEK.YL+ORTAKCL.YL), interest and financial income (BANKA.YL+DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), rent and real estate (GMKN.YL+ GMKA.YL+TOPRN.YL+ TOPRA.YL), transfer income (EMEKL.YL+YDEMK.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+DGNFK.YL+DSEMK.YL+SOSY.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL), imputed rent (IZAFLK*12)	N/A	Hereafter, equity income (TEMET.YL) is discontinued.
HBS (2012)	Individual and household, 2012	Disposable income	Net annual wage income from primary job (UCRN.YL), bonuses and premiums from employer (IKRPRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL + MUTSA.YL), agricultural income (TARG.YL+DDESTEK.YL), interest and financial income (BANKA.YL), rent and real estate (GMKN.YL+ GMKA.YL), transfer income (EMEKL.YL+YDEMK.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+DGNFK.YL+DSEMK.YL+SOSY.YL +HASTA.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL), imputed rent (IZAFLK*12)	N/A	Hereafter, income from secondary job (EKGLN.YL+ EKGLA.YL+ DIGLN.YL+DIGLA.YL), income from land rented to sharecroppers (ORTAKCL.YL), certain types of financial and interest income (DOVIZ.YL+ NEMA.YL+ TEMET.YL+ KAR.YL), and rental income from land (TOPRN.YL+ TOPRA.YL) are discontinued and aggregated into relevant variables. Sickness benefit (HASTA.YL) is included separately.
HBS (2013)	Individual and household, 2013	Disposable income	Net annual wage income from primary job (UCRN.YL), bonuses and premiums from employer (IKRPRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL + MUTSA.YL), agricultural income (TARG.YL+ORTAKCIN.YL + ORTAKCIA.YL +DDESTEK.YL), interest and financial income (BANKA.YL), rent and real estate (GMKN.YL+ GMKA.YL), transfer income (EMEKL.YL+YDEMK.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+DGNFK.YL+DSEMK.YL+SOSY.YL +HASTA.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL), imputed rent (IZAFLK*12)	N/A	Hereafter, cash and in-kind income from land rented to sharecroppers (ORTAKCIN.YL + ORTAKCIA.YL) and private pension income (OZEMEK.YL) are included separately.
HBS (2014)	Individual and household, 2014	Disposable income	Net annual wage income from primary job (UCRN.YL), bonuses and premiums from employer (IKRPRIM.YL), in-kind income from employer (UCRA.YL), entrepreneurial and self-employment income (MUTSN.YL + MUTSA.YL), agricultural income (TARG.YL+ORTAKCIN.YL + ORTAKCIA.YL +DDESTEK.YL), interest and financial income (BANKA.YL), rent and real estate (GMKN.YL+ GMKA.YL), transfer income (EMEKL.YL+YDEMK.YL+ YASLI.YL+ DUL.YL+ GAZI.YL+ BURS.YL+ ISSIZ.YL+DGNFK.YL+DSEMK.YL+SOSY.YL +HASTA.YL), in-kind transfers (DAYNLYL+DGAYN.YL), remittances from abroad (YDDOV.YL), imputed rent (IZAFLK*12)	N/A	N/A
HBS (2015)	Individual and household, 2015	Disposable income	Net annual wage income from primary job (GELIR_NAKDLUCRET.YEVMIYE), bonuses and premiums from employer (GELIR_NAKDIJKRAMIYE.PRIM), in-kind income from employer (GELIR_AYNIUCRET.YEVMIYE), entrepreneurial and self-employment income (GELIR_NAKDI.MUTESEBBIS + GELIR_AYNI.MUTESEBBIS), agricultural income (GELIR_TARIM.NET+GELIR_NAKDI.ORTAKCI + GELIR_AYNI.ORTAKCI +GELIR_DEVLET.TARIMSAL.DESTEK), interest and financial income (GELIR.BANKA.TAHVIL), rent and real estate (GELIR_NAKDI.GAYRIMENKUL+ GELIR_AYNI.GAYRIMENKUL), transfer income (GELIR_DEVLET.EMEKL.MAAS+ GELIR_YDISI.EMEKL.MAAS+ GELIR_DEVLET.YASLILIK.MAAS+ GELIR_DEVLET.DUL.YETIM+ GELIR_DEVLET.GAZILIK+ GELIR_DEVLET.BURS+ GELIR_DEVLET.JSSIZLIK+ GELIR_BIREYSEL.EMEKLILIK +GELIR_DEVLET.AILE.KONUT), in-kind transfers (GELIR_AYNI.DEVLET+GELIR_AYNI.OZEL), remittances from abroad (GELIR_YDISI.DOVIZ.BURS), imputed rent (KIRA.JZAFI*12)	N/A	Hereafter, variable names have been significantly modified, with several individual-level variables now moved to the household level.

