

# Why Is Europe More Equal than the United States?

## Online Appendix\*

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### **Abstract**

This appendix supplements the paper “Why Is Europe More Equal than the United States?” It provides supplementary material on data files, computer codes, detailed methodological explanations and main results for each country covered by the paper.

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# 1 Detailed Methodology

This section describes in details the different steps of our methodology. We primarily focus on methodological questions. For detailed information on the availability of sources by country and the effect of the different adjustments, see section 3.

## 1.1 Aggregate Income Data

We collect data on key income aggregates, primarily from the system of national accounts, but also using auxiliary data sources when necessary.

**Aggregate National Income, PPP and Market Exchange Rates** We use estimates of national income, purchasing power parities (PPP) and market exchange rates from the World Inequality Database (<https://wid.world>). GDP estimates for former Eastern European countries come from the Maddison database ([Bolt and van Zanden, 2020](#)).

**Decomposition of National Income** We retrieve the decomposition of national income by institutional sector from three main official sources: Eurostat, the OECD and the UN SNA. Eurostat and the OECD arguably provide the highest quality data, so we use them in priority. However they have limited coverage before 1995 or in certain Eastern European countries. We fill these gaps using the UN SNA data, which are more complete, in particular because they include more countries and also historical series from earlier iterations of the system of national accounts.

When combining these series together, we apply a systematic splicing procedure that looks at the gap between two sources in the first year they overlap, and apply that same gap to the less recent data series (i.e., we adjust its level but preserve its trend).

**Imputed Rents** In practice, the treatment of the imputed rents of owner-occupied dwellings is not homogenous between countries in their current implementation of the SNA. In some countries, the net operating surplus of the household sector is entirely made up of imputed rents, while in other countries it includes both imputed and non-imputed rents. To fix that issue, we use the supply-and-use tables published by the OECD, which explicitly identifies the imputed rents of owner-occupied dwellings, to split the net operating surplus of the housing sector into imputed and non-imputed rents when necessary.

**Separation of Retained Earnings between Shareholders, Pension funds and Government** The income of the corporate sector can ultimately accrue to shareholder households, to pension funds or to the government. To estimate that split, we rely on the OECD's financial balance sheets and pension fund statistics. The OECD pension funds statistics include the value of funded pensions, and the share of these pensions that is invested in stocks. The financial balance sheets contain the value of equity that is held by the household and general government sectors. We split

retained earnings between shareholder households, pension funds and the government in proportion to their respective equity holdings.

We make one adjustment in Norway, where public shareholdings are very large due to its sovereign wealth fund, but represent profits that are essentially made abroad and therefore are not included in its domestic corporate income. For this reason, we subtract the value of Norway's wealth fund from its public shareholding before we do the computation. In other countries we assume that government shareholdings are essentially made up of domestic companies.

**Social Expenditures** In the SNA, all social expenditures in cash (including social insurance such as pension and unemployment on the one hand, and social assistance benefits in the other) are pooled into item D62 ("Social benefits other than social transfers in kind"). In principle, this item is meant to be broken down further into the different types of benefits in the SNA nomenclature, but in practice that level of detail is not available directly in most countries. To overcome that issue, we use the OECD social expenditure database, which breaks down social benefits by type, to split item D62 into pension, unemployment and other.

**Health Expenditures** Public health expenditure are part of government final consumption expenditure (item P3 in the SNA). In the main SNA tables, this item is broken down into individual expenditures (P31) and collective expenditures (P32). Health is generally included in individual expenditures (P31) alongside other types of spending (e.g., education), and this item is not broken down further.

To get an estimate of public health spending, we rely on two other databases. One is a satellite account of the SNA, the "Government final consumption expenditure by function," (COFOG) which is published by the OECD, Eurostat, and the UN SNA, and breaks down government final expenditures by function, including a separate item for health. The other is the OECD health database, which also provides data on government health spending.

Switzerland is the one country that requires a special treatment. The health system in Switzerland rests on private health insurance with public subsidies and a strict individual mandate. Other European countries have similar system but nonetheless classify their health subsidies as public expenditure (P3) in the national accounts. Switzerland, on the other hand, has virtually no final consumption expenditures on health in the SNA and classifies most of its public spending as subsidies (D3). For more comparable results, we reclassify these health subsidies as public health expenditures.

**Imputations** Data coverage of aggregate data is quite good, especially after 1995. For the remaining missing data, we extrapolate backward in time the first available value as a fraction of national income, and when a piece of information is entirely missing for a country, we rely on a European average. We systematically rescale the subcomponents of income to match accounting

identities.<sup>1</sup>

## 1.2 Estimation of Incomes from Survey Microdata

### 1.2.1 Construction of Factor, Pretax and Posttax Income from EU-SILC

We use the EU-SILC survey as our key source for microdata on the distribution of income. The EU-SILC is a pan-European survey managed by Eurostat, which covers most European countries with detailed information on income. The first wave of the survey was 2004, with more countries and more detailed income information being progressively added over time. In particular, most pretax income information started being added with the 2007 wave in most countries.

The EU-SILC records wages of employees and the self-employed, distributed capital incomes, and government taxes and transfers. We use these data to construct factor, pretax and posttax incomes according to our definitions, with the exclusion of incomes not included in surveys (retained earnings, taxes on products, etc.), which are included in further steps. In general, incomes recorded in EU-SILC data for year  $N$  refer to the year  $N - 1$ , with two exceptions: in Ireland the income reference period is the last twelve months, and in the United Kingdom current income is annualized and aims to refer to the current calendar year. We accordingly adjust income years.

The EU-SILC also records basic demographic information (age, household structure, etc.) that we use to calculate income according to various equivalence scales. Importantly, it also allows us to identify couples within households (defined as married people and partners in a consensual union, with or without a legal basis), in cases where multiple couples live within the same household. This allows us to estimate the distribution of incomes both according to the “broad equal-split” convention (income split equally among all household members) and the “narrow equal-split” convention (income split equally among members of couples).

### 1.2.2 Estimation of Social Contributions

One limitation of EU-SILC is that it does not record separately employee social contributions from taxes on income and wealth. Following the recommendations of the Canberra Group ([Canberra Group, 2011](#)), the EU-SILC pools those two items together, even as it separates employee social contributions from employer social contributions in cases where the latter are recorded. To overcome that issue, we use the social contribution schedules published by the OECD to simulate social contributions at the individual level. Note that these imputations may impact the distribution of pretax income, but have no impact on posttax incomes, because posttax incomes deduct both taxes and contributions.

We separately impute for each individual (i) social contributions of employees, (ii) social contributions of the self-employed and (iii) employer social contributions. Employer contributions have started to

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<sup>1</sup>To extrapolate the first available value backward we use simple exponential smoothing with a coefficient of 0.9, to somewhat limit the impact of having an atypical first value on the whole series.

be recorded in EU-SILC directly in recent years, in which case we use the EU-SILC value directly. In other cases we rely on our estimation. At every step, we ensure the plausibility of our results by making sure that (i) our estimated social contributions are smaller than the combined value of taxes and employee social contributions from EU-SILC and that (ii) our estimates of employer social contributions are consistent with the value recorded in EU-SILC whenever the latter is available. We found the two sources (OECD and EU-SILC) to be largely consistent. There are only three countries (Croatia, Romania and Serbia) that have EU-SILC data but no OECD data on social contributions. For those three countries, and absent better information, we assume that social contributions are proportional to factor income.

Having estimated social contributions (both employer and employee), we separate them into a “contributory” and a “non-contributory” component. The contributory component pays for social insurance (i.e., pension and unemployment benefits) while the non-contributory component pays for other benefits (e.g., family benefits). One solution would be to separate which contribution is meant to pay for which type of benefit in the social contribution schedule directly, but on top of being very demanding, this approach would not yield useful results. Indeed, due to the fungible nature of public funds, social contributions that are supposed to pay for a given benefit can often exceed or fall short of the benefit amount for spurious reasons. Hence, we follow a more simple and robust first-order approach, which is to split contributory and non-contributory contributions proportionally, so that contributory contributions match the overall amount of pension and unemployment benefits paid. By construction, this approach ensures equilibrium between contributions and benefits, by implicitly distributing the surplus or deficit of the social insurance system proportionally to social contributions. In some countries, pension and unemployment benefits exceed the total amount of social contribution. The most notable example is Denmark, where social contribution are virtually nonexistent because social insurance is primarily financed by regular taxes. In such cases, we consider that a fraction of the income tax pays for social insurance, and we treat that fraction like social contributions.

### 1.3 Harmonization of Other Survey Data Sources

#### 1.3.1 Data Collection and Interpolation

To extend our coverage of survey data, we gather a large collection of survey tabulations from a variety of sources. Some of them take the form of survey tabulations, coming from PovcalNet ([World Bank, 2021](#)), the World Income Inequality Database (UNU-WIDER), and Eastern European estimates published by [Milanović \(1998\)](#). These tabulations describe distributions of income by giving income shares of various brackets, whose number and location vary. We construct complete tabulations by g-percentile using the generalized Pareto interpolation method introduced by [Blanchet, Fournier, and Piketty \(2021\)](#).<sup>2</sup> Most of these tabulations refer to either post-tax income or consumption.

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<sup>2</sup>What we call g-percentiles refer to every percentile from  $p = 0\%$  to  $p = 99\%$ , then  $p = 99.1\%$  to  $p = 99.9\%$ , then  $p = 99.91\%$  to  $p = 99.99\%$ , and finally  $p = 99.991\%$  to  $p = 99.999\%$ .

We also use survey microdata from a variety of sources, from which we calculate all income concepts and equivalence scales possible, and collapse them into tabulated distributions. These include distributions from the Luxembourg Income Study (LIS), a database that collects, harmonizes, and makes available to researchers a wide range of survey microdata from many countries across the world. They also include the European Community Household Panel (ECHP), the precursor to EU-SILC, and two surveys from the World Bank covering Serbia in 2002, 2003 and 2007 (as well as Kosovo in 2000). In all cases these surveys cover posttax income, but in many cases they also cover pretax income.<sup>3</sup>

### 1.3.2 Harmonization of Income Concepts

The set of income distributions that we collect is very heterogeneous. It uses various various income concepts (pretax income, posttax income, consumption), various statistical units (individual, household), and various equivalence scales (square root, OECD, equal-split per capita, equal-split per adult). We harmonize this dataset to retrieve our concepts of interest: equal-split per adult, both at the household level (broad equal-split) and at the couple level (narrow equal-split). To that end, we notably take advantage of our access to survey microdata, which makes it possible to calculate variants of the income distribution for a wide array of income concepts, and therefore lets us observe how they tend to relate to one another.

Indeed, distributions for the different income concepts across country-years are correlated: therefore, we can use the distribution for one income concept to impute the distribution for another whenever the former is observed but not the latter. To do so, we use all the cases where the income distribution is simultaneously observed for two different concepts to learn how one tends to relate to another.

We can observe the  $p$ -th quantile of both the source and the target distributions for a variety of countries  $i$  and a variety of years  $t$ : write them  $Q_{it}^{\text{target}}(p)$  and  $Q_{it}^{\text{source}}(p)$ . To construct the best mappings  $\varphi$  between the different concepts, we consider a very general model. In that model, each percentile of the target distribution is an arbitrary function of every percentile of the source distribution, and of additional covariates. We write:

$$\mathbb{E}[Q_{it}^{\text{target}}(p)] = \varphi(Q_{it}^{\text{source}}(p_1), \dots, Q_{it}^{\text{source}}(p_m), p, t, Z_{it})$$

for a grid  $0 \leq p_1 < \dots < p_m < 1$  of fractiles, and for auxiliary variables  $Z_{it}$ . Estimating such a model raises some challenges. Linear regression will not be flexible enough due to its parametric assumptions and will tend to overfit the data if  $m$  is large.

To estimate this model, we therefore rely on more recent advances in high-dimensional, nonparametric regression, also known as *machine learning* methods. The algorithm we use is known as *boosted*

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<sup>3</sup>The treatment of social contributions in these surveys is not always as satisfying as what we were able to do for EU-SILC. However, to the extent that the deduction of social contributions makes little difference to the distribution of pretax incomes in EU-SILC—which is usually the case—we used pretax income from these surveys as a proxy for true pretax income for the historical period.

**Table A.1.3.1**

**5-fold cross validation mean relative error on the average by percentile when imputing pretax and posttax incomes from different concepts using our benchmark machine learning algorithm**

predictor	predicted concept			
	pretax income (broad equal-split)	pretax income (narrow equal-split)	posttax income (broad equal-split)	posttax income (narrow equal-split)
consumption	equal-split (broad)	9.9%	11.0%	8.4%
	per capita	8.7%	11.1%	9.5%
	households	9.2%	10.8%	7.9%
	OECD scale	9.7%	10.4%	8.8%
	square root scale	9.3%	10.7%	8.2%
pretax income	equal-split (broad)	n/a	3.3%	5.8%
	equal-split (narrow)	2.9%	n/a	5.6%
	per capita	3.7%	5.1%	6.3%
	households	3.9%	4.8%	7.2%
	OECD scale	2.4%	3.8%	6.2%
	square root scale	2.7%	4.1%	6.4%
posttax income	equal-split (broad)	5.6%	6.4%	n/a
	equal-split (narrow)	5.3%	4.8%	3.9%
	per capita	6.8%	7.6%	3.6%
	households	6.4%	7.0%	3.9%
	OECD scale	5.7%	6.5%	2.2%
	square root scale	5.6%	6.5%	2.7%

*Source:* authors' computations. *Note:* Error calculated only for the top 80% of distributions to avoid problems of denominator near zero. The algorithm is XGBoost's implementation of boosted regression trees using  $\eta = 0.1$  ([Chen and Guestrin, 2016](#)). Auxiliary variables included in the model are: regional dummies, average national income per adult (PPP), share of households with size 1 to 6, gross saving rate (% of GDP), overall social expenditures (% of GDP), top marginal income tax rate, income tax revenue (% of GDP), overall tax revenue (% of GDP), share of population by 10-year age bands and sex, corporate tax rate, VAT tax rate. *Interpretation:* When imputing pretax income per equal-split adult (broad) from consumption per household, the mean relative error for the average income of a given percentile is 9.2%.

*regression trees*, a powerful and commonly used method introduced by [Friedman \(2001\)](#). We rely on an implementation known as XGBoost ([Chen and Guestrin, 2016](#)), which has enjoyed great success due to its speed and performance, to the point that it has earned a reputation for “winning every machine learning competition” ([Nielsen, 2016](#)). On top of its performance, boosted regression makes it easy to deal with missing values, or to impose certain constraints, such as the fact that the quantile function  $Q(p)$  must be increasing with  $p$ .

We use five-fold cross-validation to determine the optimal number of “boosting rounds” that the algorithm performs, which determines the trade-off between bias and variance. Since our dataset is made up of countries that we follow over the years, it has a panel dimension, which we take into account as follows. We assume that the country-specific prediction error is independent conditional on all observed variables (i.e., that it is a *random* rather than a *fixed* effect.) Under that assumption, the imputation method remains valid because the error term remains exogenous. However, there is a risk of over-fitting if we do not make sure that the different subsamples used in the cross-validation are not independent, because then we would force the algorithm to try to predict the country random

**Table A.1.3.2**

**5-fold cross validation mean relative error on the average by percentile when imputing pretax and posttax incomes from different concepts using a machine learning algorithm without auxiliary variables**

predictor	predicted concept			
	pretax income (broad equal-split)	pretax income (narrow equal-split)	posttax income (broad equal-split)	posttax income (narrow equal-split)
consumption	equal-split (broad)	11.1%	12.2%	10.7%
	per capita	11.0%	12.7%	9.2%
	households	9.9%	11.8%	9.2%
	OECD scale	10.8%	12.5%	9.9%
	square root scale	10.6%	12.3%	9.3%
pretax income	equal-split (broad)	n/a	3.7%	6.3%
	equal-split (narrow)	3.1%	n/a	5.5%
	per capita	3.9%	5.5%	6.8%
	households	3.7%	5.4%	7.5%
	OECD scale	2.4%	4.2%	6.4%
	square root scale	2.6%	4.3%	6.6%
posttax income	equal-split (broad)	5.8%	6.4%	n/a
	equal-split (narrow)	5.4%	4.8%	4.0%
	per capita	7.3%	7.8%	3.8%
	households	6.6%	6.7%	3.8%
	OECD scale	6.2%	6.5%	2.3%
	square root scale	6.2%	6.5%	2.7%

*Source:* authors' computations. *Note:* Error calculated only for the top 80% of distributions to avoid problems of denominator near zero. The algorithm is XGBoost's implementation of boosted regression trees using  $\eta = 0.1$  (Chen and Guestrin, 2016). No auxiliary variables are included in this model. *Interpretation:* When trying to impute pretax income per equal-split adult from consumption per household, the mean relative error for the average income of a given percentile is 9.9%.

effect. To avoid that problem, we perform the cross-validation by making sure that all observations for one country are in the same cross-validation fold, which is known as leave-one-cluster-out cross validation (Fang, 2011). When possible, we also estimate and include the country random effect into our imputation. The random effect is estimated as a function of the percentile using the mean prediction error by country and percentile.

In the end, for any target concept of interest, we get as many predictions as there are sources available. Let  $\mathbf{y} = (\hat{Q}_{it}^{\text{target},1}, \dots, \hat{Q}_{it}^{\text{target},n})'$  be the  $n$  different predictions. Using the cross-validation estimation of the prediction error, we can estimate the variance-covariance matrix  $\Sigma$  between the different predictions. Following the logic of generalized least squares, the optimal way of combining the  $n$  predictions into one is to average them, weighted by the row or column sums of the symmetric matrix  $\Sigma^{-1}$ . This yields our harmonized estimate of the distribution, taking into account observed regularities across concepts and percentile groups.

As table A.1.3.1 shows, the mean (cross-validation) prediction error for the value of the average of a percentile is between 2% and 11% depending on the concept that was used for the prediction.<sup>4</sup>

<sup>4</sup>Before training the model, we transform the data using the transform  $y \mapsto \text{asinh}(y)$  for the value of the quantiles and  $x \mapsto -\log(1 - x)$  for the corresponding rank. This stabilizes the mode without changing the nature of the data.

**Table A.1.3.3**

**5-fold cross validation mean relative error on the average by percentile when imputing pretax and posttax incomes from different concepts using a single correction coefficient by percentile**

predictor	predicted concept			
	pretax income (broad equal-split)	pretax income (narrow equal-split)	posttax income (broad equal-split)	posttax income (narrow equal-split)
consumption	equal-split (broad)	15.2%	17.2%	10.5%
	per capita	20.3%	23.7%	11.0%
	households	15.9%	18.2%	11.7%
	OECD scale	16.7%	19.1%	11.0%
	square root scale	14.9%	17.3%	11.1%
pretax income	equal-split (broad)	n/a	3.7%	5.9%
	equal-split (narrow)	3.7%	n/a	6.3%
	per capita	3.9%	5.7%	6.7%
	households	4.6%	5.9%	8.1%
	OECD scale	2.4%	4.5%	6.3%
	square root scale	2.8%	4.7%	6.6%
posttax income	equal-split (broad)	5.8%	6.4%	n/a
	equal-split (narrow)	6.1%	4.6%	4.8%
	per capita	6.7%	7.5%	3.9%
	households	7.3%	7.6%	4.7%
	OECD scale	6.1%	6.6%	2.2%
	square root scale	6.2%	6.8%	2.7%

*Source:* authors' computations. *Note:* Error calculated only for the top 80% of distributions to avoid problems of denominator near zero. *Interpretation:* When trying to impute pretax income per equal-split adult from consumption per household, the mean relative error for the average income of a given percentile is 15.9%.

Adjusting for the statistical unit while keeping the income concept identical creates the least difficulties. Consumption, on the other hand, is a rather poor predictor of income. Moving from posttax to pretax income is a somewhat intermediary situation. The auxiliary variables that we use to improve the performance of the prediction are: regional dummies, average national income per adult (PPP), share of households with size 1 to 6, gross saving rate (% of GDP), overall social expenditures (% of GDP), top marginal income tax rate, income tax revenue (% of GDP), overall tax revenue (% of GDP), share of population by 10-year age bands and sex, corporate tax rate, and VAT tax rate. Table A.1.3.2 shows the performance of a model that does not include these variables. While their inclusion has only second-order effects on our harmonized series, they do improve the prediction error, especially when trying to impute based on consumption: we improve the mean relative error by up to 2 pp.

Table A.1.3.3 shows the performance of a much more simple imputation method, namely using a single correction coefficient by percentile to move from one concept to another. This coefficient is

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The use of asinh rather than the logarithm avoids issues with having zero or near-zero incomes at the bottom of the distribution. All distributions are normalized by their average since we are only concerned with the distribution of income. When we report prediction errors, these are computed for distributions that have been properly transformed back to their original value.

computed as the mean ratio between two concepts for a given percentile. While this method performs reasonably well for concepts that are close to one another, it exhibit much worse performance when using a poor predictor such as consumption. In such cases, the prediction can be 50% or even 100% worse than our benchmark algorithm.

## 1.4 Calibration of Survey Sources to Tax Data

### 1.4.1 Tax Data Sources

We collect a large set of top income shares estimated from tax data, and use it to adjust our survey estimates. Most of our data comes from the World Inequality Database, from which we extracted “fiscal” top income shares excluding capital gains (which are excluded from national income and from surveys). We also extend series to the latest available year when necessary, by going back to the original source, and add new tax tabulations that we were able to find. These new data series are described country by country in section 1.7.

### 1.4.2 Calibration Algorithm

We correct survey data for non-sampling error using known top income shares estimated from administrative tax data. We do so by adjusting survey weights using survey calibration methods (Deville and Särndal, 1992). Statistical institutes already routinely use these methods to ensure that their surveys are representative, typically in terms of age and gender. Our approach is a natural extension of theirs, in the sense that we enforce representativity in terms of taxable income in addition to age and gender.

We apply a standard linear calibration algorithm (Deville and Särndal, 1992) to make the survey match the top income shares estimated from the tax data, while minimizing distortions from the original survey data. Because surveys tend to underrepresent top incomes, in practice this means that we inflate the weights of the survey data at the top of the distribution.

One notable difficulty of our setting is that the statistics we calibrate the survey on (top income shares) are not linear statistics of the data, and therefore the most standard calibration framework does not apply. To overcome that issue we apply a two-step calibration procedure following Lesage (2009).

**First Step** In the first step, we linearize the top share statistics so that we can apply the standard calibration algorithm. To do that, we need to calculate the *influence function* (Cook and Weisberg, 1980) of top income shares. Let  $y_k$  be the income of observation  $k \in \{1, \dots, N\}$  in the survey. Let  $S_\alpha$  be the top  $100(1 - \alpha)\%$  income share from the tax data, and let  $\hat{Q}_\alpha$  be the  $\alpha$ -th quantile in the survey data. Langel and Tillé (2011) showed that the centered influence of observation  $k$  on the top  $100(1 - \alpha)\%$  income share from the survey is:

$$z_k = y_k H \left( \frac{\alpha N - W_{k-1}}{w_k} \right) + (\alpha - \mathbb{1}_{y_k < \hat{Q}_\alpha}) \hat{Q}_\alpha - (1 - S_\alpha) y_k$$

where  $H(x) = 0$  if  $x < 0$ ,  $H(x) = x$  if  $0 \leq x < 1$  and  $H(x) = 1$  if  $x \geq 1$ ,  $W_k = \sum_{l \in s} w_l \mathbb{1}_{y_l \leq y_k}$ ,  $N = W_n$ , and  $\hat{Q}_\alpha = y_i$  with  $W_{i-1} < \alpha W_n \leq W_i$ . As explained by [Lesage \(2009\)](#), to calibrate the survey we can enforce that  $z_k$  sums to zero using the standard calibration algorithm ([Deville and Särndal, 1992](#)).

**Second Step** As explained by [Lesage \(2009\)](#), the first step described above works well, but because it relies on a linear approximation of the top share statistics, it only provides a first-order approximation of the solution. To get rid of the remaining discrepancy, we introduce a nuisance parameter: we set the value of the  $\alpha$ -th quantile in the survey, and then apply the calibration algorithm to enforce the proper number of people and their proper amount of income on both sides of the quantile. Once  $\hat{Q}_\alpha$  is fixed as such, the problem once again becomes linear so we can apply the standard version of the algorithm described by [Deville and Särndal \(1992\)](#).

We apply this two-step calibration method using the top 10% and the top 1% income shares measured from the tax data. In every case, we carefully match the statistical unit and the income concept in the survey to that of the tax data before we apply the method. Having applied the calibration with the right income concept, we can retrieve the corrected version of other income concepts using the microdata with the calibrated weights, most importantly for us pretax and posttax income per equal-split adults.

The key assumption for us to get an appropriate estimate of pretax and posttax inequality via this calibration approach is that, conditional on their fiscal income, the probability that people are included in the survey is not correlated to their pretax or posttax income. Put differently, the fiscal income concept that serves as the basis for calibration must be sufficiently comprehensive to capture what drives the underrepresentation of the rich in the survey. Given that income taxes in Europe are relatively comprehensive we think this is reasonable as a first-order assumption. (The situation would arguably be different in developing countries with very large informal sectors.)

#### 1.4.3 Extrapolation of the Tax Data Correction to All Tabulations

To apply the survey calibration method described above, we need access to survey microdata so that we can match income concepts and statistical units to that of the tax data. When we have access to such microdata, this is a very powerful way of harmonizing top income share series that are otherwise difficult to compare.

Unfortunately, adequate microdata is rare before the start of the EU-SILC survey (i.e., 2007 in many cases). Therefore, for the historical period, we extrapolate the adjustment. That is, we observe the gap between the distribution of tax-based top income shares (which correspond to fiscal income per tax unit) and the top income shares from the calibrated surveys (which correspond to pretax and posttax income per equal-split adult) over the years with microdata available. We notice that this gap is very stable over time, meaning that our adjustment of the tax-based top income share series affects the levels but has only second-order effects on the trends. Therefore, we extrapolate

the adjustment to the top income share series as follows.

We calculate the average income of each g-percentile in (i) the tax-based series and (ii) the series based on the calibrated tax data, with the overall income distribution normalized to one in both cases. For each g-percentile, we calculate the ratio between the average of (i) and (ii). We carry that coefficient backward in time and use it to adjust the rest of the tax-based top income share series.

Using the adjusted tax-based series, which now cover the same period of time as the original tax-based series but correspond to our income concepts and statistical units of interest, we re-run our calibration algorithm directly on the harmonized survey tabulations from section 1.3 using the same algorithm as section 1.4.

#### 1.4.4 Adjustment Within the Top 10%

One issue with using survey data to adjust the tax-based income shares is that surveys have limited granularity at the very top, because of limited sample sizes. Therefore, to improve the quality of our estimates within the very top, we apply one last adjustment. We stress that, by construction, that adjustment has no impact on the top 10% share, and only affects the distribution of income within the top 10%.