Data	Unit and income ref. year	Income concept and sample	Specific income definition	Adjustment to raw data	Difference
HBS (2016)	Individual and household, 2016	Disposable income	Net annual wage income from primary job (GELIR_NAKDLUCRET.YEVMIYE), bonuses and premiums from employer (GELIR_NAKDLIKRAMIYE.PRIM), in-kind income from employer (GELIR_AYNLUCRET.YEVMIYE), entrepreneurial and self-employment income (GELIR_NAKDLMUTESEBBIS + GELIR_AYNL.MUTESEBBIS), agricultural income (GELIR_TARIM.NET+GELIR_NAKDLORTAKCI + GELIR_AYNLORTAKCI +GELIR_DEVLET.TARIMSAL.DESTEK), interest and financial income (GELIR_BANKA.TAHVIL), rent and real estate (GELIR_NAKDLGAYRIMENKUL+GELIR_AYNL.GAYRIMENKUL), transfer income (GELIR_DEVLET.EMEKLIMAAS+GELIR_YDISLEMEKLIMAAS+GELIR_DEVLET.YASLILIK.MAAS+GELIR_DEVLET.DUL.YETIM+GELIR_DEVLET.GAZILIK+GELIR_DEVLET.BURS+GELIR_DEVLET.JSSIZLIK+GELIR_BIREYSEL.EMEKLILIK +GELIR_DEVLET.AILE.KONUT), in-kind transfers (GELIR_AYNL.DEVLET+GELIR_AYNL.OZEL), remittances from abroad (GELIR_YDISLDOVIZ.BURS), imputed rent (KIRA.JZAFI*12)	N/A	N/A
HBS (2017)	Individual and household, 2017	Disposable income	Net annual wage income from primary job (GELIR_NAKDLUCRET.YEVMIYE), bonuses and premiums from employer (GELIR_NAKDLIKRAMIYE.PRIM), in-kind income from employer (GELIR_AYNLUCRET.YEVMIYE), entrepreneurial and self-employment income (GELIR_NAKDLMUTESEBBIS + GELIR_AYNL.MUTESEBBIS), agricultural income (GELIR_TARIM.NET+GELIR_NAKDLORTAKCI + GELIR_AYNLORTAKCI +GELIR_DEVLET.TARIMSAL.DESTEK), interest and financial income (GELIR_BANKA.TAHVIL), rent and real estate (GELIR_NAKDLGAYRIMENKUL+GELIR_AYNL.GAYRIMENKUL), transfer income (GELIR_DEVLET.EMEKLIMAAS+GELIR_YDISLEMEKLIMAAS+GELIR_DEVLET.YASLILIK.MAAS+GELIR_DEVLET.DUL.YETIM+GELIR_DEVLET.GAZILIK+GELIR_DEVLET.BURS+GELIR_DEVLET.JSSIZLIK+GELIR_BIREYSEL.EMEKLILIK +GELIR_DEVLET.AILE.KONUT), in-kind transfers (GELIR_AYNL.DEVLET+GELIR_AYNL.OZEL), remittances from abroad (GELIR_YDISLDOVIZ.BURS), imputed rent (KIRA.JZAFI*12)	N/A	N/A
HBS (2018)	Individual and household, 2018	Disposable income	Net annual wage income from primary job (GELIR_NAKDLUCRET.YEVMIYE), bonuses and premiums from employer (GELIR_NAKDLIKRAMIYE.PRIM), in-kind income from employer (GELIR_AYNLUCRET.YEVMIYE), entrepreneurial and self-employment income (GELIR_NAKDLMUTESEBBIS + GELIR_AYNL.MUTESEBBIS), agricultural income (GELIR_TARIM.NET+GELIR_NAKDLORTAKCI + GELIR_AYNLORTAKCI +GELIR_DEVLET.TARIMSAL.DESTEK), interest and financial income (GELIR_BANKA.TAHVIL), rent and real estate (GELIR_NAKDLGAYRIMENKUL+GELIR_AYNL.GAYRIMENKUL), transfer income (GELIR_DEVLET.EMEKLIMAAS+GELIR_YDISLEMEKLIMAAS+GELIR_DEVLET.YASLILIK.MAAS+GELIR_DEVLET.DUL.YETIM+GELIR_DEVLET.GAZILIK+GELIR_DEVLET.BURS+GELIR_DEVLET.JSSIZLIK+GELIR_BIREYSEL.EMEKLILIK +GELIR_DEVLET.AILE.KONUT), in-kind transfers (GELIR_AYNL.DEVLET+GELIR_AYNL.OZEL), remittances from abroad (GELIR_YDISLDOVIZ.BURS), imputed rent (KIRA.JZAFI*12)	N/A	N/A

Data	Unit and income ref. year	Income concept and sample	Specific income definition	Adjustment to raw data	Difference
HBS (2019)	Individual and household, 2019	Disposable income	Net annual wage income from primary job (GELIR_NAKDLUCRET.YEVMIYE), bonuses and premiums from employer (GELIR_NAKDLJKRAMIYE.PRIM), in-kind income from employer (GELIR_AYNIUCRET.YEVMIYE), entrepreneurial and self-employment income (GELIR_NAKDLMUTESEBBIS + GELIR_AYNI.MUTESEBBIS), agricultural income (GELIR_TARIM.NET+GELIR_NAKDLORTAKCI + GELIR_AYNI.LORTAKCI +GELIR_DEVLET.TARIMSAL.DESTEK), interest and financial income (GELIR_BANKA.TAHVIL), rent and real estate (GELIR_NAKDL.GAYRIMENKUL+GELIR_AYNI.GAYRIMENKUL), transfer income (GELIR_DEVLET.EMEKL.MAAS+GELIR_YDISI.EMEKL.MAAS+GELIR_DEVLET.YASILIK.MAAS+GELIR_DEVLET.DUL.YETIM+GELIR_DEVLET.GAZILIK+GELIR_DEVLET.BURS+GELIR_DEVLET.JSSIZLIK+GELIR_BIREYSEL.EMEKLILIK +GELIR_DEVLET.AILE.KONUT), in-kind transfers (GELIR_AYNI.DEVLET+GELIR_AYNI.OZEL), remittances from abroad (GELIR_YDISI.DOVIZ.BURS), imputed rent (KIRA.JZAFI*12)	N/A	N/A
HBS (2022)	Individual and household, 2022	Disposable income	Net annual wage income from primary job (GELIR_NAKDLUCRET.YEVMIYE), bonuses and premiums from employer (GELIR_NAKDLJKRAMIYE.PRIM), in-kind income from employer (GELIR_AYNIUCRET.YEVMIYE), entrepreneurial and self-employment income (GELIR_NAKDLMUTESEBBIS + GELIR_AYNI.MUTESEBBIS), agricultural income (GELIR_TARIM.NET+GELIR_NAKDLORTAKCI + GELIR_AYNI.LORTAKCI +GELIR_DEVLET.TARIMSAL.DESTEK), interest and financial income (GELIR_BANKA.TAHVIL+GELIR_DIGER.MENKUL), rent and real estate (GELIR_NAKDL.GAYRIMENKUL+GELIR_AYNI.GAYRIMENKUL), imputed rent (KIRA.JZAFI), transfer income (GELIR.EMEKL.MAAS+GELIR_YASILIK.MAAS+GELIR_DUL.YETIM+GELIR_ANGELLI.M.ALUL + GELIR_BURS + GELIR_JSSIZLIK + GELIR_BIREYSEL + GELIR_NAKDL.GAYRIMENKUL + GELIR_AYNI.GAYRIMENKUL + GELIR_NAKDL.AILE.COCUK + GELIR_AYNI.AILE.COCUK + GELIR_NAKDL.KIRA.KONUT + GELIR_NAKDL.SOSYAL.YARDIM + GELIR_AYNI.SOSYAL.YARDIM + GELIR_NAKDL.ALINAN.YARDIM + GELIR_AYNI.ALINAN.YARDIM + GELIR_NAKDL.AFAKA + GELIR.COCUK.15 + GELIR.KENDI.URETIM)	N/A	Transfer income is further broken down.