This adjustment involves modeling the top 10% of the distribution with a generalized Pareto distribution, which has the cumulative distribution function:

$$F(x) = 1 - \left\{ 1 + \xi \left( \frac{x - \mu}{\sigma} \right) \right\}^{-1/\xi}$$

This distribution is known in extreme value theory to work as a quasi-universal model of top tails (Ferreira and Haan, 2006). We estimate its parameters using the method of probability-weighted moments (Hosking and Wallis, 1987), a more robust alternative to other methods, which also lets us preserve the average income of the top 10%. For  $X$  following a generalized Pareto distribution, define  $a = \mathbb{E}[X]$  and  $b = \mathbb{E}[X(1 - F(x))]$ . Then we have  $\xi = (a - 4b + \mu)/(a - 2b)$  and  $\sigma = (a - \mu)(2b - \mu)/(a - 2b)$ , while  $\mu$  is determined a priori from the threshold from which we start to use the model. We obtain the complete distribution by combining the empirical distribution for the bottom 90% with the generalized Pareto model for the top 10%.

### 1.5 Distribution of Additional Income Components

#### 1.5.1 Data Sources

There are three components of national income that require additional data sources to be distributed: imputed rents, taxes on products and retained earnings (and the corporate tax). We use specific sources for these three components.

**Imputed Rents** We use imputed rents from EU-SILC. The EU-SILC survey has started to incorporate an imputed rent variable from EU-SILC in recent years, although it is not included in the headline income statistics published by Eurostat.

**Taxes on Products** Taxes on products are distributed proportionally to consumption. We measure consumption using the household budget surveys (HBS) collected by Eurostat.

**Retained Earnings and the Corporate Tax** Retained earnings and the corporate tax are split up into three subcomponents: the share that accrues to the general government, the share that accrues to shareholder households, and the share that accrues to pension funds. The government share does not require additional data since it is distributed like the rest of government income (proportionally). For the rest, we rely on the Household Finance and Consumption Survey (HFCS) (a European wealth survey spearheaded by the ECB) and on the Wealth and Asset Survey (WAS) in the United Kingdom. We identify the shareholdings of households in these surveys, be they public or private stock, held directly or via mutual funds, as long as they correspond to incorporated entities (that is, we exclude unincorporated businesses, which in the SNA are not part of the corporate sector and in the surveys would be recorded as self-employment income). Retained earnings that correspond to household shareholdings are distributed proportionally to this value. Retained earnings that correspond to pension funds are distributed proportionally to labor and pension income.

### 1.5.2 Matching of Additional Income Components to Tabulations

To incorporate additional sources of income to our tabulations, we apply the following procedure. First, we calibrate the surveys from section 1.5.1 above using the procedure from section 1.4 to correct for the underrepresentation of the rich.

Second, we create a synthetic dataset by matching the three sources in 1.5.1 to the calibrated survey microdata. Our statistical matching procedure is straightforward: we rank the sources according to their own internal pretax income variable, and then match observations one-by-one according to their income rank.<sup>5</sup>

Third, we take a tabulation of pretax or posttax income excluding additional income components (i.e., from section 1.4). To each observation of the synthetic dataset, we attribute the income of the corresponding rank in the tabulation. Then, we rescale the different components to their macroeconomic totals, add them up, and calculate the complete distribution of income. When data

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<sup>5</sup>In practice, because different datasets have different weights and different sample sizes, observations have to be partially matched with one another. For example, imagine that the first (sorted) dataset has the weights  $\{3, 1, \dots\}$  and the second one the weights  $\{2, 4, \dots\}$ . The matched dataset starts with one observation with weight 2 that has the characteristics of the first observation of each dataset. However, the first observation of the first dataset cannot be fully matched because its weight (3) is larger than the weight of the first observation from the second dataset (2). So we keep the first observation in the first dataset with its remaining weight (1), and match it to the second observation of the second dataset. That observation's weight (4) is in turn larger than 1, so we follow the same procedure. We continue the process until all the probability mass from both datasets has been matched. One can show that, if the initial datasets have sizes  $N$  and  $M$ , the matched dataset will at most have size  $N + M - 1$ .

sources are not available for a given year, we use the value from the closest available year. When they are not available at all for a given country, we use the European average.

## 1.6 Auxiliary Data

### 1.6.1 Income Distribution in the United States

To compare the geography of inequality in Europe with that of the United States, we use distributional national accounts data from [Piketty, Saez, and Zucman \(2018\)](#) and national accounts data by US state.

We attribute national income to each state based on their share of GDP (the only national account aggregate available at the state level). To that end, we use data on total state domestic products from the Bureau of Economic Analysis, along with state adult population series from the National Cancer Institute “Surveillance, Epidemiology and End Results Program”.<sup>6</sup>

This provides us with an estimate of national income by state, which lets us compute between-state inequality in the United States. Using the data from [Piketty, Saez, and Zucman \(2018\)](#), we can calculate the overall Theil index for the United States. Using the decomposability of the Theil index, we can then estimate the within-state component of inequality for the United States as a residual.

### 1.6.2 Top Marginal Tax Rates

We construct a database of comprehensive top marginal tax rates that cover 30 countries from 1981 to 2019 (29 European countries plus the United States). Of these 30 countries, 27 are continuously covered from 1981 onward, and the three remaining countries (Bulgaria, Croatia, and Romania) are covered from 2009 onward.

This database is an extension of [Kleven et al. \(2020\)](#), which was itself an extension of data collected by [Kleven, Landais, and Saez \(2013\)](#), [Piketty, Saez, and Stantcheva \(2014\)](#) and [Roine, Vlachos, and Waldenström \(2009\)](#). We extend that database in two ways: we improve the time coverage of countries (in particular Eastern European countries) that were only included for recent years in [Kleven et al. \(2020\)](#). We also collect data on the corporate income tax rate to get a more comprehensive measure of the top marginal tax rate for robustness checks, in line with our inclusion of undistributed profits in our measure of personal income.

**Definition of the Top Marginal Tax Rate** Our formula for the top marginal tax rate combines the top personal income tax rate  $\tau_i$ , the payroll tax rate on employees ( $\tau_{pw}$ ) and employers ( $\tau_{pf}$ )

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<sup>6</sup>State domestic products provided by the Bureau of Economic Analysis go back as far as 1967. We extrapolate these series back to 1929 by using the growth rates in personal income per capita available from [Barro and Sala-i-Martin \(1992\)](#).

and the VAT or sales tax rate ( $\tau_c$ ). This measure combines all marginal tax rates as:

$$1 - \tau = \frac{(1 - \tau_i)(1 - \tau_{pw})}{(1 + \tau_{pf})(1 + \tau_c)}$$

If an individual at the top of the income distribution increases their output by one unit, then they can increase their consumption by  $1 - \tau$ . We can consider a variant of the formula, which also includes the corporate tax rate ( $1 + \tau_f$ ) at the denominator. This inclusion is a departure from [Kleven et al. \(2020\)](#) and earlier works, and while it makes sense in light of our inclusion of undistributed profits in personal income, there is room for debate. The rationale for including the corporate tax in the formula is that higher corporate tax rates may discourage shareholders from bargaining for a higher share of the company’s surplus, and therefore reduce the share of top incomes. Yet the proper measure of the marginal tax rate would ideally depend on the characteristic of each individual top earner (employee or self-employed, via an incorporated business or not, earning mostly labor or capital income, etc.). The inclusion of the corporate tax would be justified in some cases but not others, or at a varying intensity. Moreover, we stress that the way it is included in the formula is *ad hoc* and should be viewed as a pure reduced-form specification. For all these reasons, we report results both including and excluding the corporate tax from the formula.

**Top Income Tax and Payroll Tax Rates** For top income tax and payroll rates, we extend the database of [Kleven et al. \(2020\)](#) with the OECD tax database (available from 1981 to 2019). The data includes both central and subcentral government tax rates. We cross-check the OECD data with [Kleven et al. \(2020\)](#) to ensure consistent results and conventions.

**Value-Added Taxes** We extend the data of [Kleven et al. \(2020\)](#) using the OECD’s data on Value Added Tax/Goods and Services Tax (VAT/GST), which covers the years 1976 to 2020. We use the standard rate (i.e. we ignore reduced rates on certain products or specific regional rates).

**Corporate Income tax Rate** Our corporate income tax rate is the “Combined corporate income tax rate” estimated by the OECD.

## 1.7 Country-Specific Estimations of Top Shares from Tabulated Tax Returns

### 1.7.1 Austria

Our data for Austria comes from [Altzinger et al. \(2010\)](#), who use tax data from the *Integrierte Lohn und Einkommensteuerstatistik* (LUE) to study the evolution of top income shares between 1976 and 2006. We complete their series by gathering more recent LUE tabulations from Statistics Austria (2008-2015). These tabulations cover the entire Austrian population and can therefore be directly used to compute top income shares. We turn the tabulations into complete distributions by using generalized Pareto interpolation ([Blanchet, Fournier, and Piketty, 2021](#)). Our results for more recent years are very consistent with those found by [Altzinger et al. \(2010\)](#): before 2010, the top

10% income share remained very stable around 33% and the top 1% share decreased from 10% to 9%.

### 1.7.2 East Germany

Our data for the distribution of East German income comes from a yearly publication of official statistics on the economy of East Germany (*Statistisches Jahrbuch der deutschen Demokratischen Republik*). The 1990 edition of that publication provides estimates of the population by income bracket and by type of household over the period 1980–1990. We interpolate the distribution for each type of household ([Blanchet, Fournier, and Piketty, 2021](#)), and then merge them into a single distribution after having multiplied the number of observations corresponding to each type of household by the number of adults in the corresponding type of household. That way, we get a distribution for equal-split adults.

That data relate to the distribution of posttax income only. As an approximation, we use the same distribution for pretax income. The distinction between pretax and posttax income in socialist economies was indeed less salient than it is today: see [Bukowski and Novokmet \(2017a\)](#) for a detailed discussion of that issue in the case of Poland.

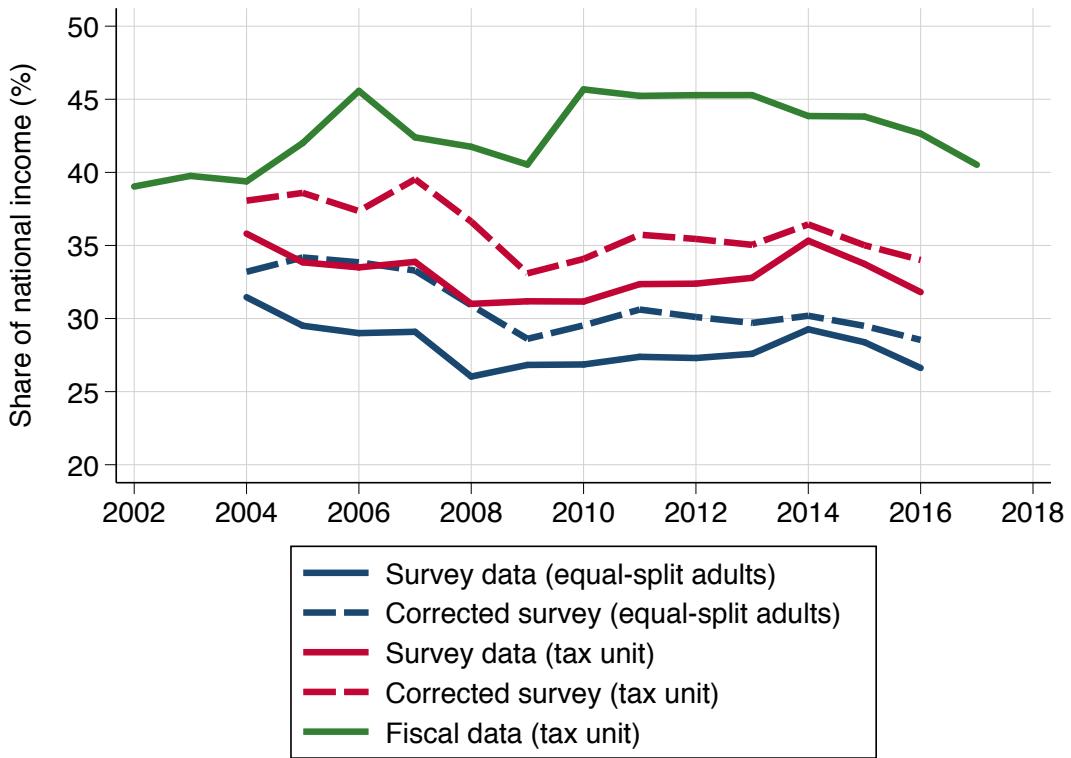
### 1.7.3 Estonia

We estimate top income shares for Estonia by exploiting tabulated tax returns from various reports of the Tax and Customs Board. Tabulations are available from 2002 to 2017. For each year, they provide information on the total number of taxpayers and total taxable income for various income brackets. The income tax in Estonia is a flat tax, collected on individual earnings. It applies to most sources of income (income from work, interest income, royalties, dividends...), which are taxed on a gross basis.

We use these tabulations to estimate top income shares by matching them with survey microdata from EU-SILC in the following way. We first use generalized Pareto interpolation techniques ([Blanchet, Fournier, and Piketty, 2021](#)) to compute thresholds and average incomes for various quantiles of the fiscal income distribution. We then correct the EU-SILC survey by using the [Blanchet, Flores, and Morgan \(2018\)](#) method (BFM), which exploits the fiscal data to reweigh survey observations so that top incomes are properly represented. Since the BFM method preserves the survey microdata, and in particular other covariates, it allows us to directly account for the fact that (1) the unit of observation in the tax data is the individual, not the equal-split adult and (2) taxable income includes gross components that must be deducted to obtain pretax income estimates. We can therefore directly compute the share of pretax income accruing to top earners in the corrected survey by changing the unit of observation and the income concept *after* having reweighed survey observations.

Figure [A.1.7.1](#) compares the top 10% income share estimated from survey data, tax data and

**Figure A.1.7.1**  
**Top 10% income share in Estonia:**  
**survey data vs. tax data vs. corrected survey**



corrected survey data. Inequality is highest when measured directly from tax tabulations since many individuals have zero taxable income, mainly due to the possibility to deduct some expenditures. Correcting the survey for the under-representation of top incomes increases significantly the top 10% income share, even if the overall trend is not substantially affected. Unsurprisingly, inequality is lower between equal-split adults than between tax units (here, individuals) since the former does not account for within-household heterogeneity. Our final estimates show a decrease in the top 10% income share from 35% in 2004 to 30% in 2016. Since survey microdata is not available for 2002, 2003 and 2017, we extrapolate top income shares to these years by using the average ratio of pretax income between fiscal data series and corrected survey estimates over the 2004-2016 period, by generalized percentile.

#### 1.7.4 Greece

Our data for Greece comes from [Chrissis and Koutentakis \(2017\)](#), who used published tax tabulations to measure the evolution of top income shares from 1967 to 2017. By combining these tabulations with control totals for income and the adult population, they estimate that the top 10% fiscal income share varied between 23% and 29% over the period. This appears surprisingly low compared to

results from other European countries, especially given that the unit of observation is the individual.

One specific concern with the Greek case has to do with tax evasion, which has previously been found to be particularly pronounced at the top of the distribution. Based on a matched samples of income taxpayers and respondents from the household budget survey, [Matsaganis and Flevotomou \(2010\)](#) find that top 1% earners report incomes which are 23.6% *lower* in the tax data than in the survey. This result is consistent with our own results obtained from the EU-SILC survey, where we find the top 10% pretax income share (among individual adults) to fluctuate around 35% between 2006 and 2015. The under-representation of top incomes in Greek tax data therefore threatens the comparability of our estimates and calls for a specific adjustment.

In order to correct Greek top income shares, we proceed as follows. First, we define a new “taxable income” concept in the EU-SILC survey such that we artificially reduce the pretax incomes of individuals based on the coefficients provided by [Matsaganis and Flevotomou \(2010\)](#) on underreporting by income decile and the top 1%. Then, we interpolate the fiscal income averages of [Chrissis and Koutentakis \(2017\)](#) using generalized Pareto interpolation ([Blanchet, Fournier, and Piketty, 2021](#)) and we apply the [Blanchet, Flores, and Morgan \(2018\)](#) method to rescale our new taxable income concept to the fiscal data. Finally, we use the reweighed survey to compute top income shares in our concept of interest, that is pretax income splitted equally among spouses, and we correct top income shares before 2008 by extrapolating the correction coefficient by percentile that we obtained from the correction. This method has the advantage of fully exploiting the tax data, which is more granular at the very top of the distribution and covers every year from 1980 to 2017, while at the same time accounting for tax evasion in a simple way. That being said, we stress that this adjustment is far from being sufficient, so that distributional data for Greece should be interpreted with care. As tax evasion is increasingly tackled by tax authorities, future research will hopefully be able to obtain more reliable estimates.

### 1.7.5 Iceland

For Iceland, we directly use tax data available online since 1990 from Statistics Iceland. Given that Iceland has had a flat—or nearly flat—comprehensive income tax over the entire period, the entire distribution is covered, so we use it to directly compute top income shares.

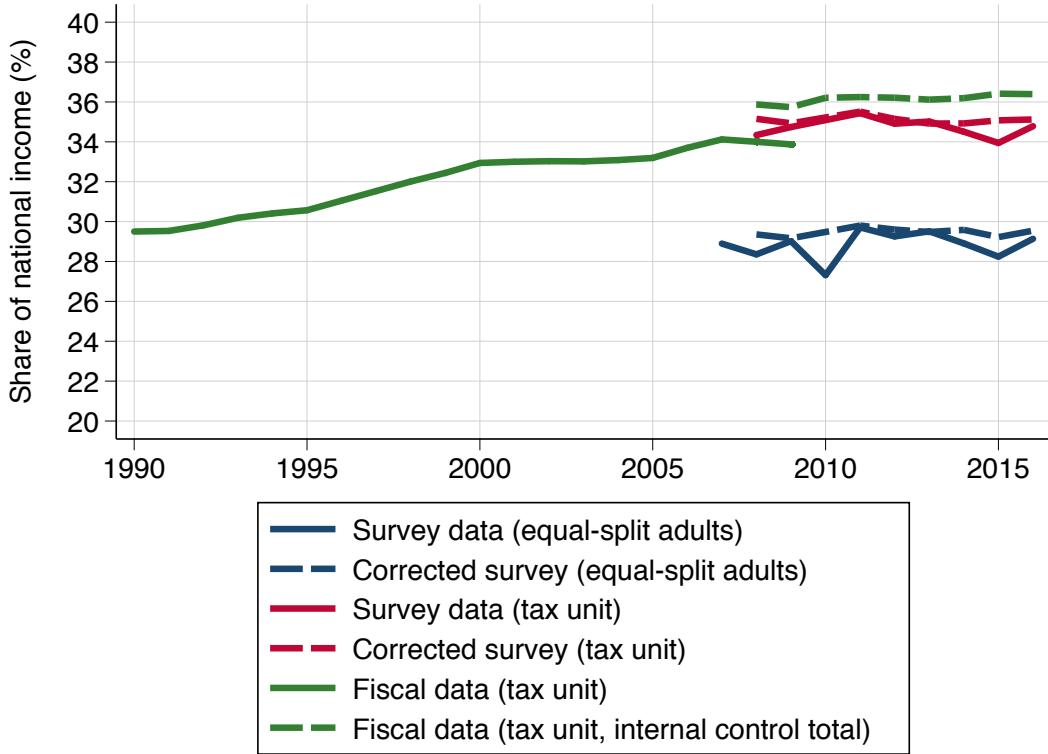
### 1.7.6 Italy

Top income shares for Italy are available from the World Inequality Database from 1980 to 2009 thanks to previous work done by [Alvaredo and Pisano \(2010\)](#). We update their series by collecting tax tabulations available from the data portal of the Italian ministry of Finance.<sup>7</sup> These tabulations are available over the 2008-2016 period and provide information on the number of taxpayers and total taxable income for different income brackets.

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<sup>7</sup>See [http://www1.finanze.gov.it/finanze3/pagina\\_dichiarazioni/dichiarazioni.php](http://www1.finanze.gov.it/finanze3/pagina_dichiarazioni/dichiarazioni.php).

**Figure A.1.7.2**  
**Top 10% income share in Italy:**  
**survey data vs. tax data vs. corrected survey**

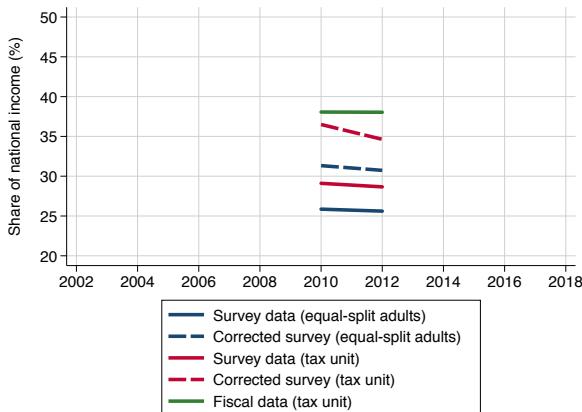


The income tax in Italy applies to individuals and includes most income components on a gross basis, except for interest income, which is not taxed. We compute top income shares over the 2008-2016 period by using the exact same methodology as the one used for Estonia (see above). That is, we use the method developed by [Blanchet, Flores, and Morgan \(2018\)](#) to reweigh the survey and compute income shares that are both representative of top incomes and consistent with the benchmark income concept and population unit used in this paper.

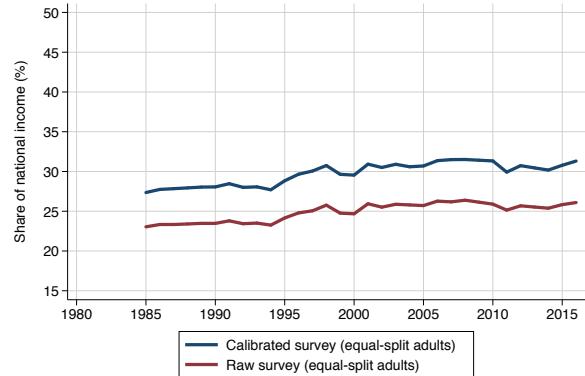
Figure A.1.7.2 compares the top 10% income share estimated from survey data, tax data and corrected survey data. Tax data leads to increasing inequality less than in Estonia, perhaps because some components of capital income are not reported in the tabulated tax returns. For the two years for which we can compare our estimates with that of [Alvaredo and Pisano \(2010\)](#), 2008 and 2009, the top 10% income shares coincide almost perfectly, which suggests that both methods are alternative and complementary ways of obtaining robust estimates of the evolution of top incomes. Changing the welfare concept from individual taxable income to pretax income per adult decreased the top 10% share by about 4 percentage points. We use this relationship to correct conceptual discrepancies in Italian top income shares over the 1980-2009 period. For each generalized percentile among the top decile, we compute the ratio of average taxable individual income to pretax income

**Figure A.1.7.3**  
**Top 10% income share in Luxembourg:**  
**survey data vs. tax data vs. corrected survey**

(a) Correction for the two years with tax data



(b) Extrapolation of the correction



per adult over the 2009-2016 period. We then use the average ratio over this period to harmonize top income share series in previous years.

### 1.7.7 Luxembourg

For Luxembourg, we use two years of tax data that were published as part of reports by the Conseil Économique et Social (*Analyse des données fiscales au Luxembourg, 2015* and *Analyse des données fiscales au Luxembourg, 2018*) (Conseil Economique et Social, 2015; 2018). These contain detailed tabulations that cover the income of resident households for two years, 2010 and 2012.

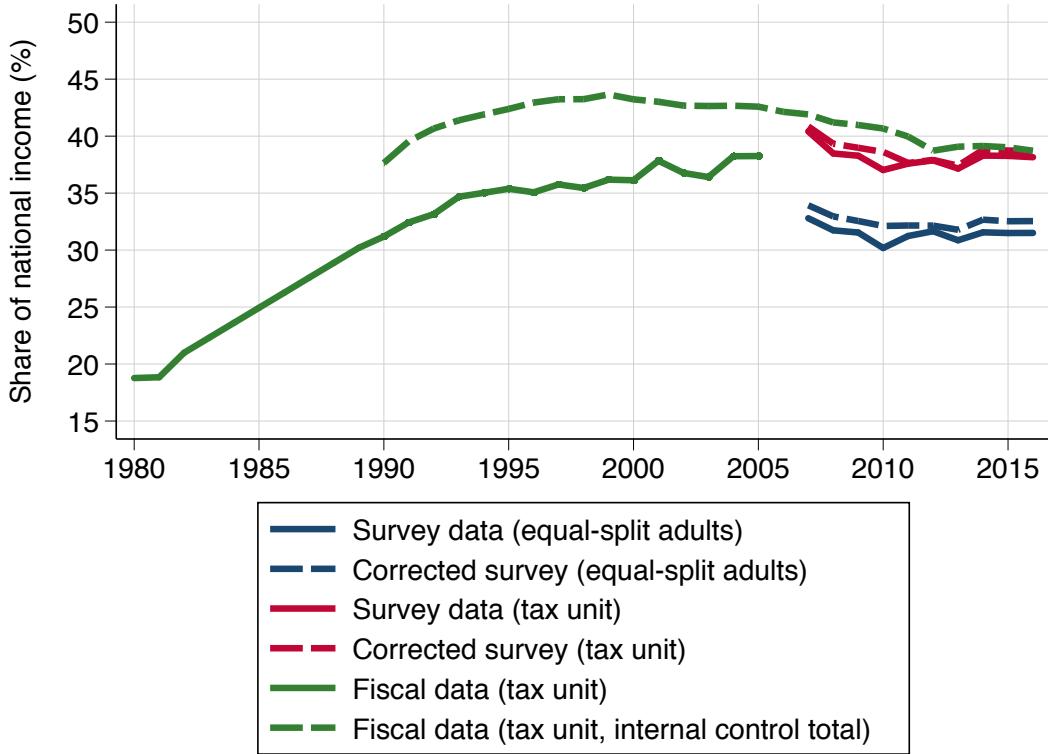
We interpolate these two distributions using generalized Pareto interpolation (Blanchet, Fournier, and Piketty, 2021) and then correct the EU-SILC data in the two corresponding years using the method of Blanchet, Flores, and Morgan (2018). The correction is very similar for both years, with the top 10% share increasing by roughly 5pp (see figure A.1.7.3a). We then extrapolate that correction to previous years by extrapolating the correction coefficient by percentile that we obtained from the tax data correction (see figure A.1.7.3b).

### 1.7.8 Portugal

Top income shares for Portugal are available from the World Inequality Database from 1980 to 2009 thanks to the work done by Alvaredo (2009). We update these series by collecting tax tabulations available from the data portal Pordata.<sup>8</sup> These tabulations are available over the 1990-2016 period and provide information on the number of taxpayers and total taxable income for different income brackets.

<sup>8</sup>See <https://www.pordata.pt>.

**Figure A.1.7.4**  
**Top 10% income share in Portugal:**  
**survey data vs. tax data vs. corrected survey**



The income tax in Portugal applies to most income components on a gross basis, except for most capital gains and all interest income, which are not taxed. The unit observed in the tax data is the married couple, or single adult. We compute top income shares over the 2007-2016 period by using the exact same methodology as the one used for Estonia (see above). That is, we use the method developed by [Blanchet, Flores, and Morgan \(2018\)](#) to reweigh the survey and compute income shares that are both representative of top incomes and consistent with the benchmark income concept and population unit used in this paper. In the case of Portugal, since tax units are either individuals or married couples, we first match couples in the EU-SILC survey and aggregate their incomes. We are then able to use tax tabulations to correct for the under-representation of “top tax units” in the survey.

Figure A.1.7.4 compares the top 10% income share estimated from survey data, tax data and corrected survey data. Using tax data leads to only moderately higher inequality, perhaps because some components of capital income are not taxed. While there is a gap in the [Alvaredo \(2009\)](#) series and our series between 2005 and 2007, comparing the two estimates suggests that using the BFM methodology leads to a slightly higher top 10% income share, which might be due to the income control being too high in previous estimates. We use our estimates to correct conceptual

discrepancies in Portuguese top income shares in previous years. First, we extrapolate our series back to 2005 by using the trends observed in the fiscal data (with internal income control) over the 2005-2007 period. For each generalized percentile among the top decile, we then use the ratio of average taxable income per tax unit to pretax income per adult in 2005 to harmonize top income shares before 2005.

### 1.7.9 Romania

Our data for Romania comes from [Oancea, Andrei, and Pirjol \(2017\)](#). The authors had access to the universe of individual income tax returns for 2013 and provide detailed information on the distribution of taxable income. The income tax data covers about 45% of the adult population. We correct the EU-SILC data in 2013 using the method of [Blanchet, Flores, and Morgan \(2018\)](#). The comparison of the survey with the tax data reveals that top earners are strongly underrepresented in EU-SILC: the average income of the top 1% is below 70,000 lei in the surveys compared to 150,000 lei in the tax data. The correction increases the top 10% income share from 26% to 31% and the top 1% share from 5% to 8%. We extend that correction to previous years by extrapolating the coefficient by percentile that we obtained from the correction.

### 1.7.10 Serbia

Our data for Serbia comes from the Statistical Office of the Republic of Serbia, which provided us with detailed tabulations on the pretax income of Serbian taxpayers in 2017 and 2018. Income shown in the tables are taken over from the Individual tax return form on accrued taxes and contributions (PPP-PD form), which is submitted to the Tax Administration. The data covers employees, founders and members of companies employed in their company, persons insured on the basis of independent activity including independent artists, persons insured on the basis of agricultural activities, persons not provided on other grounds, non-residents, disabled persons, military insured persons, pensioners self-employed, pensioners on the basis of employment, military pensioners and agricultural retirees. As a simple approximation, we use the 2017 tabulation to directly calibrate the 2016 EU-SILC survey with the [Blanchet, Flores, and Morgan \(2018\)](#) method.

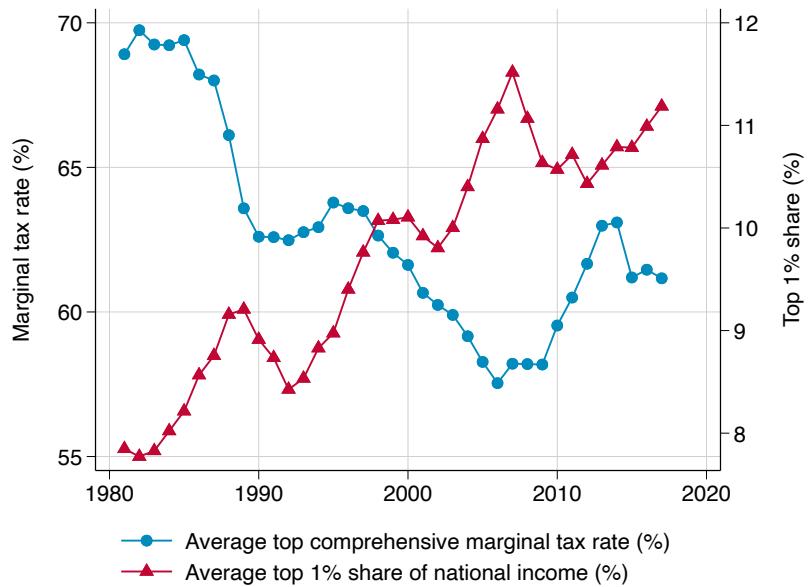
## 1.8 Indirect Effect of Top Marginal tax Rates on Pretax Inequality

As shown in figure A.1.7.5, the rise of the top 1% pretax income share in Europe has been concomitant to a decrease in the top marginal tax rate. A similar pattern can be found across countries, as shown by figure A.1.7.6.

Following [Piketty, Saez, and Stantcheva \(2014\)](#), we estimate an elasticity of the top 1% share with respect to (one minus) the top marginal tax rate using the following model:

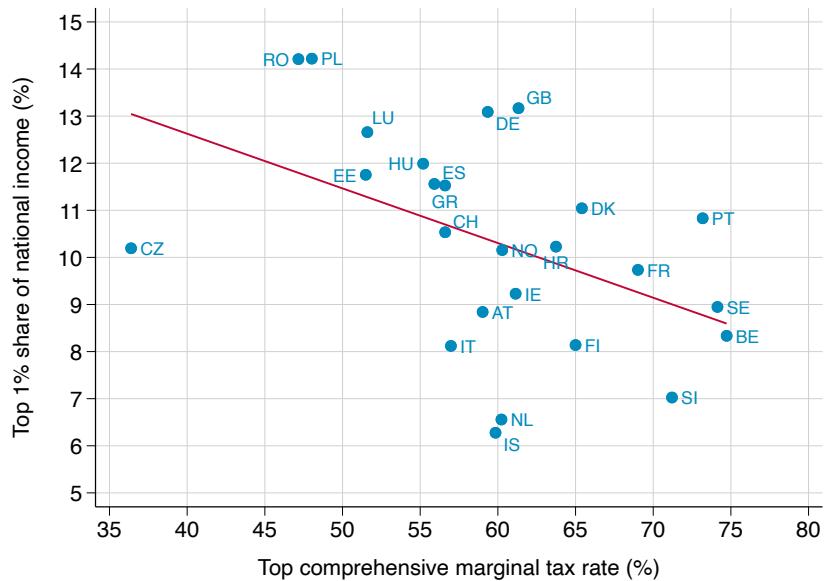
$$\log(\text{top 1\% pretax income share}) = \beta + \sigma \log(1 - \text{top marginal tax rate})$$

**Figure A.1.7.5**  
**Top Marginal Tax Rate and Inequality in Europe: Time Series**



*Source:* Authors' estimation, see main text. Marginal tax rate does not include the corporate tax. *Note:* Estimates refer to population-weighted averages of European countries with data available since 1981 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom).

**Figure A.1.7.6**  
**Top Marginal Tax Rate and Inequality in Europe: Cross-country Evidence**



*Source:* Authors' estimation, see main text. Marginal tax rate does not include the corporate tax.

**Table A.1.8.4**  
**Elasticity of the Top 1% Share**  
**With Respect to the Top Marginal Tax Rate**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
elasticity	0.45	0.41	0.38	0.33	0.40	0.39	0.13	0.12
95% CI	[0.24, 0.86]	[0.23, 0.74]	[0.13, 0.83]	[0.12, 0.70]	[0.25, 0.71]	[0.25, 0.67]	[-0.01, 0.33]	[-0.03, 0.29]
observations	827	827	827	827	827	827	827	827
clusters	26	26	26	26	26	26	26	26
$R^2$	0.26	0.24	0.35	0.32	0.68	0.69	0.80	0.80
incl. corporate tax		×		×		×		×
year fixed effects			×	×			×	×
country fixed effects				×	×	×	×	×

Confidence intervals adjusted for heteroscedasticity and clustered by country using the wild bootstrap test ([Roodman et al., 2019](#)).

where  $\sigma$  is our estimate of the elasticity. Table A.1.8.4 shows estimates of  $\sigma$  across a range of specifications. The inclusion of country fixed effects attenuates the estimate of the elasticity most significantly, which shows that the effect is mostly estimated from cross-country variations. The inclusion or exclusion of the corporate tax from our measure of the top marginal tax rate makes little difference.

## 1.9 Indirect Effect of Transfers on Pretax Inequality

We measure the elasticity between the pretax income share of the bottom 50% and redistribution to the bottom 50% by running the regression:

$$\log \left( \text{share}_{\text{bottom } 50\%}^{\text{pretax}} \right) = \beta + \sigma \log \left( \text{share}_{\text{bottom } 50\%}^{\text{posttax}} - \text{share}_{\text{bottom } 50\%}^{\text{pretax}} \right)$$

and use  $\sigma$  as our estimate of the elasticity. Table A.1.9.5 reports estimates across several specifications, which include different sets of fixed effects.

**Table A.1.9.5**  
**Elasticity of the Bottom 50% Share**  
**With Respect to Redistribution to the Bottom 50%**

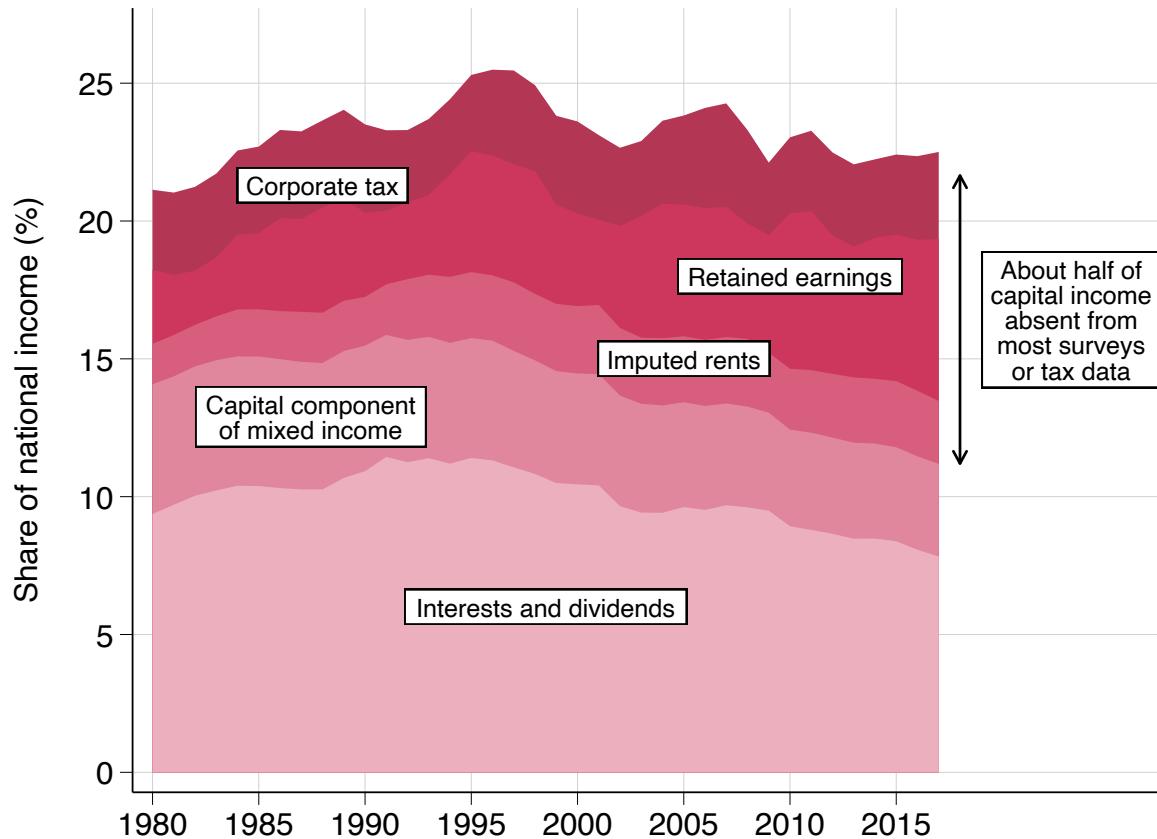
	(1)	(2)	(3)	(4)
elasticity	0.10	0.10	0.01	0.01
95% CI	[-0.01, 0.23]	[-0.01, 0.23]	[-0.02, 0.05]	[-0.02, 0.04]
observations	271	271	271	271
clusters	26	26	26	26
$R^2$	0.20	0.20	0.96	0.96
year fixed effects		×		×
country fixed effects			×	×

Confidence intervals adjusted for heteroscedasticity and clustered by country using a wild bootstrap test ([Roodman et al., 2019](#)).

## 2 Additional figures and tables

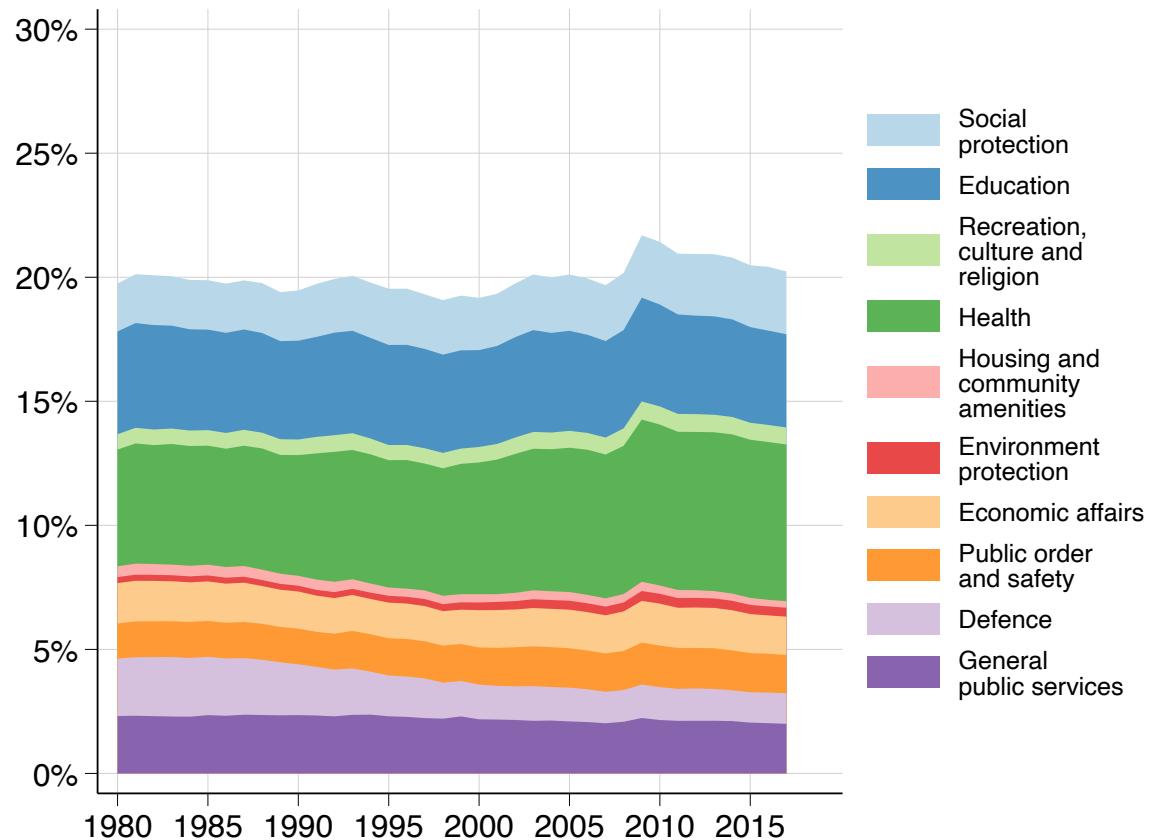
### 2.1 Methodology and national accounts

Figure A.2.1.1  
Level and composition of capital income in Europe, 1980-2017



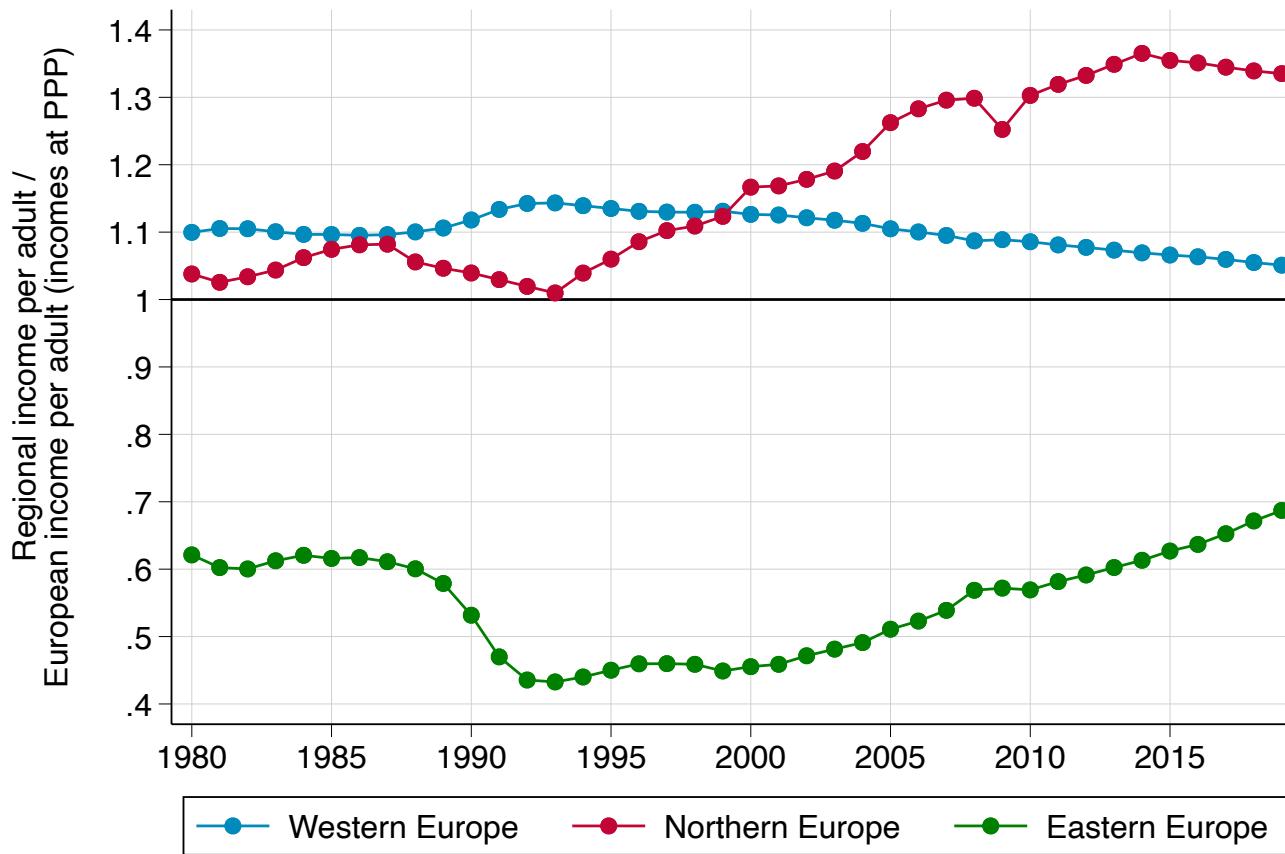
*Notes.* The figure plots the share of capital income in overall European income – equal to the sum of all European national incomes – between 1980 and 2015. The capital component of mixed income is assumed to be equal to one third of mixed income.

**Figure A.2.1.2**  
Level and composition of government final expenditures in Europe, 1980–2017



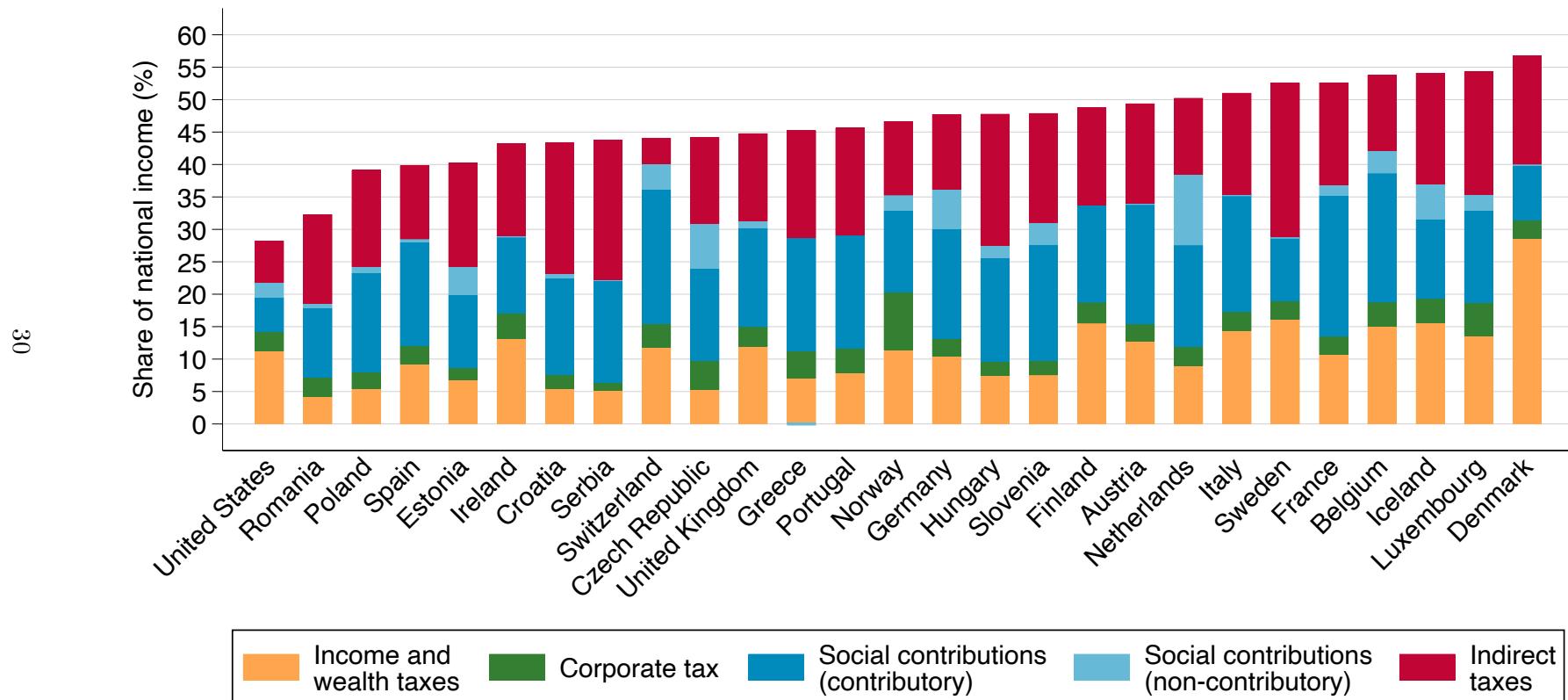
*Sources:* Government expenditures by function (COFOG) tables from the OECD and the UN SNA. OECD health database for health spending. *Notes.* The figure plots the total value of government final consumption expenditures as a share of national income, and its decomposition into the different functions of government.

**Figure A.2.1.3**  
**Average regional incomes per adult relative to European-wide average, 1980-2017**



*Notes.* Western Europe includes Austria, Belgium, Cyprus, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Spain, Switzerland, and the United Kingdom. Northern Europe includes Sweden, Norway, Finland, Denmark, and Iceland. Eastern Europe includes the remaining European countries.

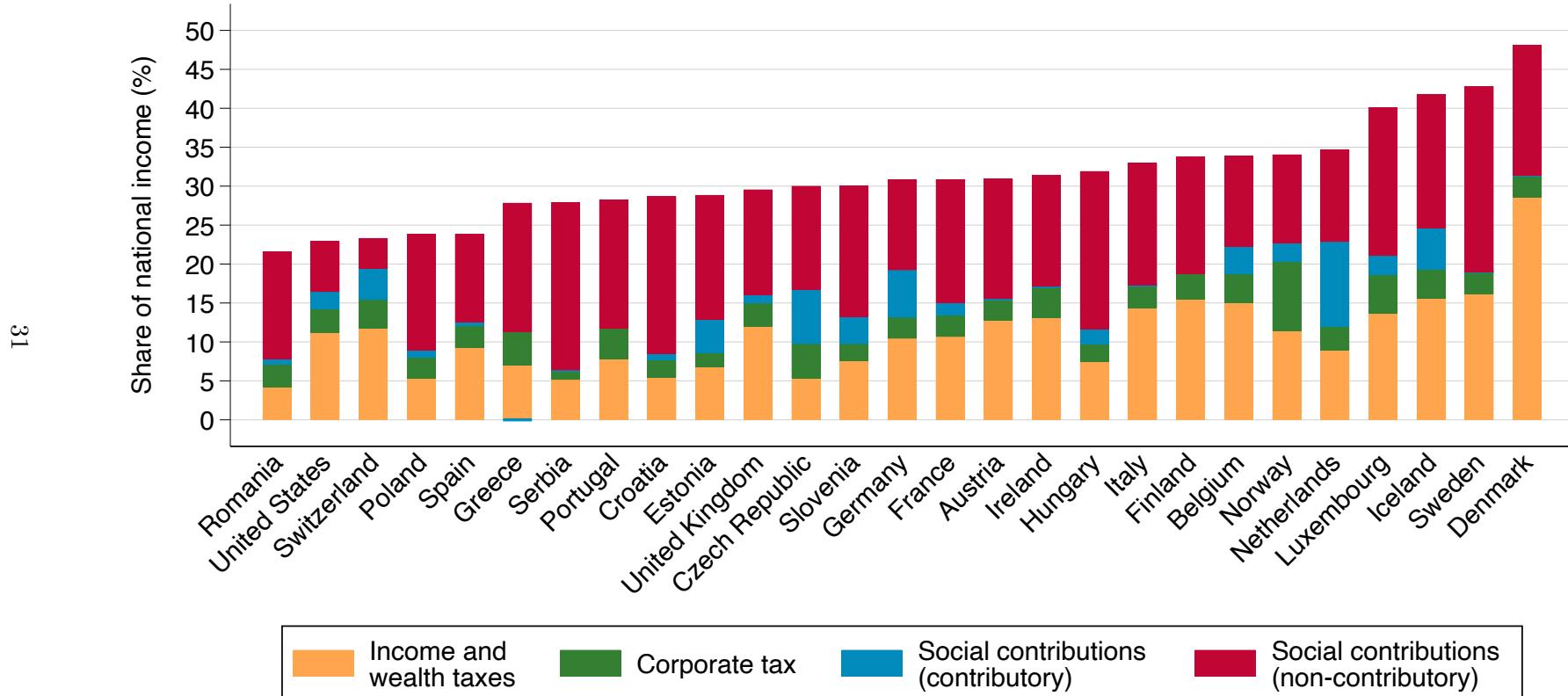
**Figure A.2.1.4**  
**The level and composition of taxes in Europe and the United States, 2007-2017**



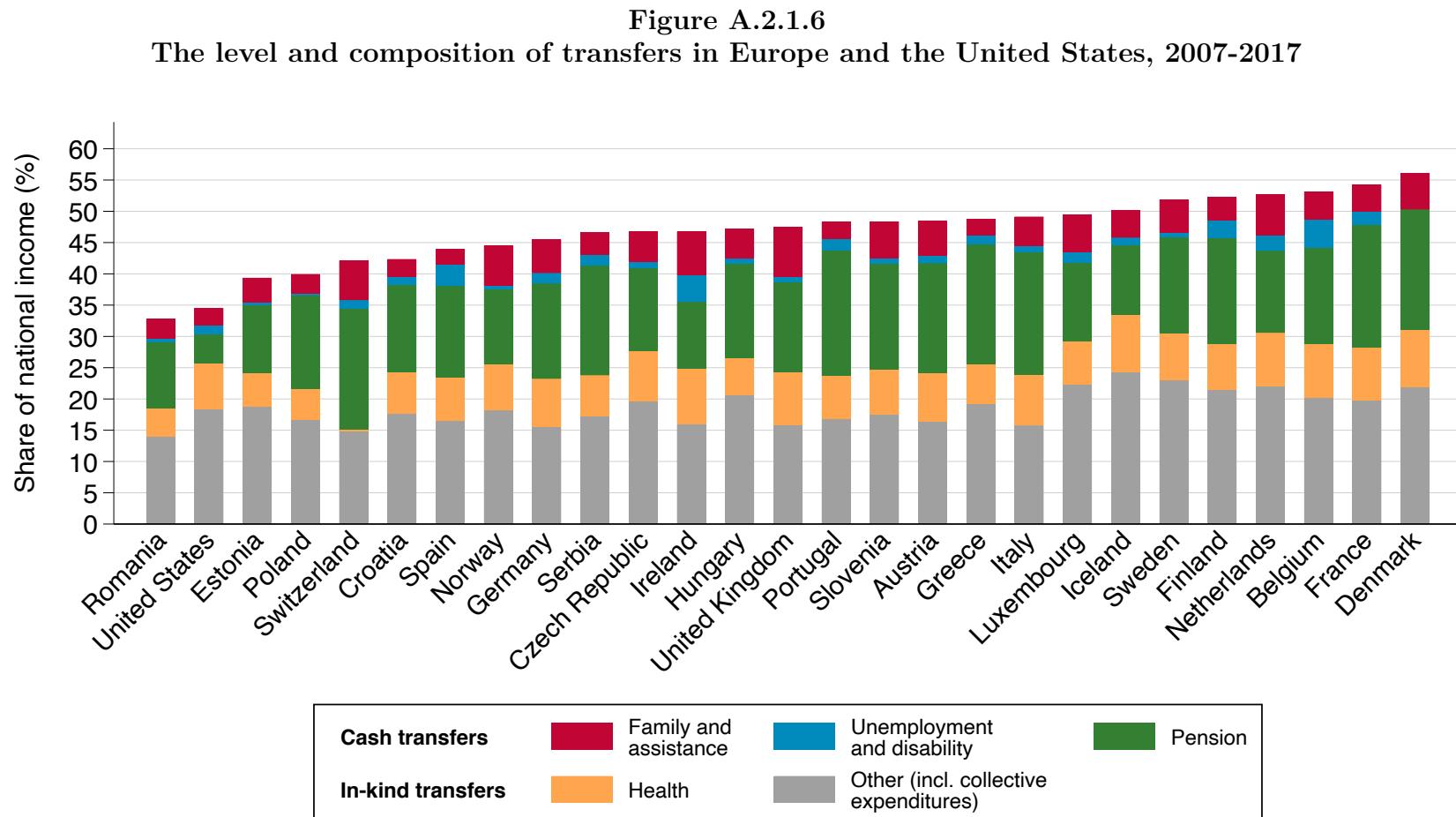
Source. Authors' computations using national accounts.