SILC' (2006)-(2007)	2005-2006	Disposable income	Net annual wage income from primary and secondary job (FG010), in-kind income from employer (FG020), entrepreneurial and self-employment income (FG030 + FG040), agricultural income (FG050), interest and financial income (HG080), rent and real estate (HG070), imputed rent (HG010), imputed income for non-responses (HG105) transfer income (FG070+FG080+FG090+FG100+FG110+FG120+FG125+HG020+HG030N+HG030A+HG040+HG050N+HG050A+HG060N+HG060A)	N/A	Hereafter, bonuses and premiums from employers are aggregated into relevant variables. Income from child labor is included in household income.
SILC' (2008)	2007	Disposable income	Net annual wage income from primary and secondary job (FG010), in-kind income from employer (FG020), entrepreneurial and self-employment income (FG030 + FG040), agricultural income (HG085), interest and financial income (HG080), rent and real estate (HG070), imputed rent (HG010), imputed income for non-responses (HG105) transfer income (FG070+FG080+FG090+FG100+FG110+FG120+FG125+HG020+HG030N+HG030A+HG040+HG050N+HG050A+HG060N+HG060A)	N/A	Agricultural income (FG050) is moved to the household level.
SILC' (2009)-(2023)	2008-2022	Disposable income	Net annual wage income from primary and secondary job (FG010), in-kind income from employer (FG020), entrepreneurial and self-employment income (FG030 + FG040), agricultural income (HG085), interest and financial income (HG080), rent and real estate (HG070), imputed rent (HG010), imputed income for non-responses (HG105) transfer income (FG070+FG080+FG090+FG100+FG110+FG120+HG065N+HG020+HG030N+HG030A+HG040+HG050N+HG050A+HG060N+HG060A)	N/A	Alimony (HG065N) are included separately. Tax refund income (FG125) is discontinued.

Table A3: Wealth definitions in surveys

Data	Unit and wealth ref. year	Wealth concept and sample	Specific wealth definition	Adjustment to raw data	Difference
HBS (2002-2012)	Individual and household, 2002-2012	Gross personal wealth	Gross wealth comprises both financial and non-financial assets. Non-financial housing wealth is calculated by capitalizing rental income using an annual rent capitalization factor of 20. Housing includes the market value of the house lived in during the survey month (KONDEGER), the total value of other detached houses (MUSKDEG*12*20), apartments, (APTKDEG*12*20), summer house (YAZKDEG*12*20), vineyard house (BAGKDEG*12*20), land (ARSAKDEG*12*20), commercial buildings (DUKKDEG*12*20+OTELKDEG*12*20), agricultural land (TARKDEG*12*20+SERAKDEG*12*20). Other household non-financial capital in the form of business assets is estimated through capitalization, i.e., it is annual entrepreneurial income (MUTSN.YL) divided by the average interest rate of a one-year term deposit in TRY. Financial assets estimated through capitalization include currency (Interest income earned from an annual foreign currency account (DOVIZ.YL) divided by the average interest rate of a one-year term deposit in TRY), deposits (Interest income earned from an term deposit account (BANKA.YL+KAR.YL) divided by the average interest rate of a one-year term deposit in TRY), bonds, and other similar holdings (Interest income earned from securities such as treasury bills, finance and bank bonds, private sector and government bonds, etc (NEMA.YL) divided by the average interest rate of a one-year term deposit in TRY). Financial assets in the form of equity, investment fund shares, life insurance, and pension funds owned by households are missing.	N/A	N/A