Figure A.2.1.5

The level and composition of taxes in Europe and the United States, 2007-2017 (non-contributory taxes)

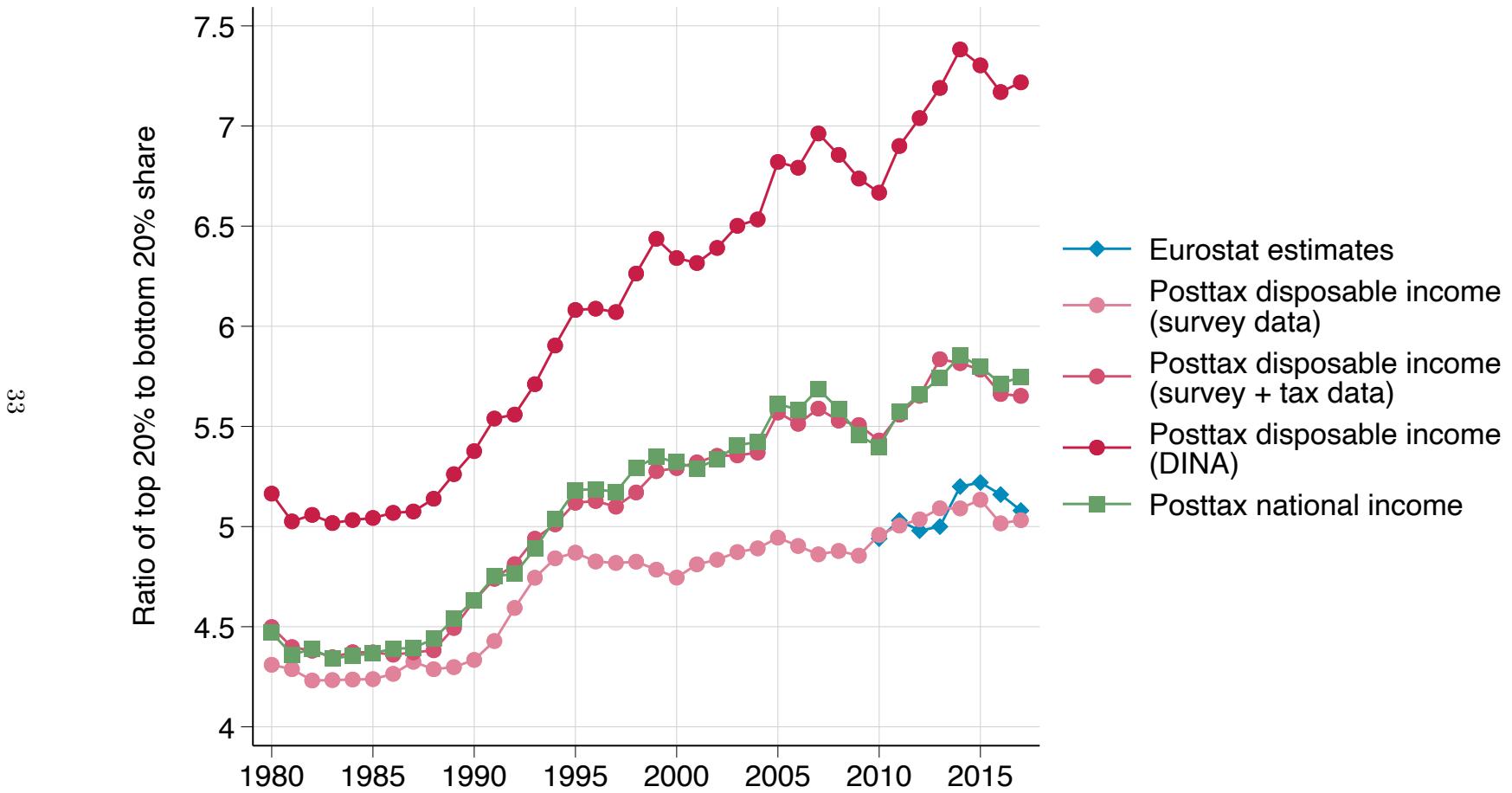


Source. Authors' computations using national accounts.



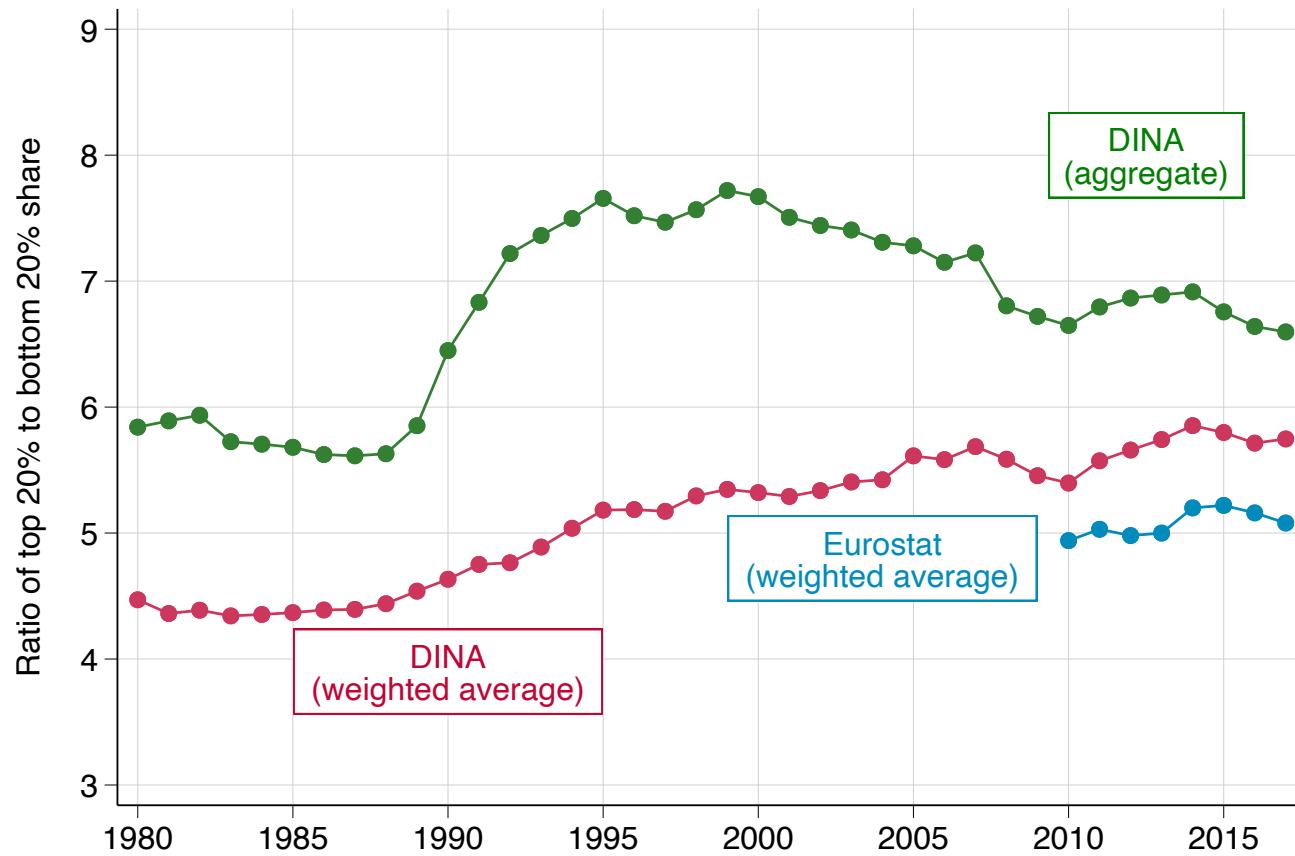
Source. Authors' computations using national accounts.

**Figure A.2.1.7**  
**Average posttax income quintile share ratio in the European Union:**  
**Eurostat vs. posttax disposable income vs. posttax national income**



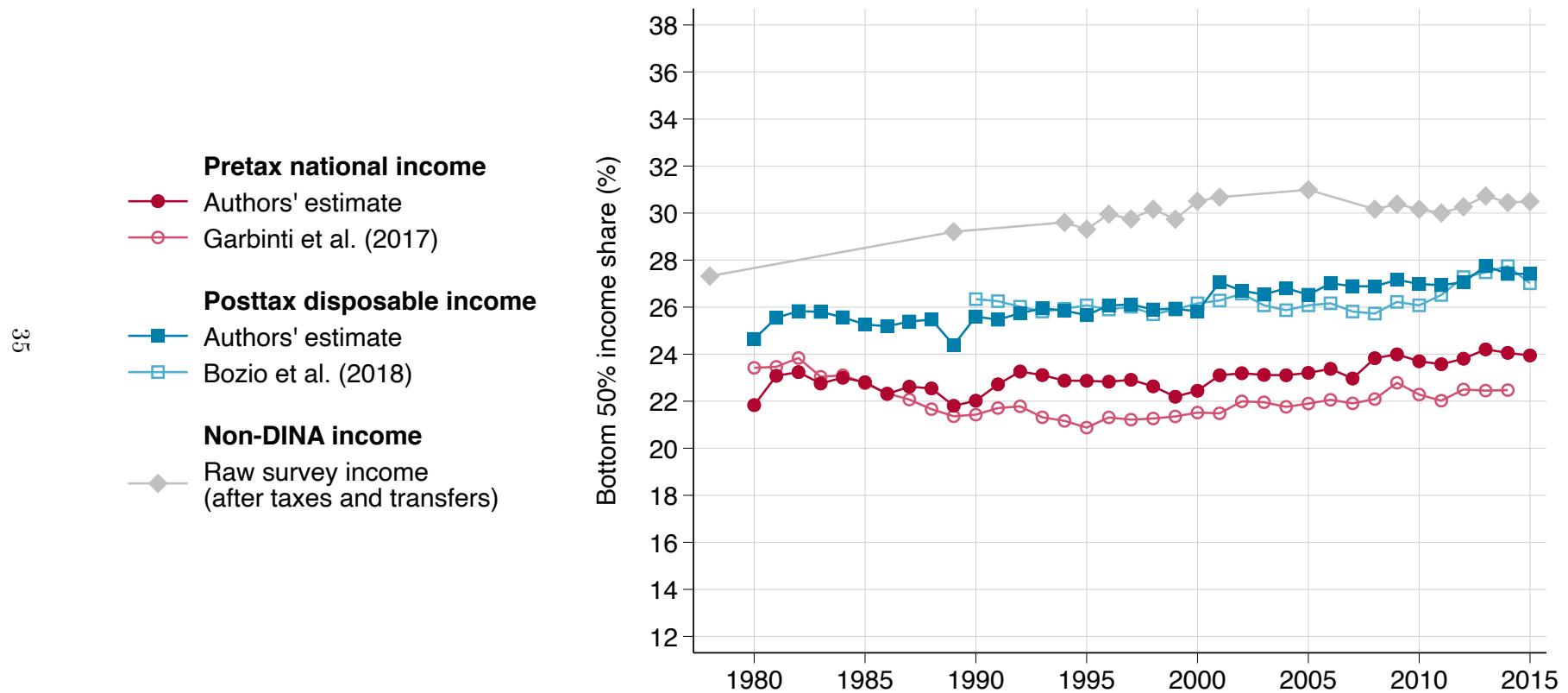
*Notes.* The figure compares the evolution of the average posttax income quintile share ratio (the share of the top 20% over the share of the bottom 20%), in the European Union (28 countries) between 1980 and 2017. The figure corresponds to population-weighted averages of the indicator. Posttax disposable income corresponds to income after taxes and transfers, but excluding collective government expenditures. Posttax national income includes collective government expenditures (see methodology).

**Figure A.2.1.8**  
Posttax income quintile share ratio in Europe: DINA vs. Eurostat



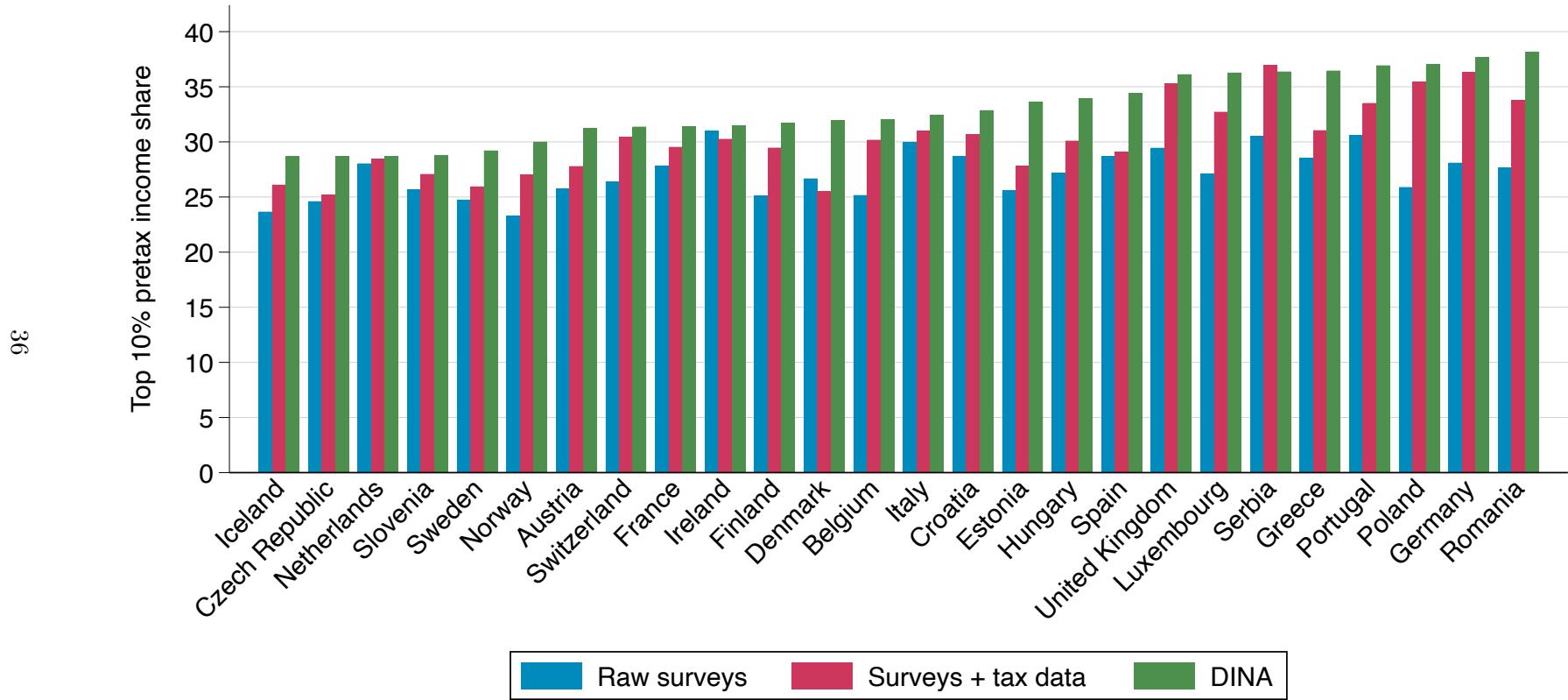
*Notes.* The figure plots the ratio of the top 20% posttax income share to the bottom 20% posttax income share in the European Union (28 countries) between 1980 and 2017. Eurostat estimates correspond to population-weighted averages of posttax disposable income quintile share ratios. DINA estimates correspond to posttax national income series (see methodology).

**Figure A.2.1.9**  
**Comparison of our Results with Other DINA Studies in France: Bottom 50% Share**



*Source:* Authors' computations combining surveys, tax data and national accounts. *Note:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses, except for the "raw survey income" series in the bottom panel for which income is split equally among all adult household members.

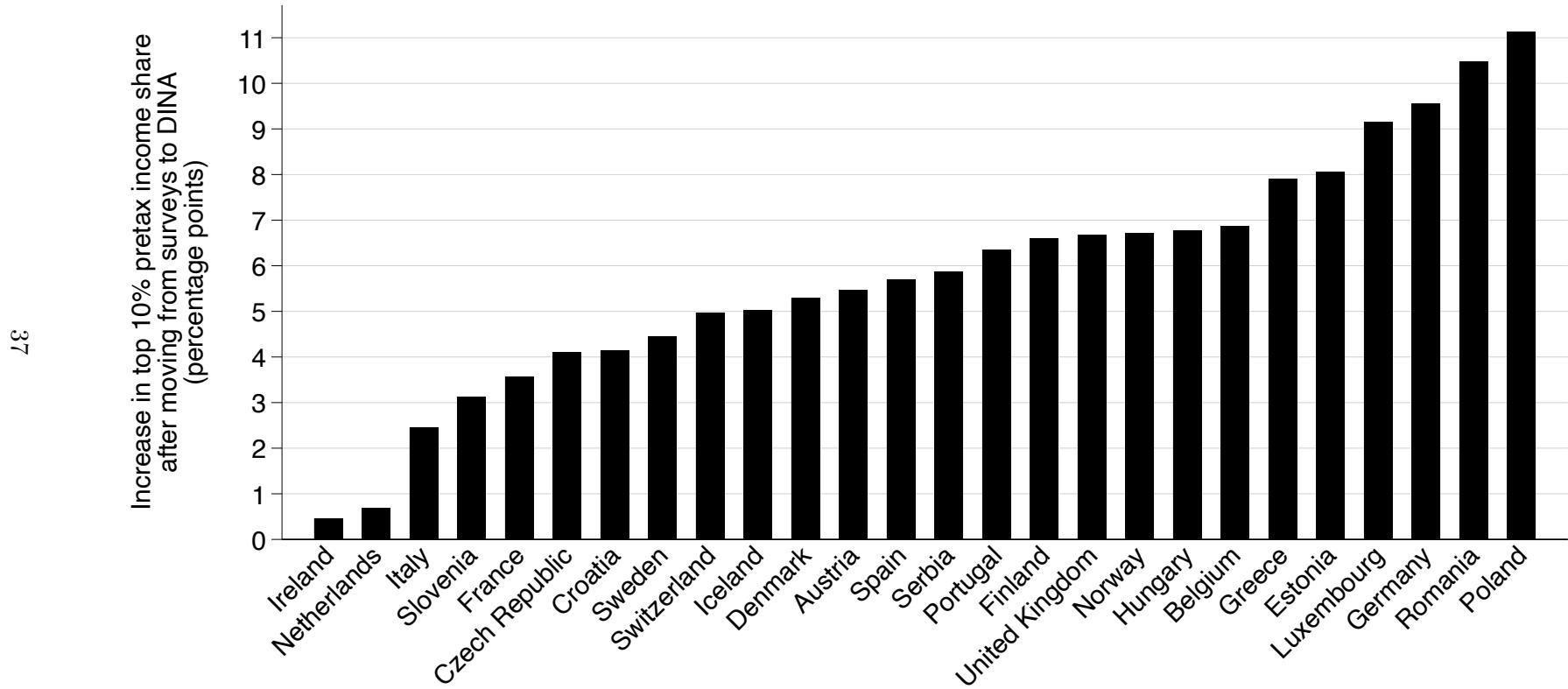
**Figure A.2.1.10**  
**From surveys to DINA: top 10% pretax income share by country, 2017**



*Source:* Authors' computations combining surveys, tax data and national accounts. *Note:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

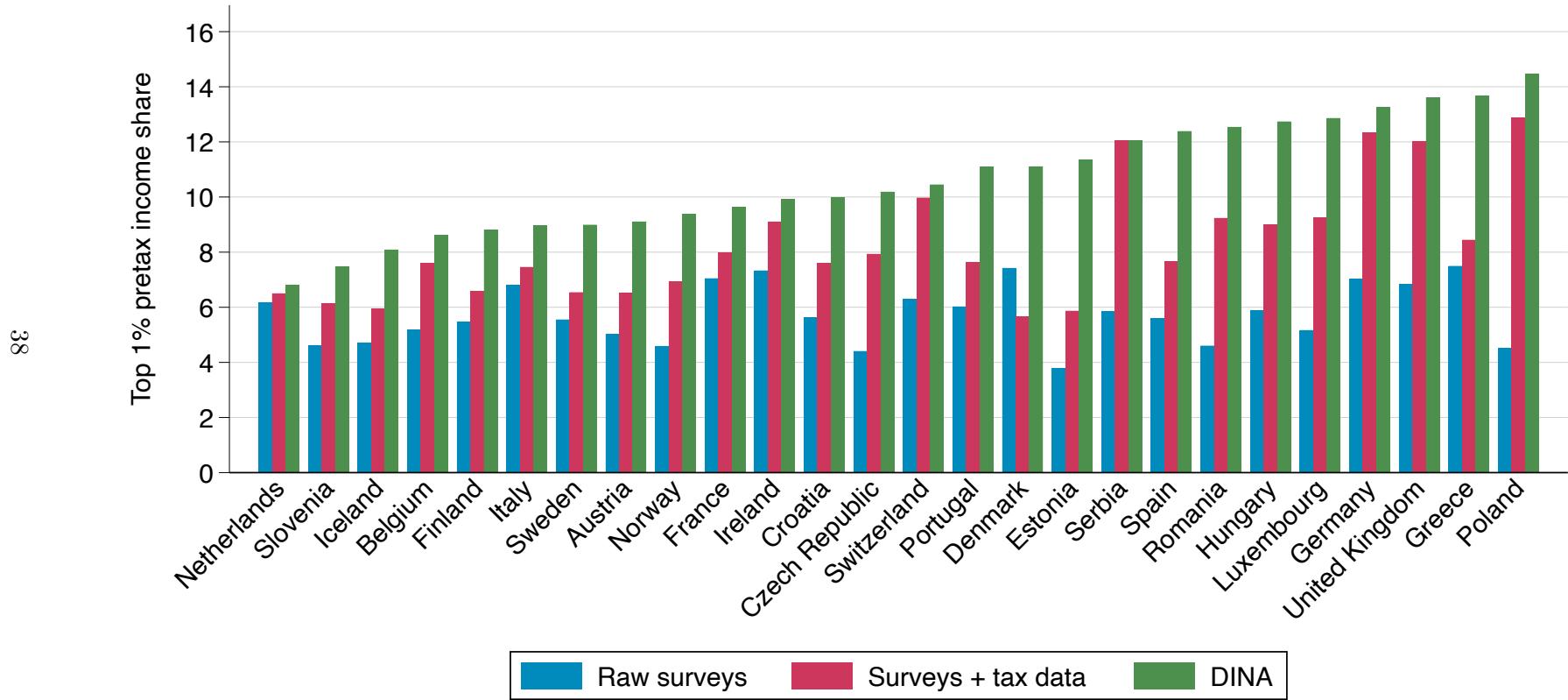
**Figure A.2.1.11**

From surveys to DINA: percentage point change in estimated top 10% pretax income share by country, 2017



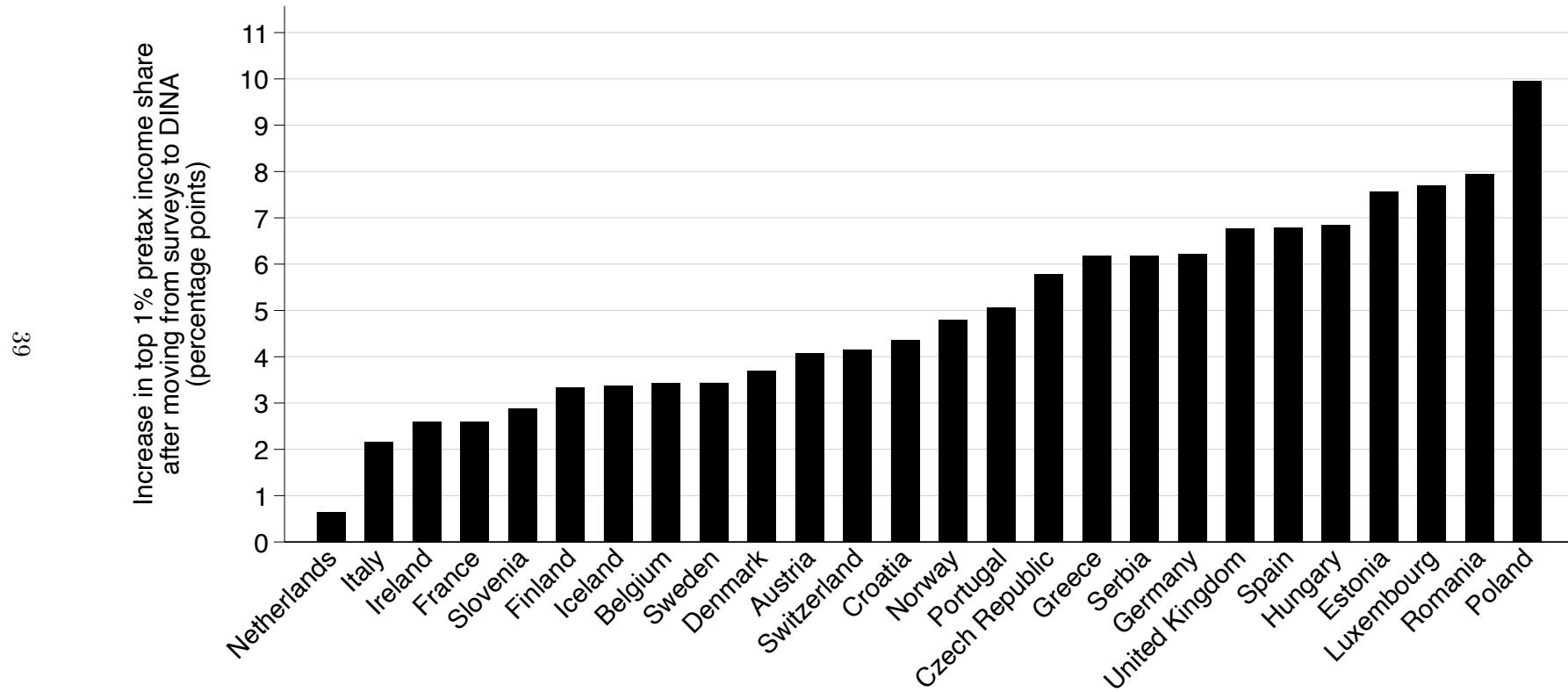
*Source:* Authors' computations combining surveys, tax data and national accounts. *Note:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.1.12**  
**From surveys to DINA: top 1% pretax income share by country, 2017**



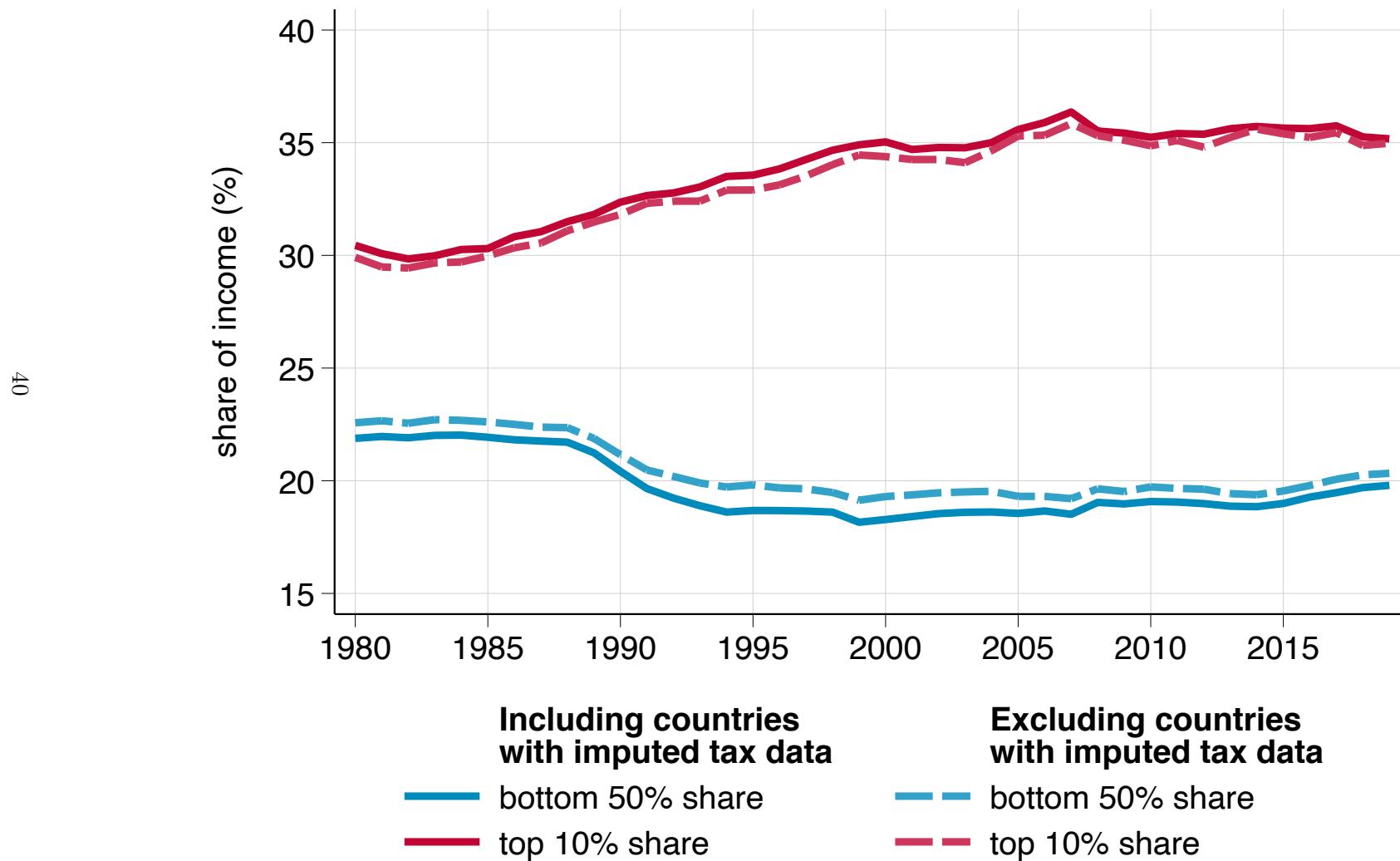
*Source:* Authors' computations combining surveys, tax data and national accounts. *Note:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.1.13**  
**From surveys to DINA: percentage point change in estimated top 1% pretax income share by country, 2017**



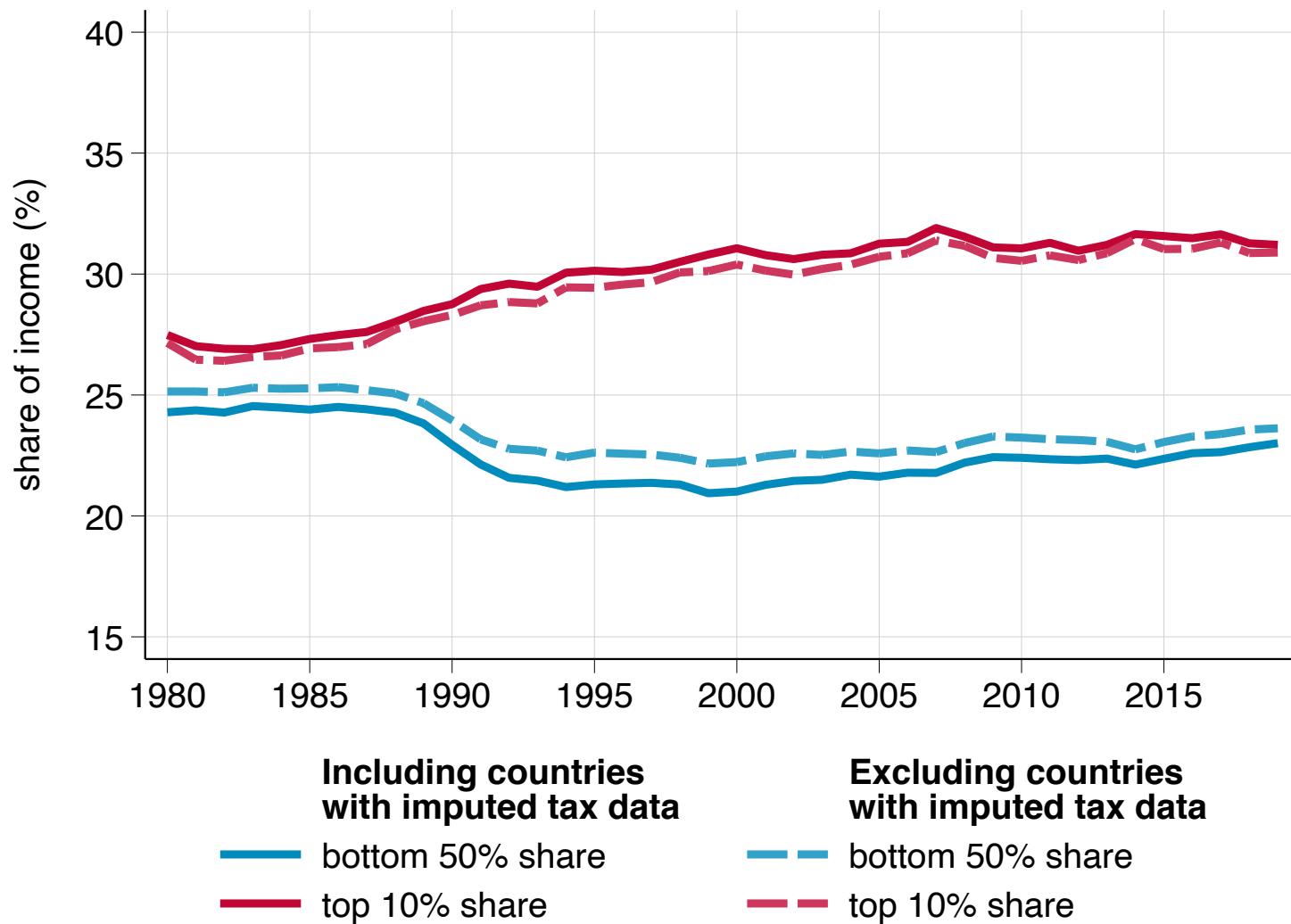
*Source:* Authors' computations combining surveys, tax data and national accounts. *Note:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.1.14**  
**Robustness Check: Exclusion of Countries with Imputed Nonresponse instead of Tax Data (pretax income inequality)**



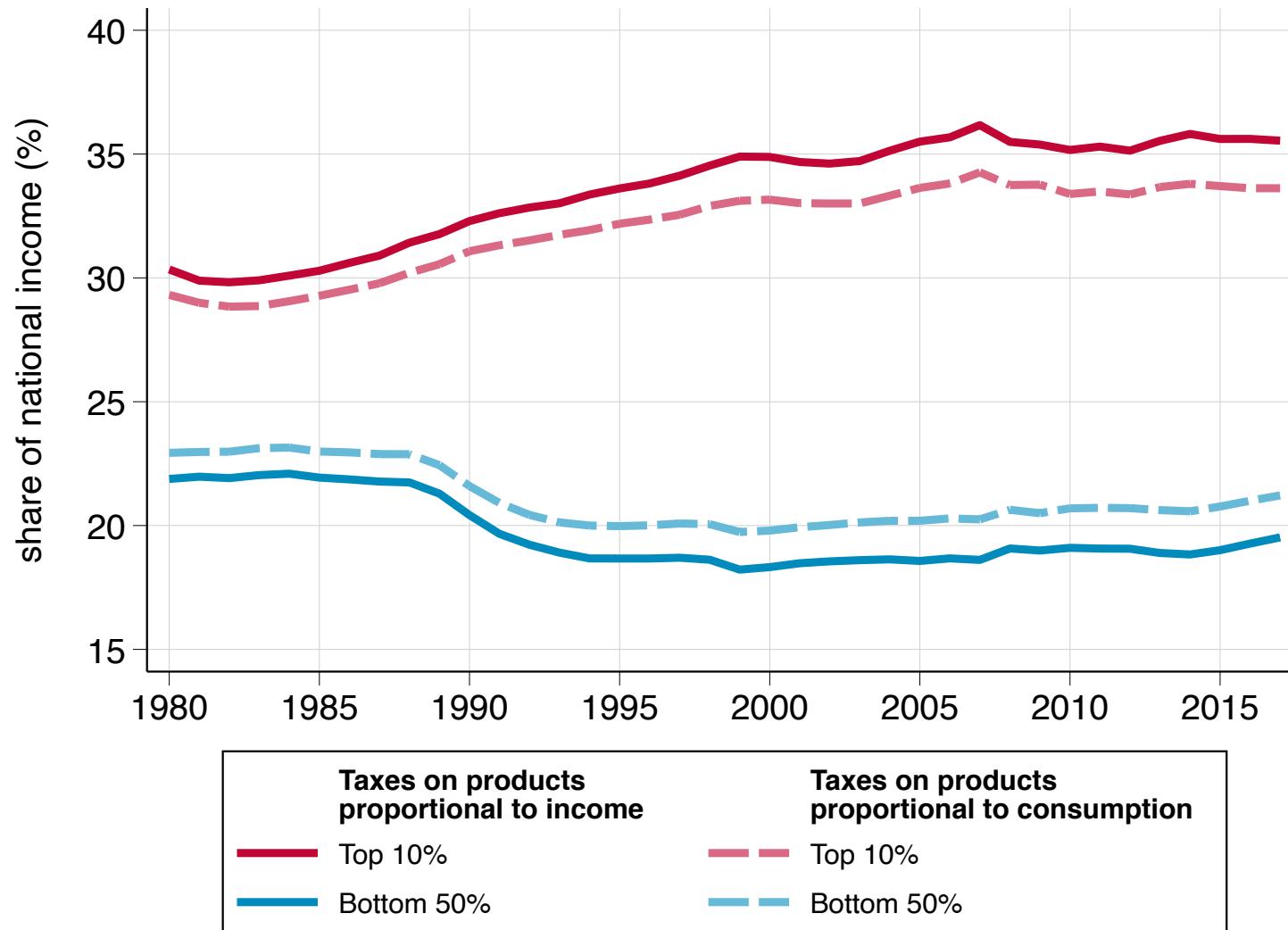
*Source:* Authors' computations combining surveys, tax data and national accounts. *Note:* Incomes measured at purchasing power parity. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.1.15**  
**Robustness Check: Exclusion of Countries with Imputed Nonresponse instead of Tax Data (posttax income inequality)**



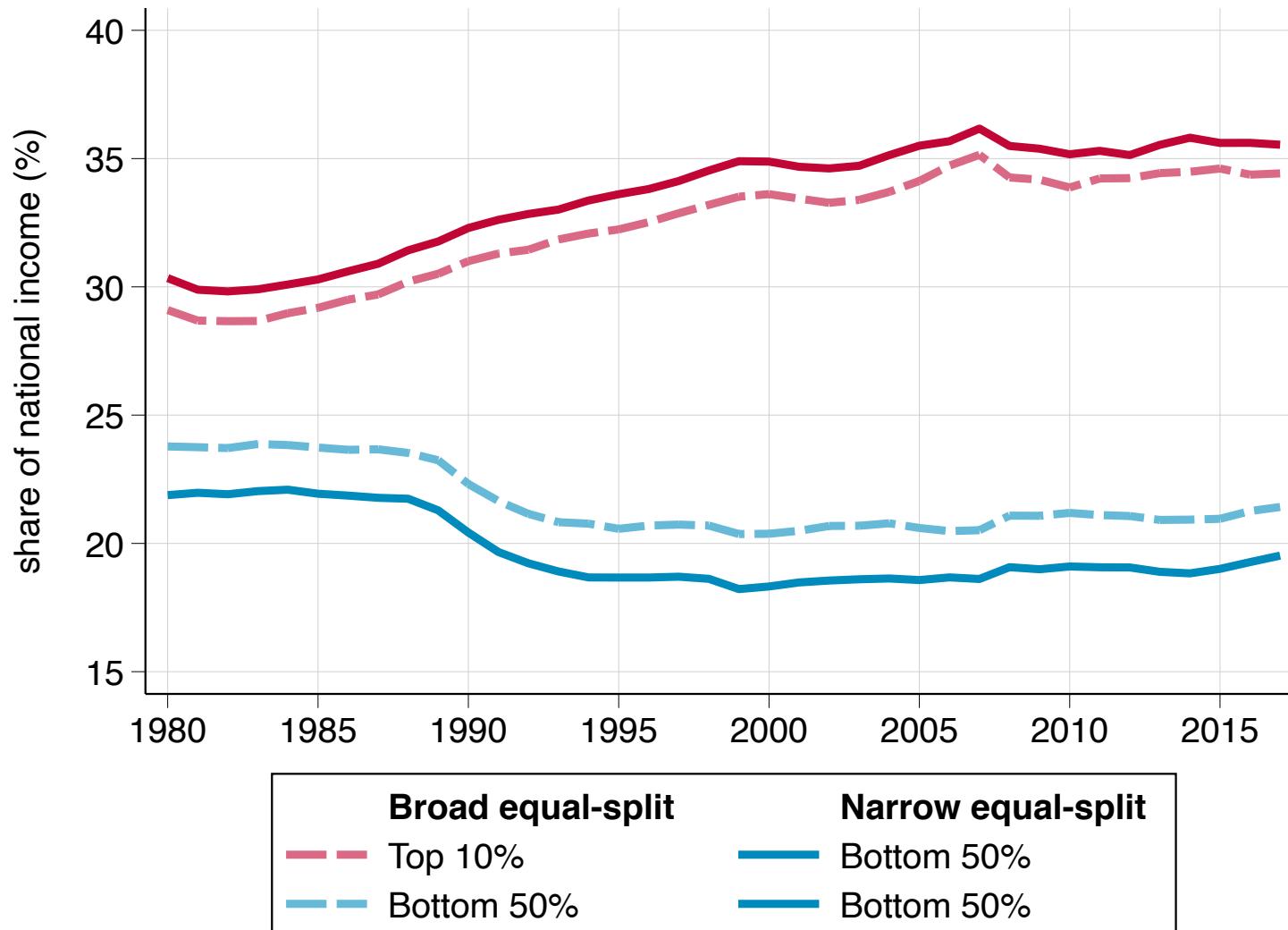
*Source:* Authors' computations combining surveys, tax data and national accounts. *Note:* Incomes measured at purchasing power parity. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.1.16**  
**Pretax income shares in Europe: distribution of taxes on products**



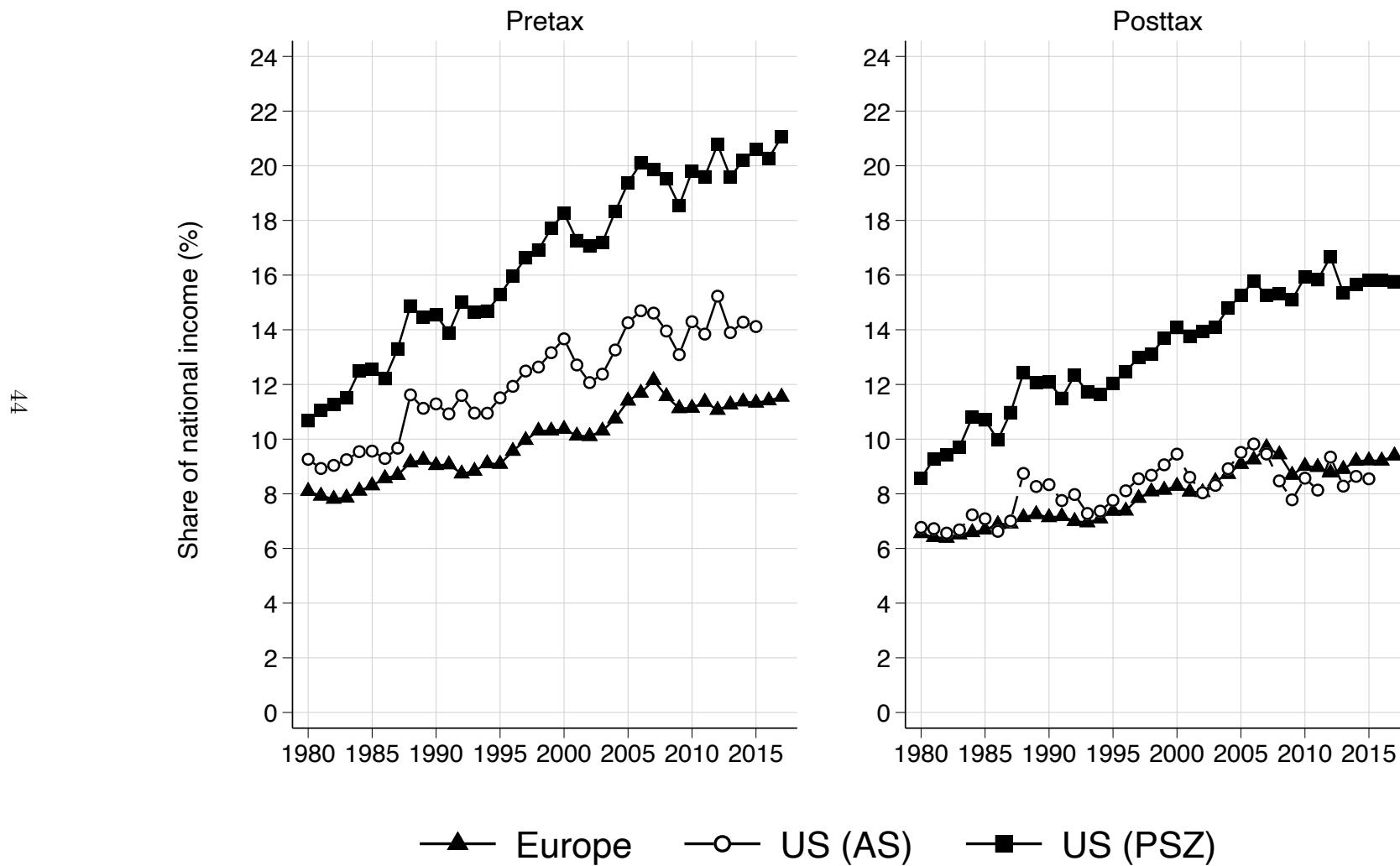
*Notes.* The figure compares the top 10% and bottom 50% European income shares in two scenarios: one in which taxes on products are distributed proportionally to income, and one in which they are distributed proportionally to consumption.

**Figure A.2.1.17**  
Pretax income shares in Europe: broad equal-split vs. narrow equal-split



*Notes.* The figure compares the top 10% and bottom 50% European income shares in two scenarios: one in which income is split equally among all members of the household (broad equal-split), and one in which income is split equally among spouses (narrow equal-split).

**Figure A.2.1.18**  
**Top 1% income share in Europe and the United States: comparison of estimates**

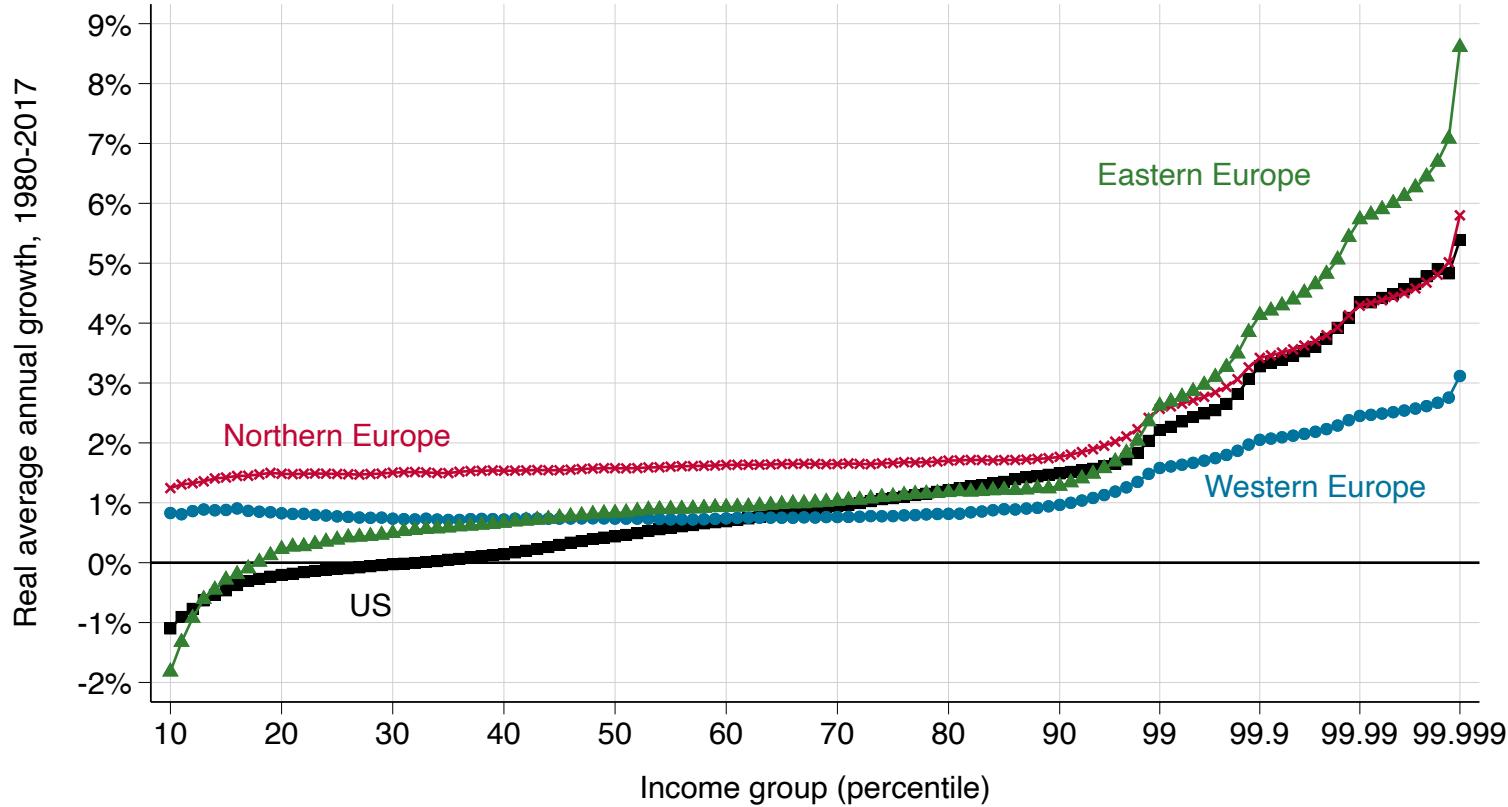


*Source:* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) (US-PSZ) as well as [Auten and Splinter, 2019](#) (US-AS) for the US.

## 2.2 Distribution of pretax income

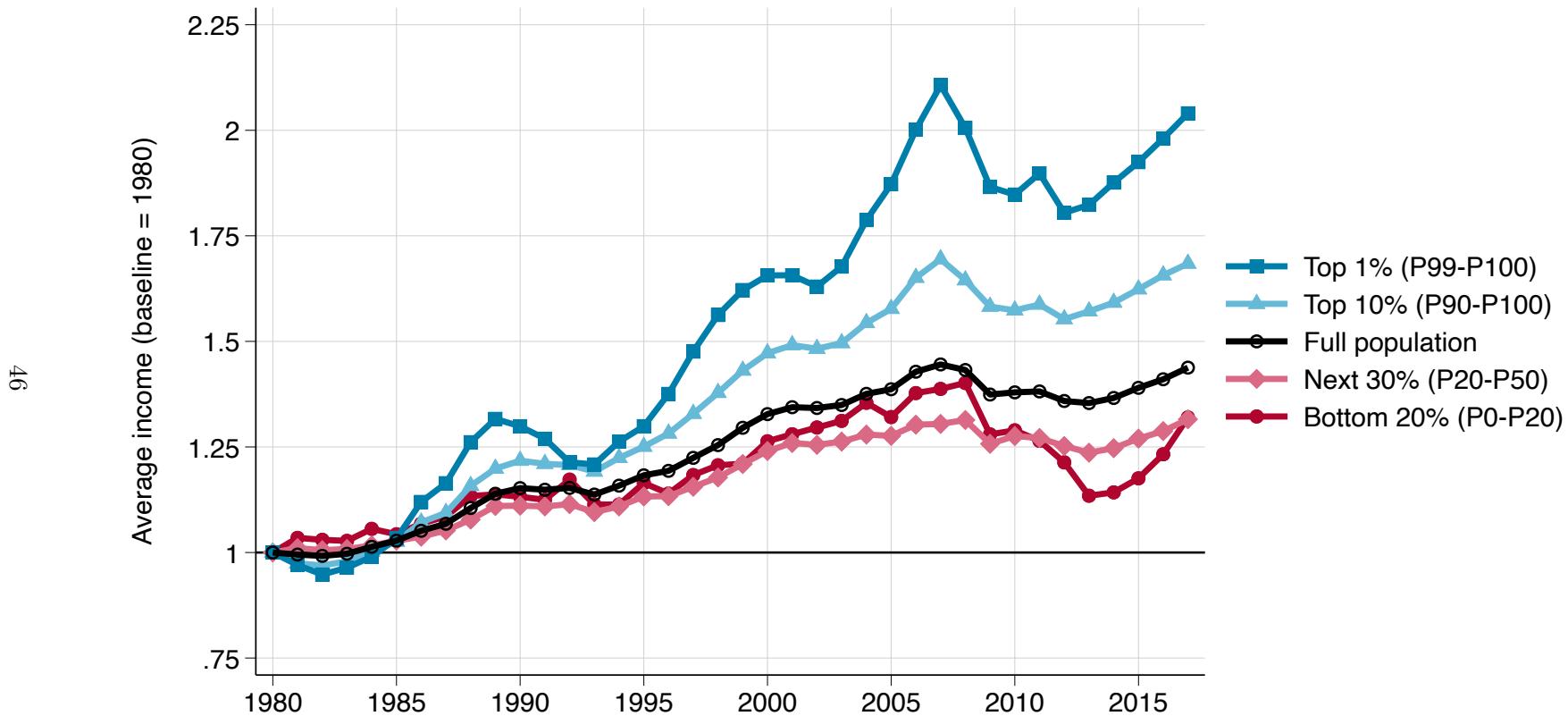
Figure A.2.2.1

Average annual pretax income growth by percentile in Europe and the United States, 1980-2017



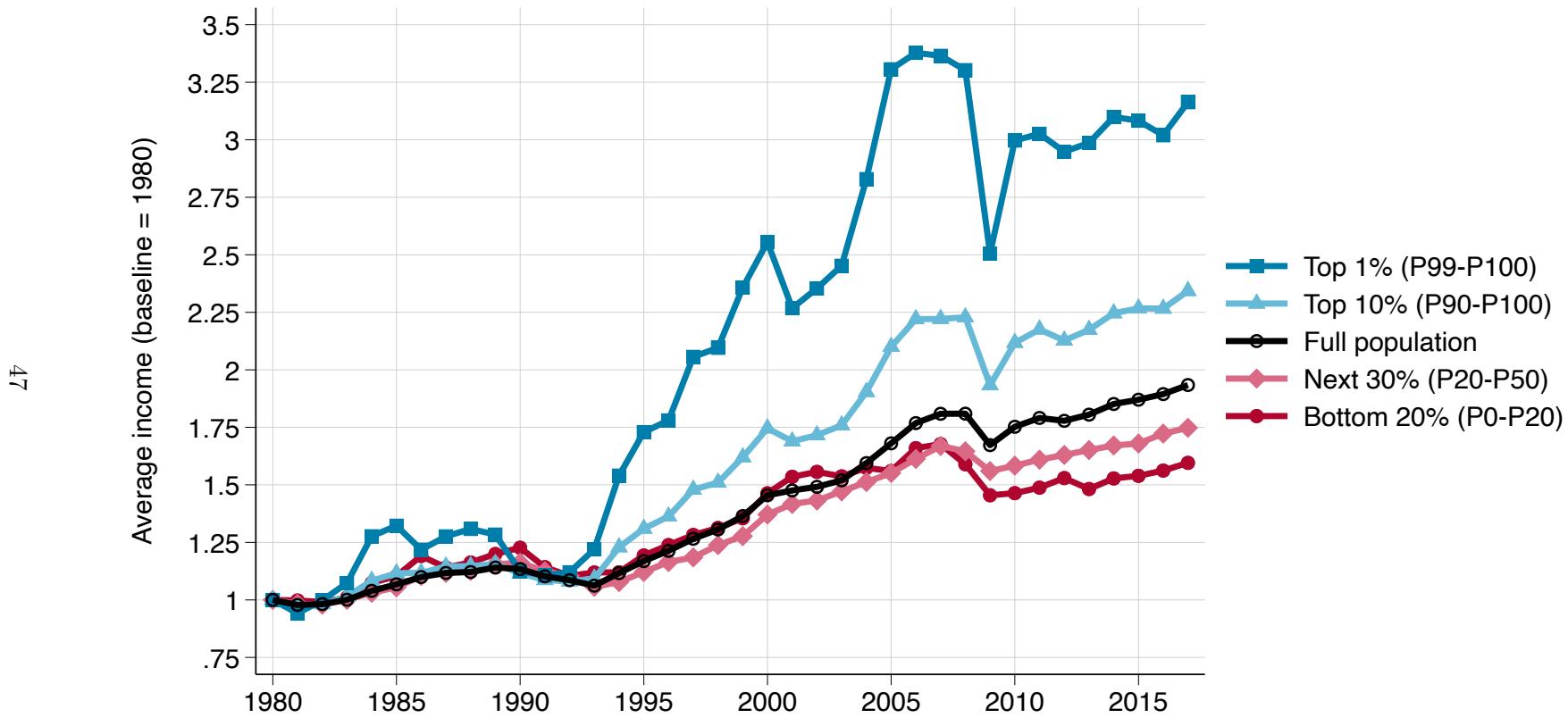
Source: Authors' computations combining surveys, tax data and national accounts. Notes: The figure shows the average annual growth rate of pretax national income by percentile in Western Europe, Northern Europe, Eastern Europe, and the United States, with a further decomposition of the top percentile, between 1980 and 2017. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.2**  
**Cumulated growth by pretax income group: Western Europe**



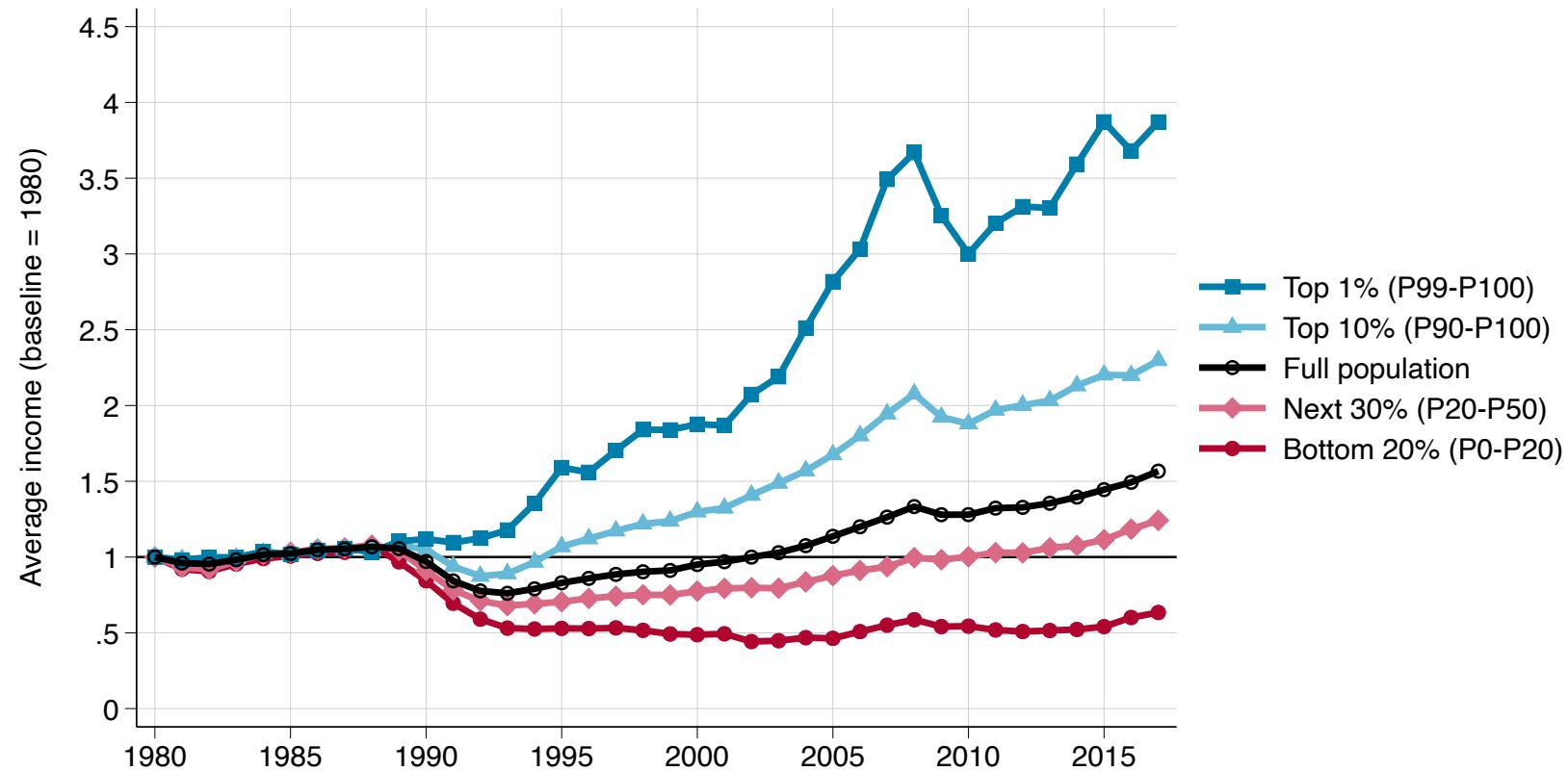
*Source:* Authors' computations combining surveys, tax data and national accounts for Europe. [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* This figure shows the evolution of the average pretax income of the top 1% (p99p100), the top 10% (p90p100), the bottom 20% (p0p20), the next 30% (p20p50) and the average regional income relative to 1980. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Incomes measured at purchasing power parity.

**Figure A.2.2.3**  
**Cumulated growth by pretax income group: Northern Europe**



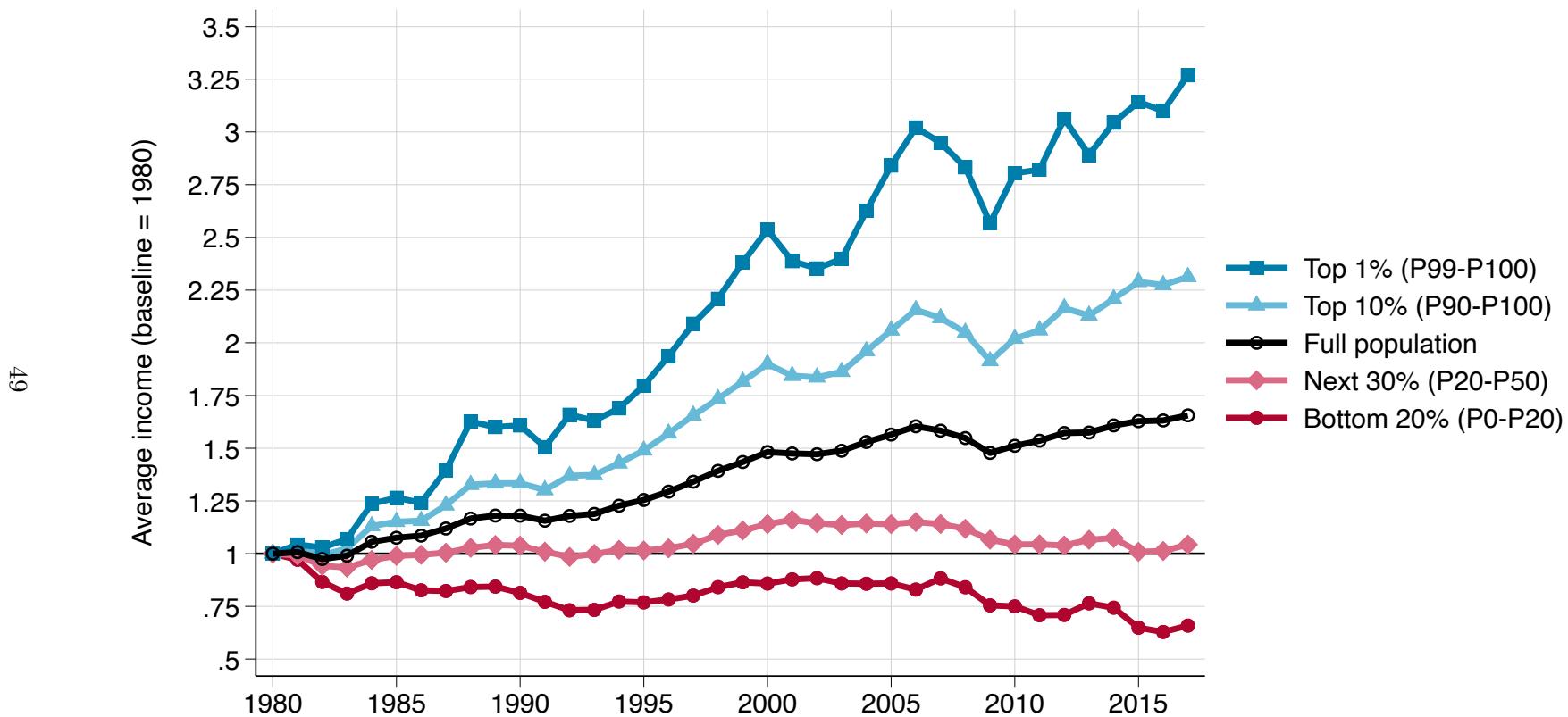
Source: Authors' computations combining surveys, tax data and national accounts for Europe. [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: This figure shows the evolution of the average pretax income of the top 1% (p99p100), the top 10% (p90p100), the bottom 20% (p0p20), the next 30% (p20p50) and the average regional income relative to 1980. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Incomes measured at purchasing power parity.

**Figure A.2.2.4**  
**Cumulated growth by pretax income group: Eastern Europe**



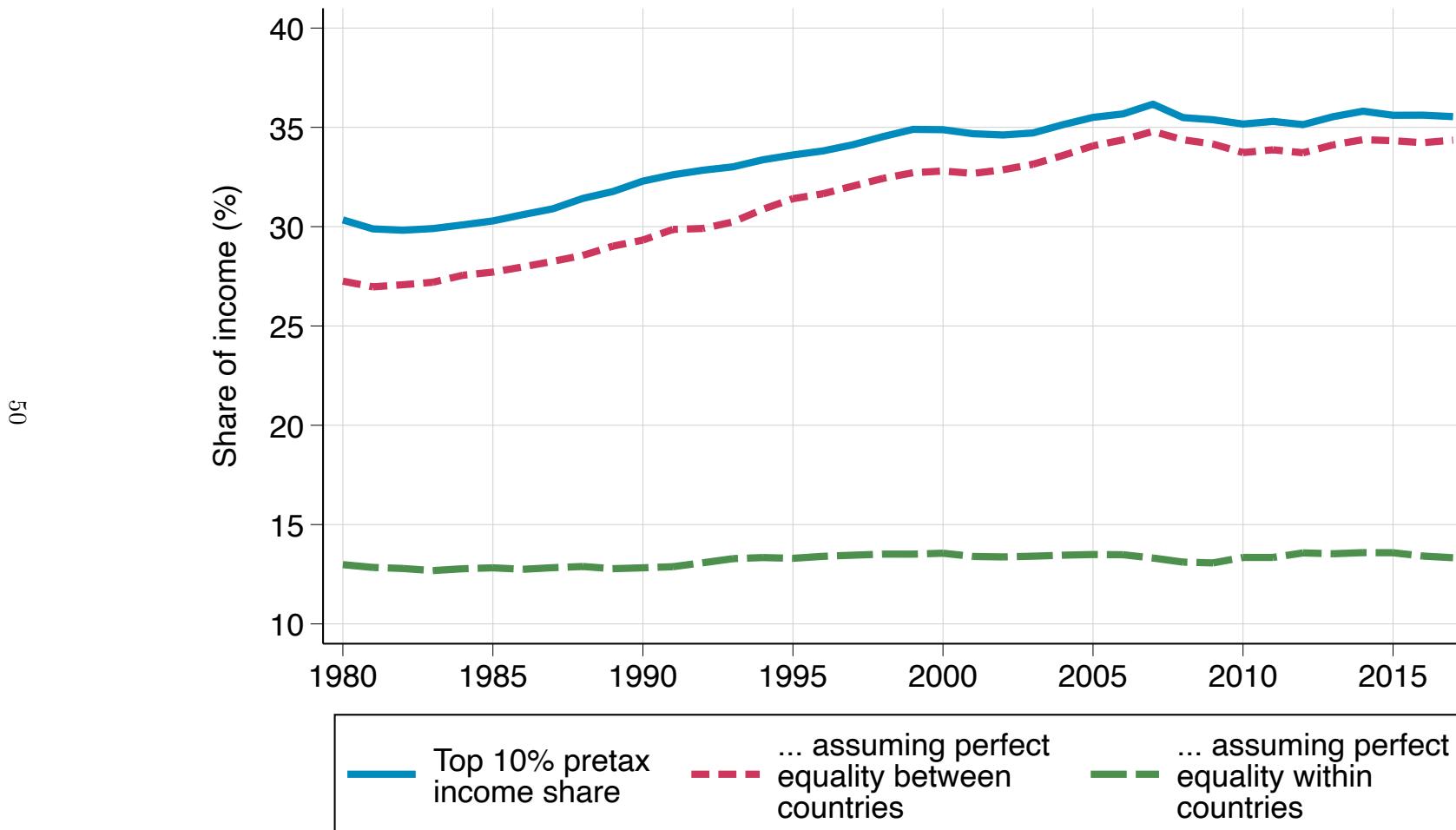
Source: Authors' computations combining surveys, tax data and national accounts for Europe. [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: This figure shows the evolution of the average pretax income of the top 1% (p99p100), the top 10% (p90p100), the bottom 20% (p0p20), the next 30% (p20p50) and the average regional income relative to 1980. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Incomes measured at purchasing power parity.

**Figure A.2.2.5**  
**Cumulated growth by pretax income group: United States**



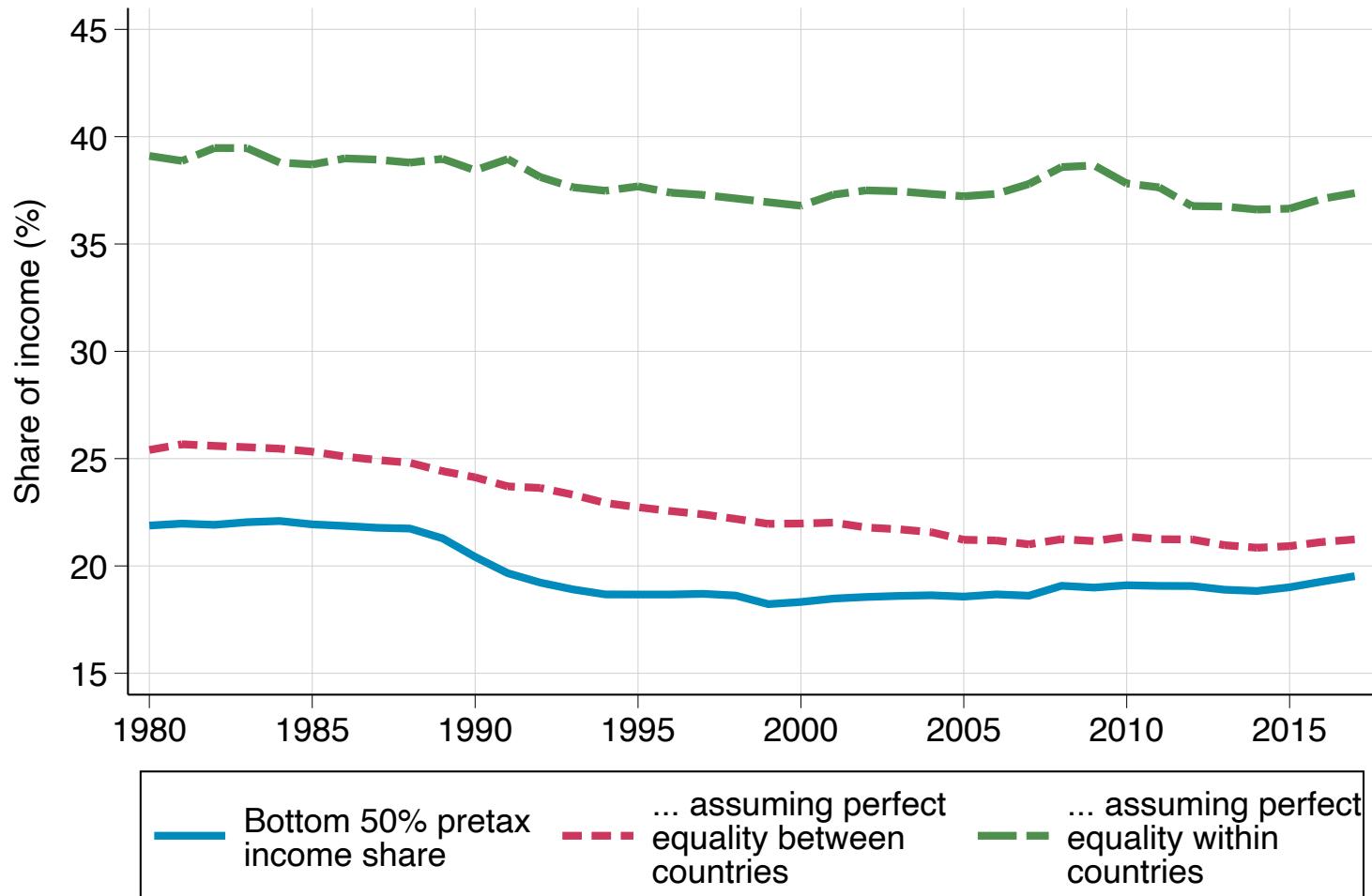
*Source:* Authors' computations combining surveys, tax data and national accounts for Europe. [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* This figure shows the evolution of the average pretax income of the top 1% (p99p100), the top 10% (p90p100), the bottom 20% (p0p20), the next 30% (p20p50) and the average regional income relative to 1980. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Incomes measured at purchasing power parity.

**Figure A.2.2.6**  
**Top 10% pretax income share in Europe: Geographical decomposition**



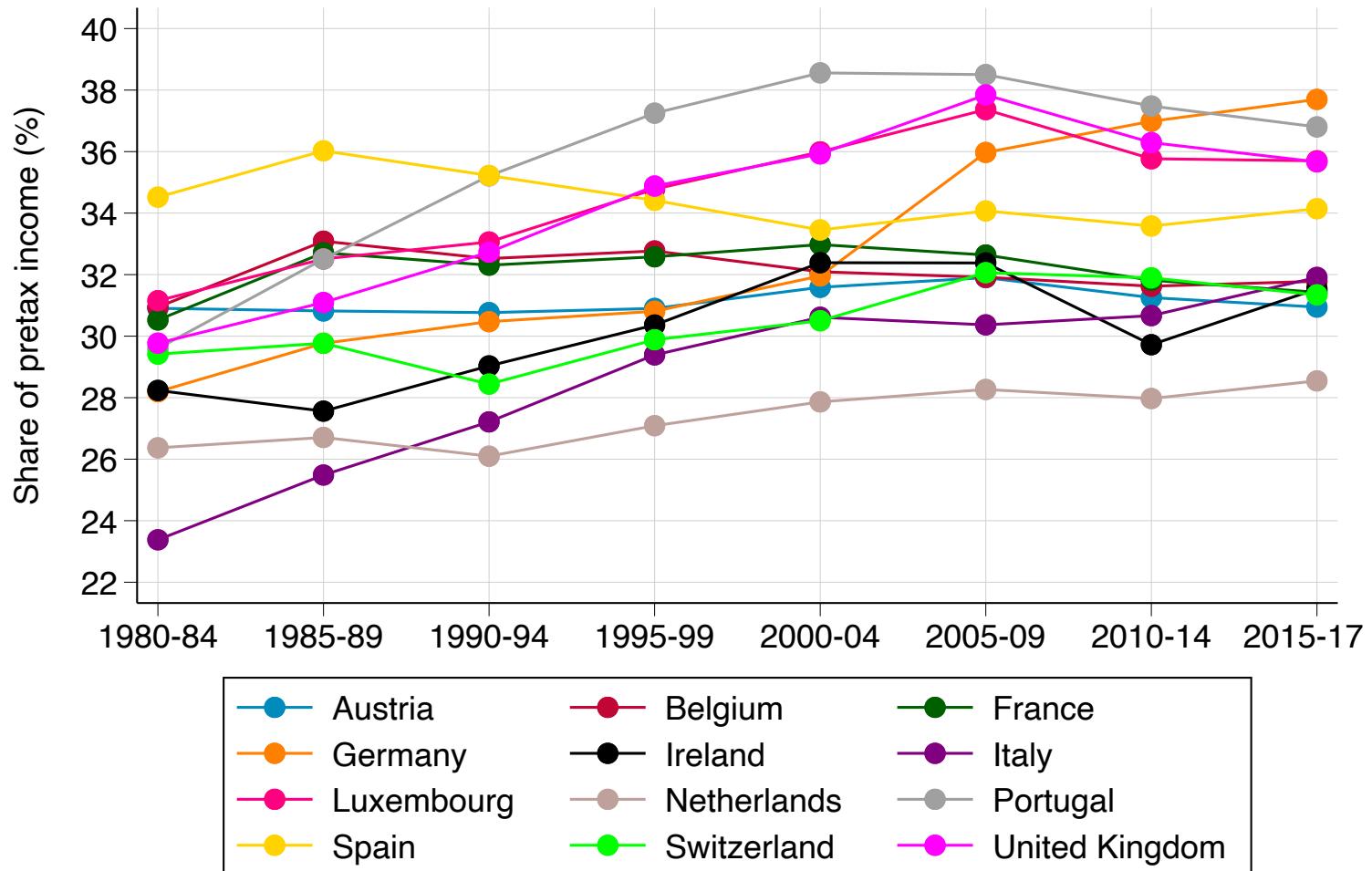
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* Incomes are measured at Purchasing Power Parity in real 2017 Euros. PPP Euro 1 = PPP\$ 1.3. The unit of observation is the adult individual aged 20 or above. See Table A.2.7.1 for the composition of European regions.

**Figure A.2.2.7**  
**Bottom 50% pretax income share in Europe: counterfactual decomposition**



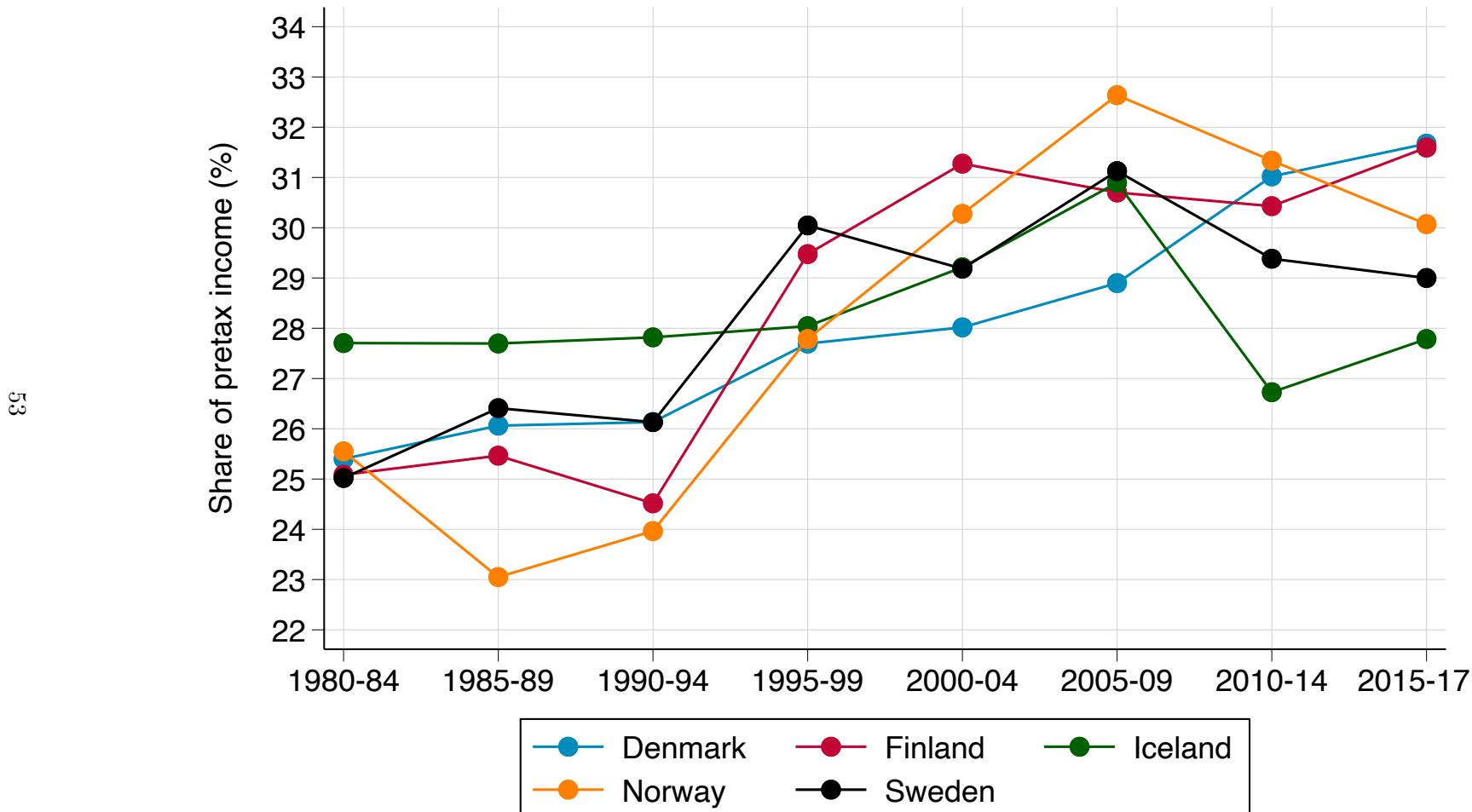
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* Incomes are measured at Purchasing Power Parity in real 2017 Euros. PPP Euro 1 = PPP\$ 1.3. The unit of observation is the adult individual aged 20 or above. See Table A.2.7.1 for the composition of European regions.

**Figure A.2.2.8**  
**Top 10% pretax income share by country: Western Europe**



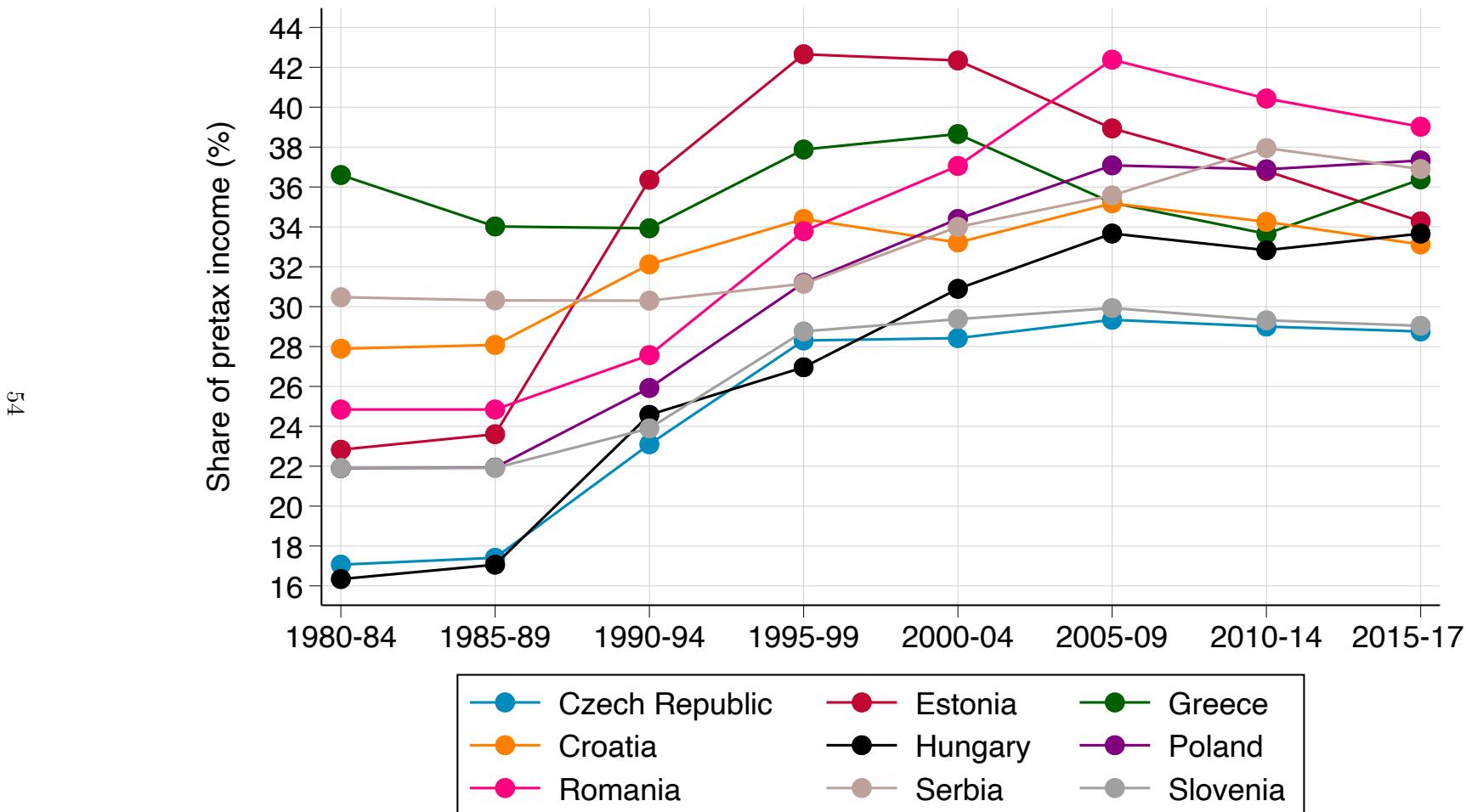
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.9**  
**Top 10% pretax income share by country: Northern Europe**



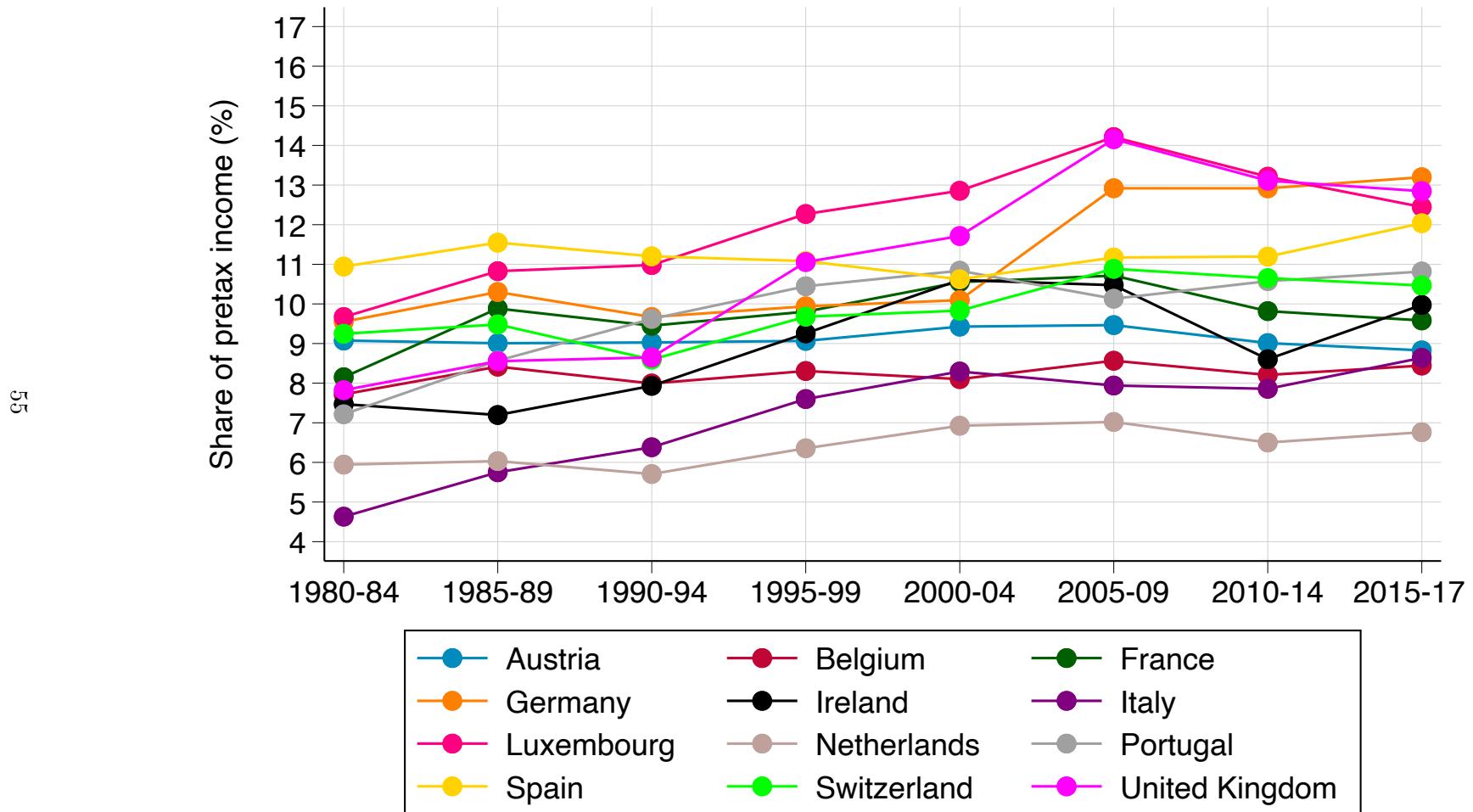
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.10**  
**Top 10% pretax income share by country: Eastern Europe**



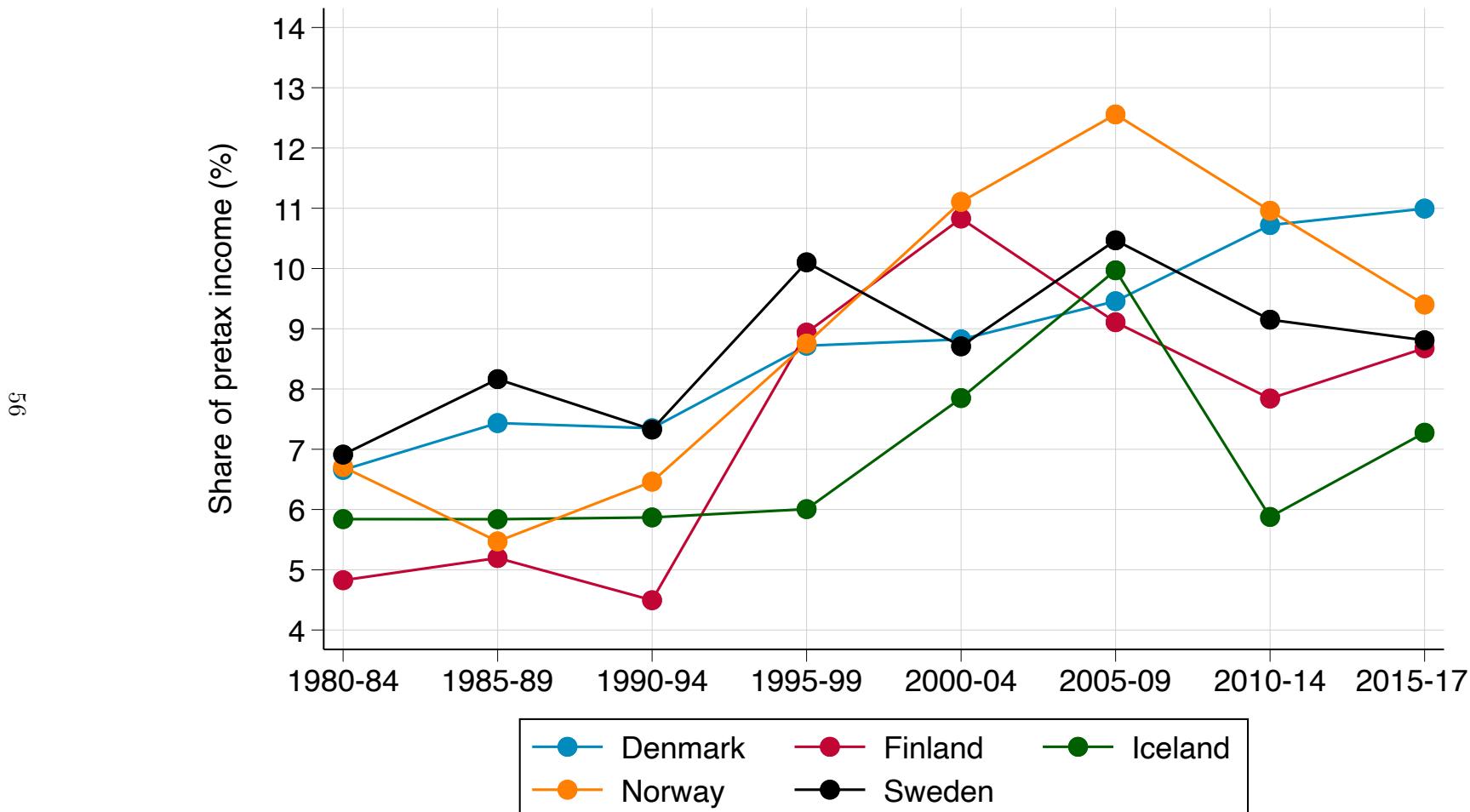
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.11**  
**Top 1% pretax income share by country: Western Europe**



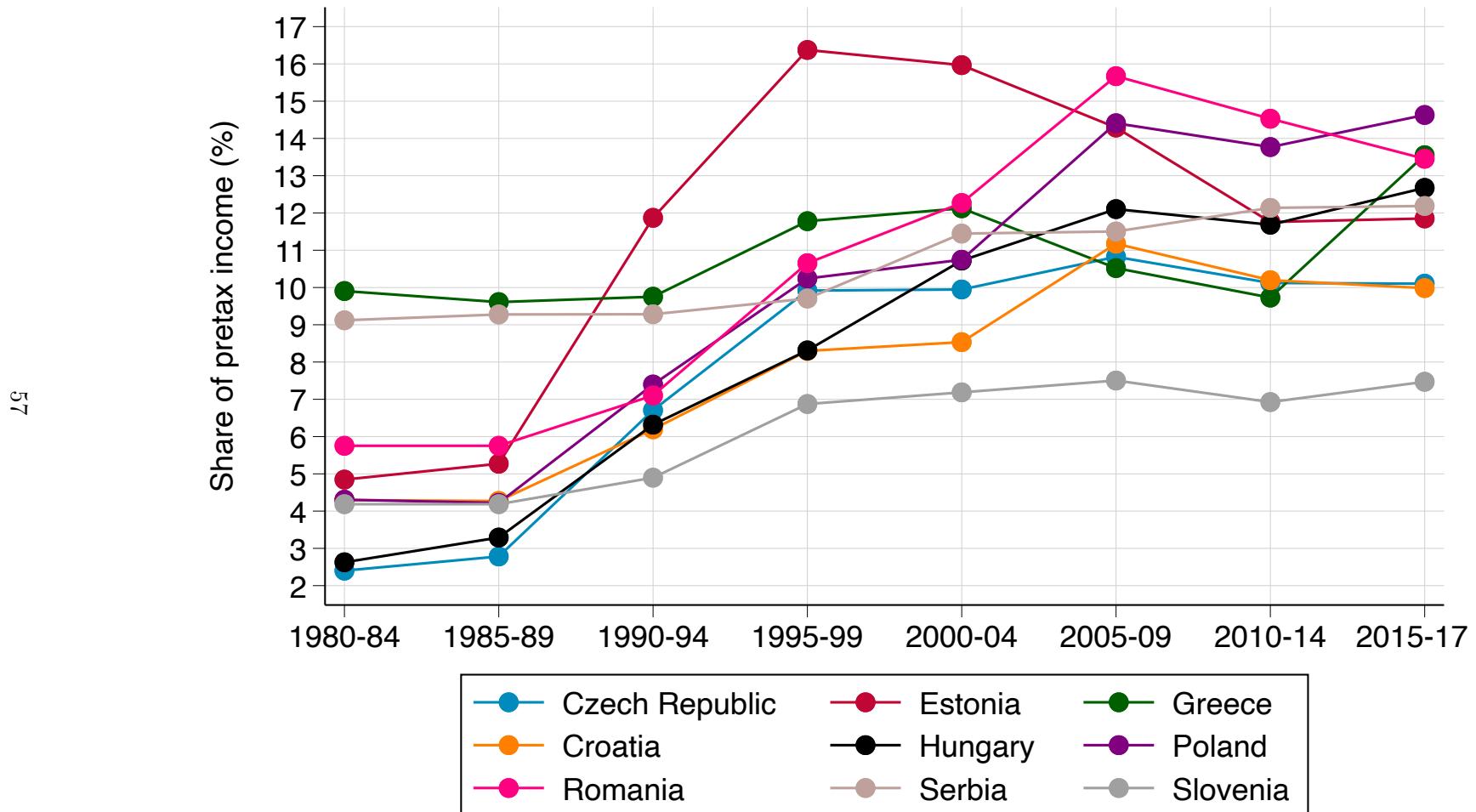
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.12**  
**Top 1% pretax income share by country: Northern Europe**



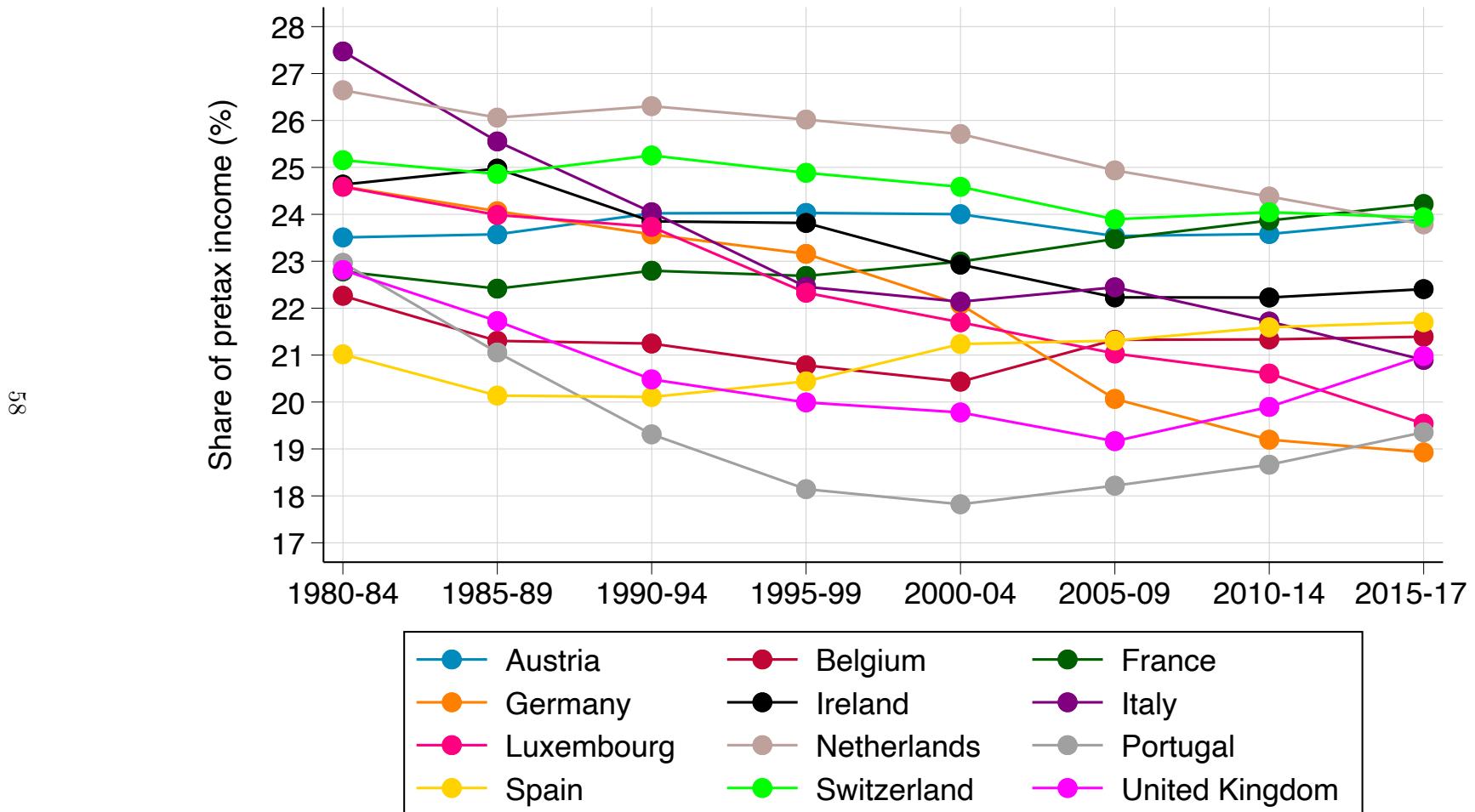
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.13**  
**Top 1% pretax income share by country: Eastern Europe**



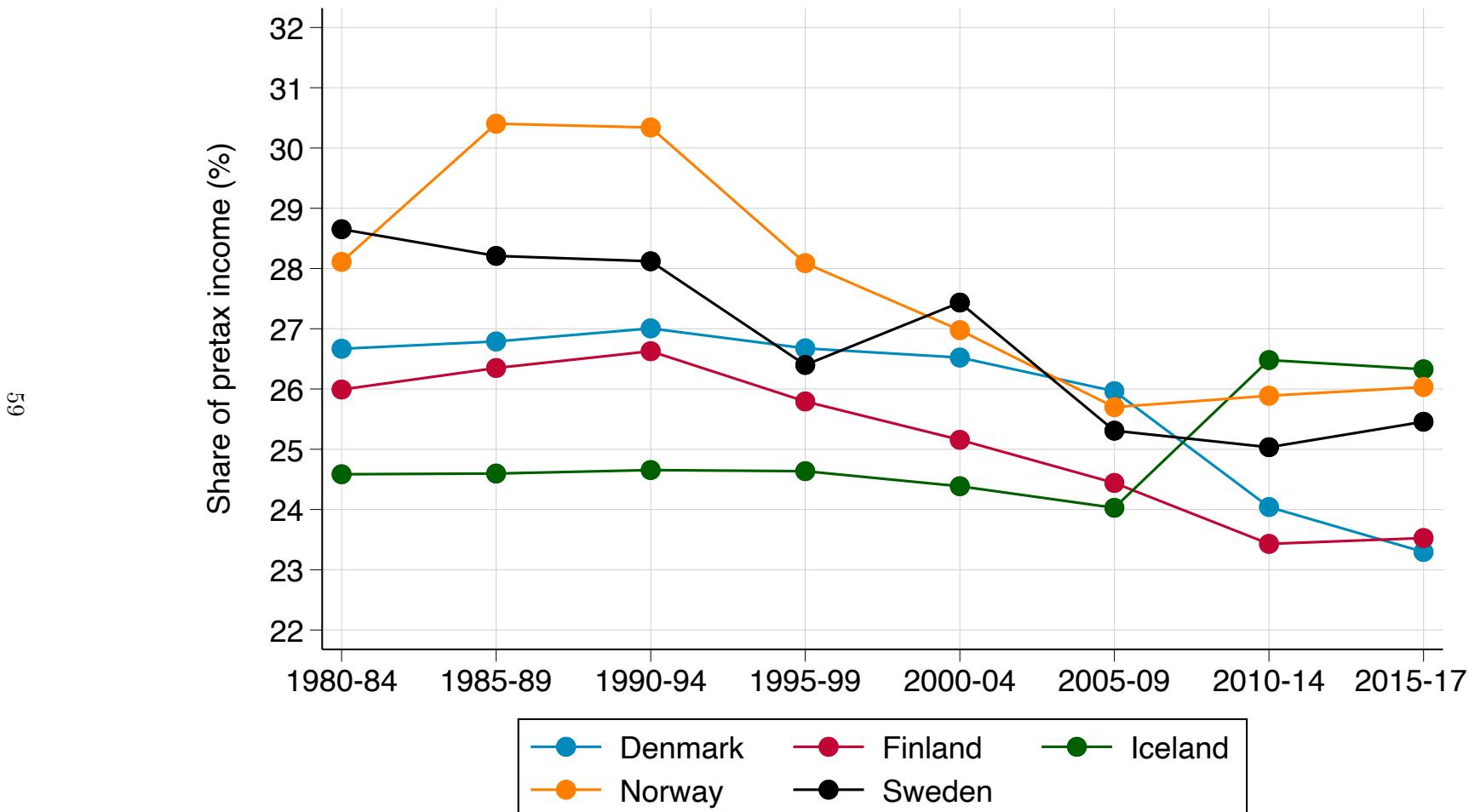
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.14**  
**Bottom 50% pretax income share by country: Western Europe**



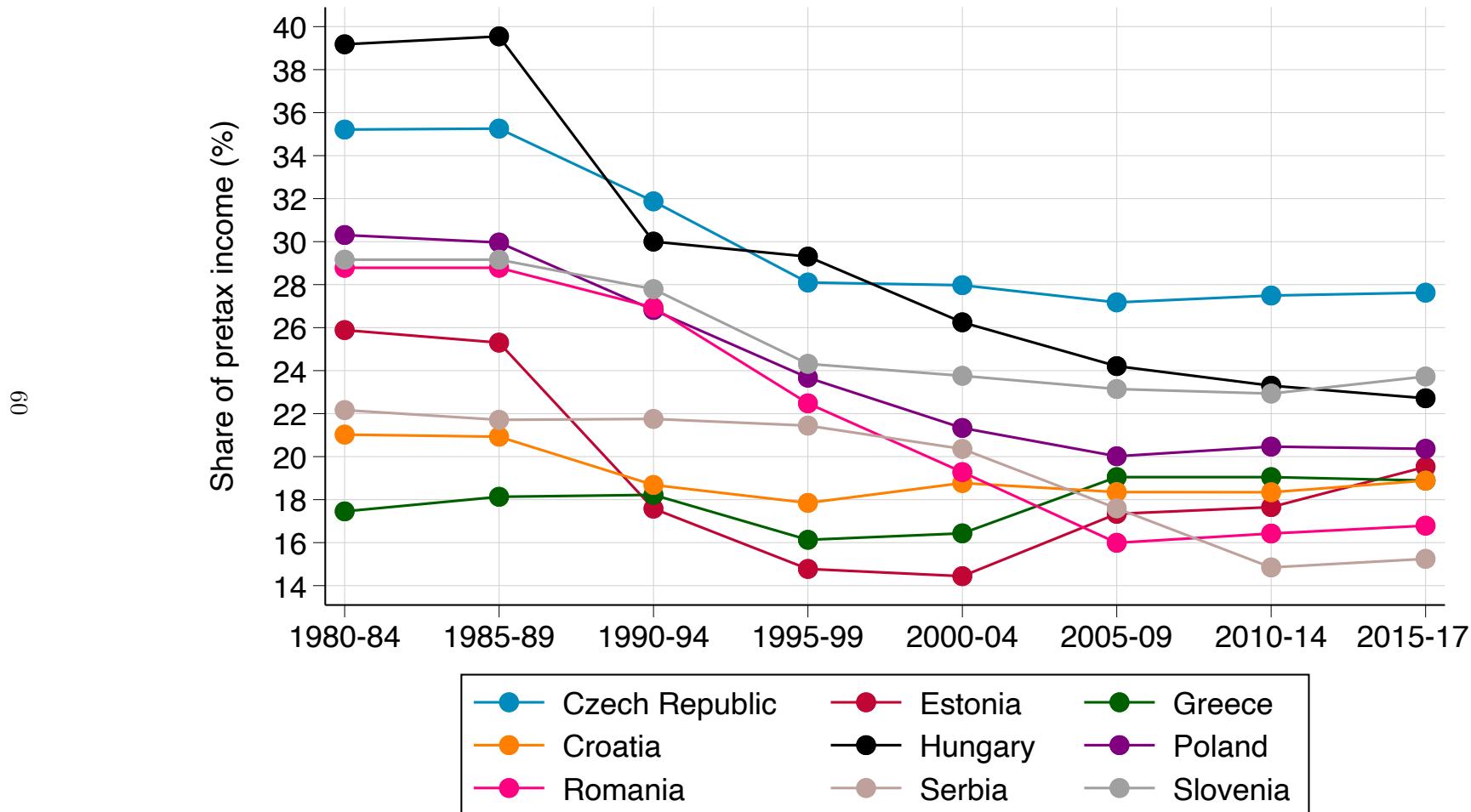
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.15**  
**Bottom 50% pretax income share by country: Northern Europe**



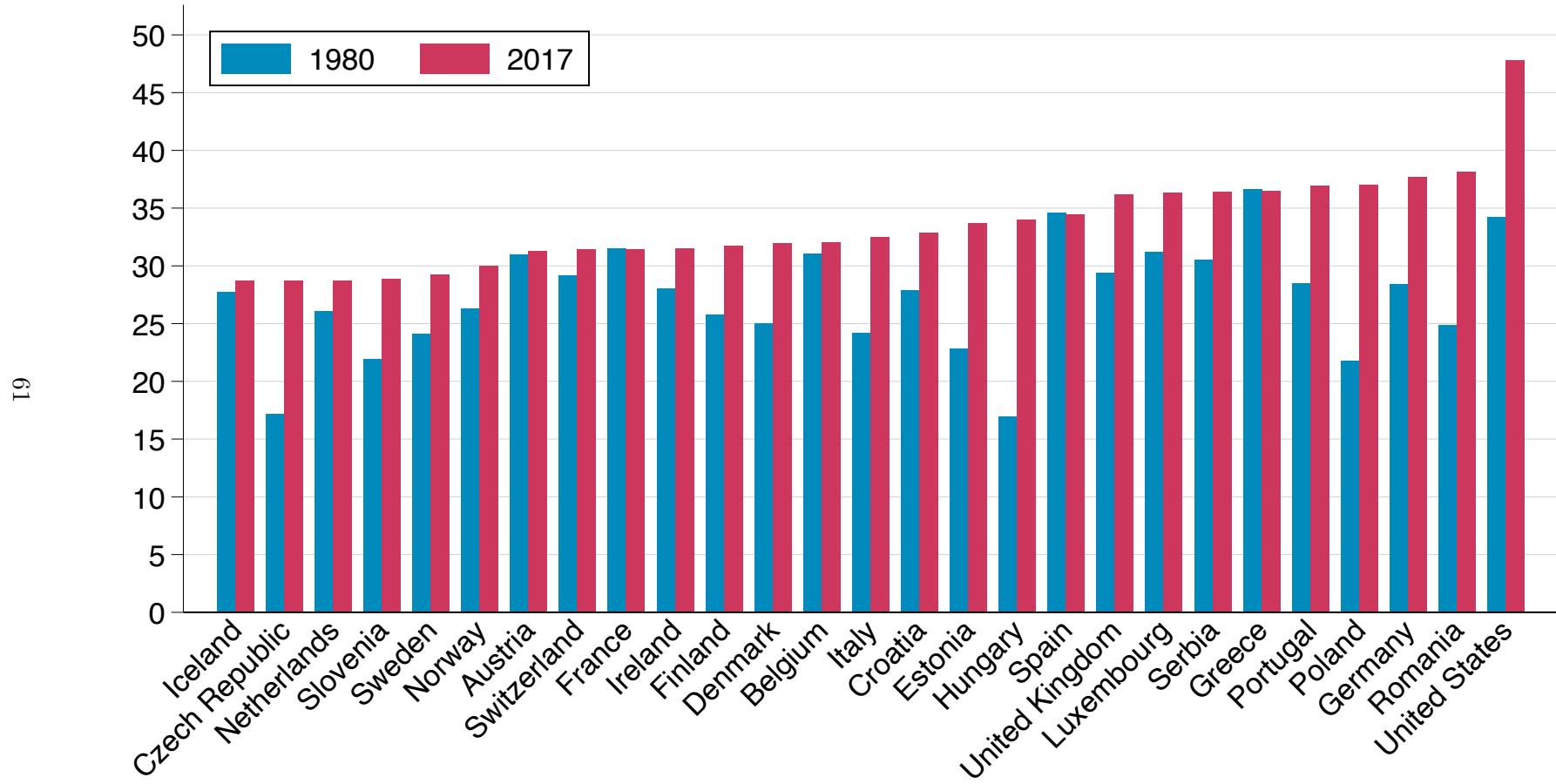
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.16**  
**Bottom 50% pretax income share by country: Eastern Europe**



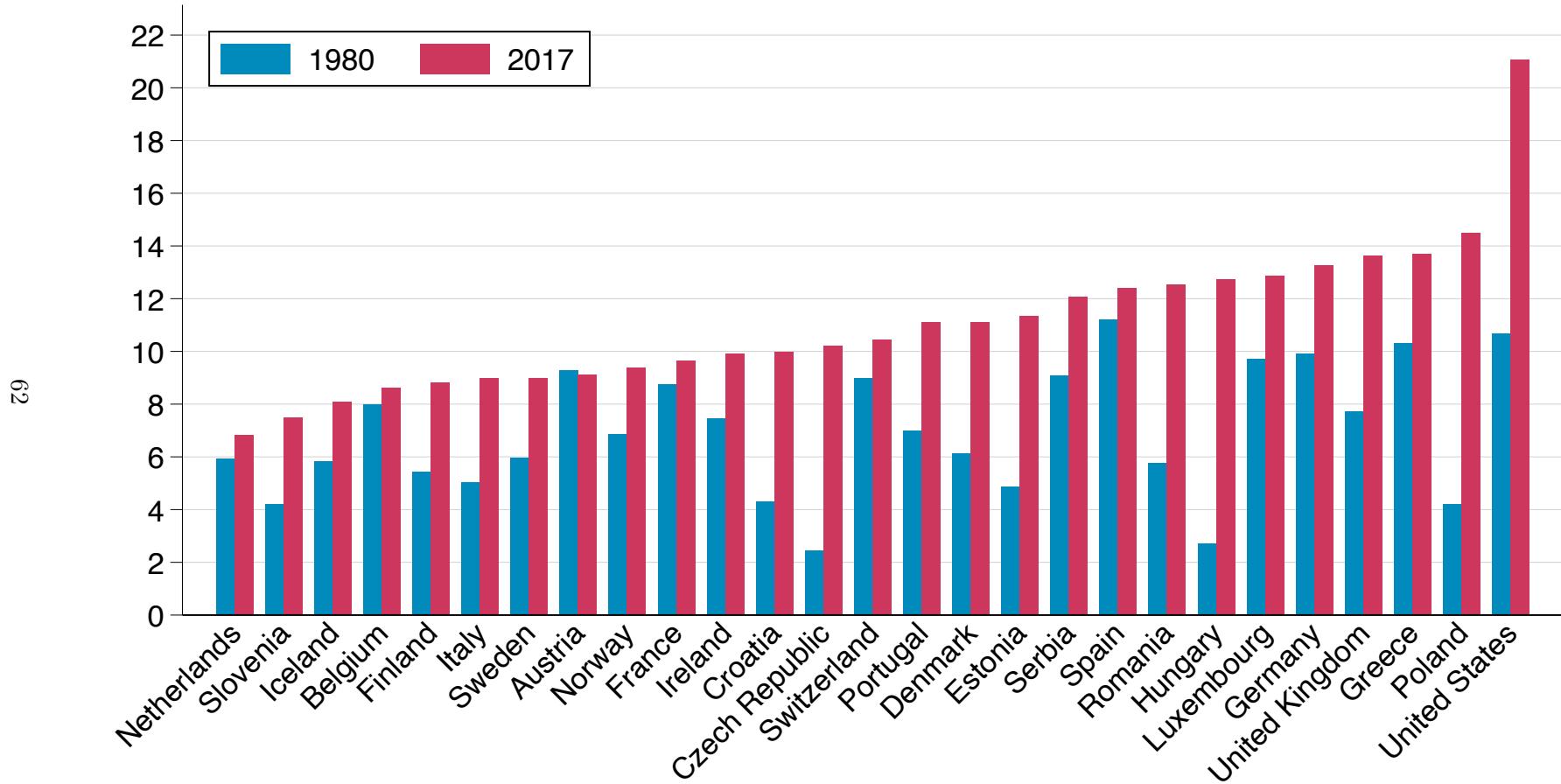
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.17**  
**Top 10% pretax income share by country: 1980 versus 2017**



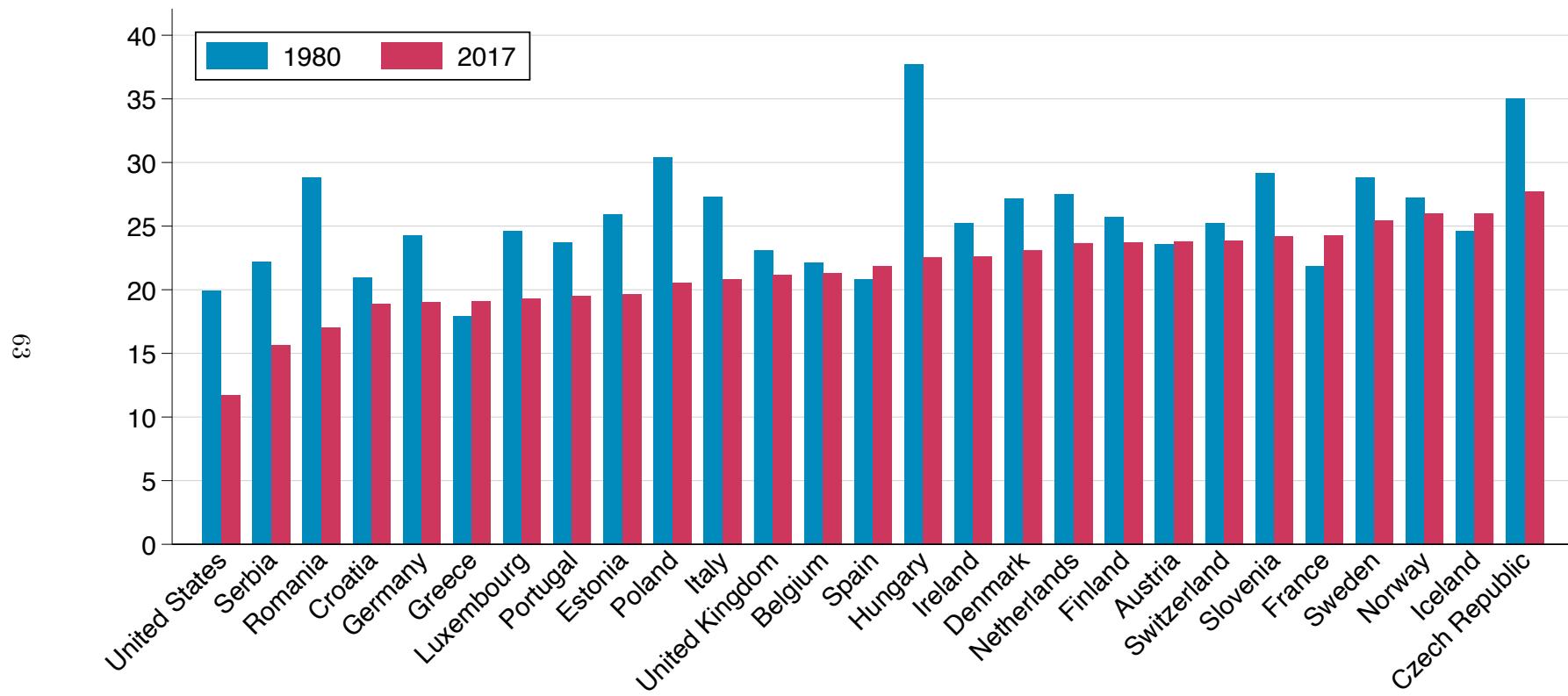
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.18**  
**Top 1% pretax income share by country: 1980 versus 2017**



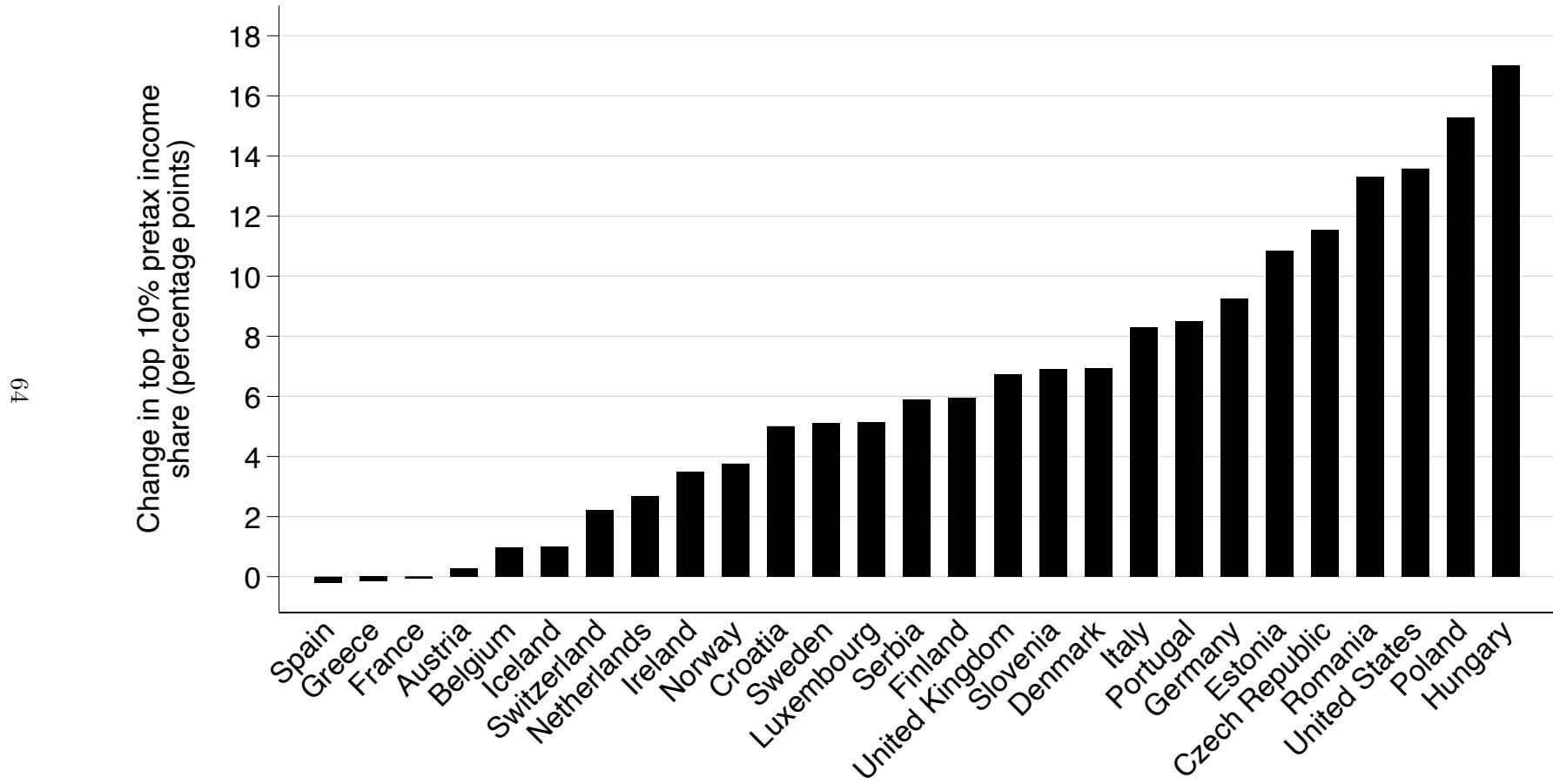
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.19**  
**Bottom 50% pretax income share by country: 1980 versus 2017**



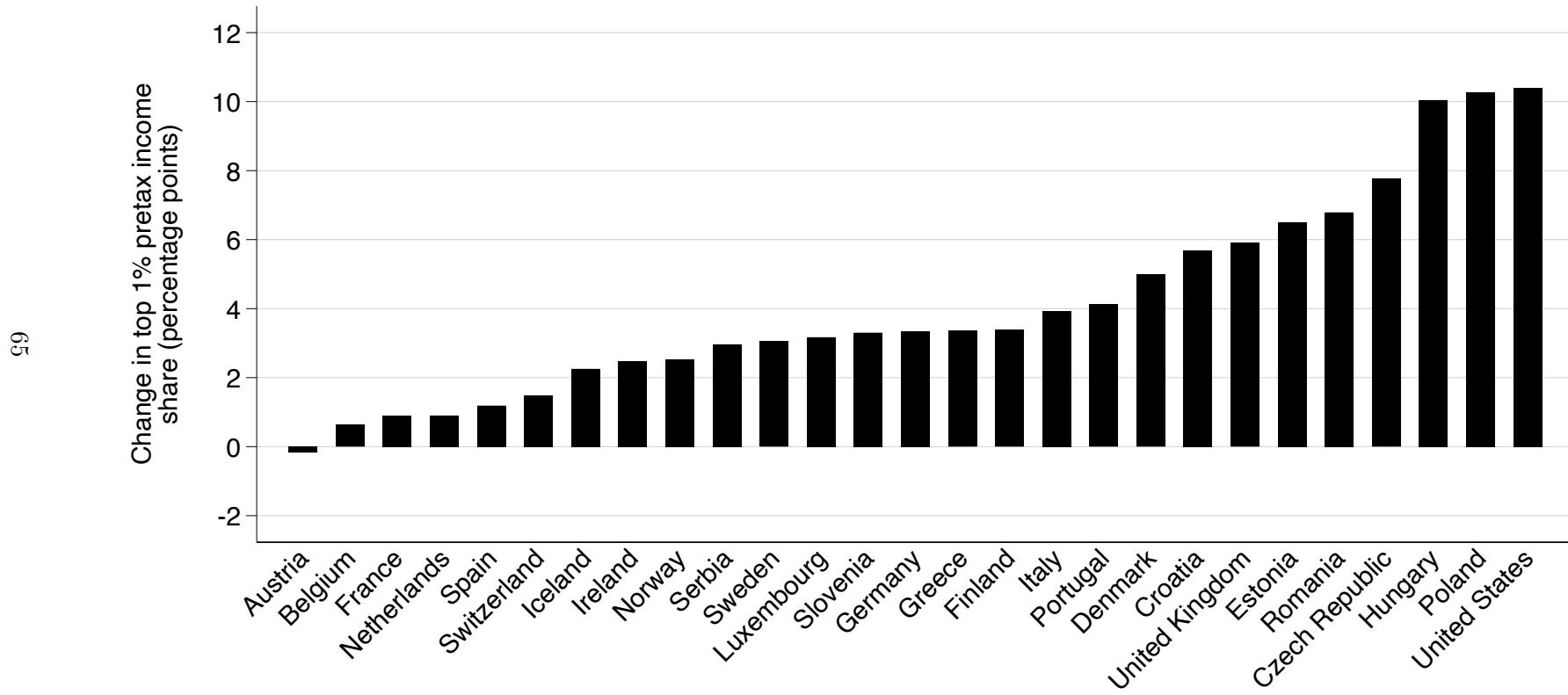
*Source:* Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.20**  
Change in top 10% pretax income share by country, 1980-2017



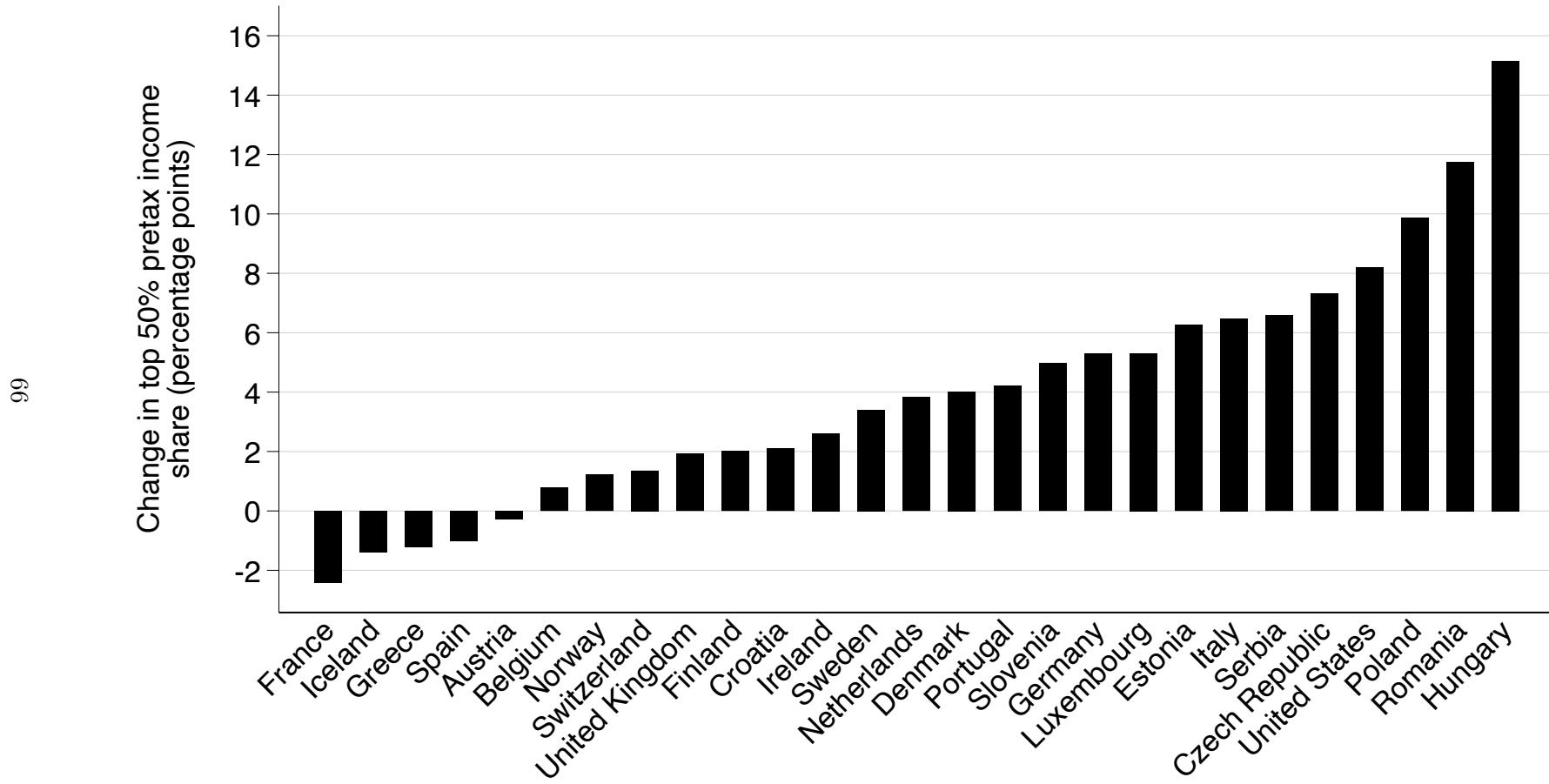
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.21**  
Change in top 1% pretax income share by country, 1980-2017



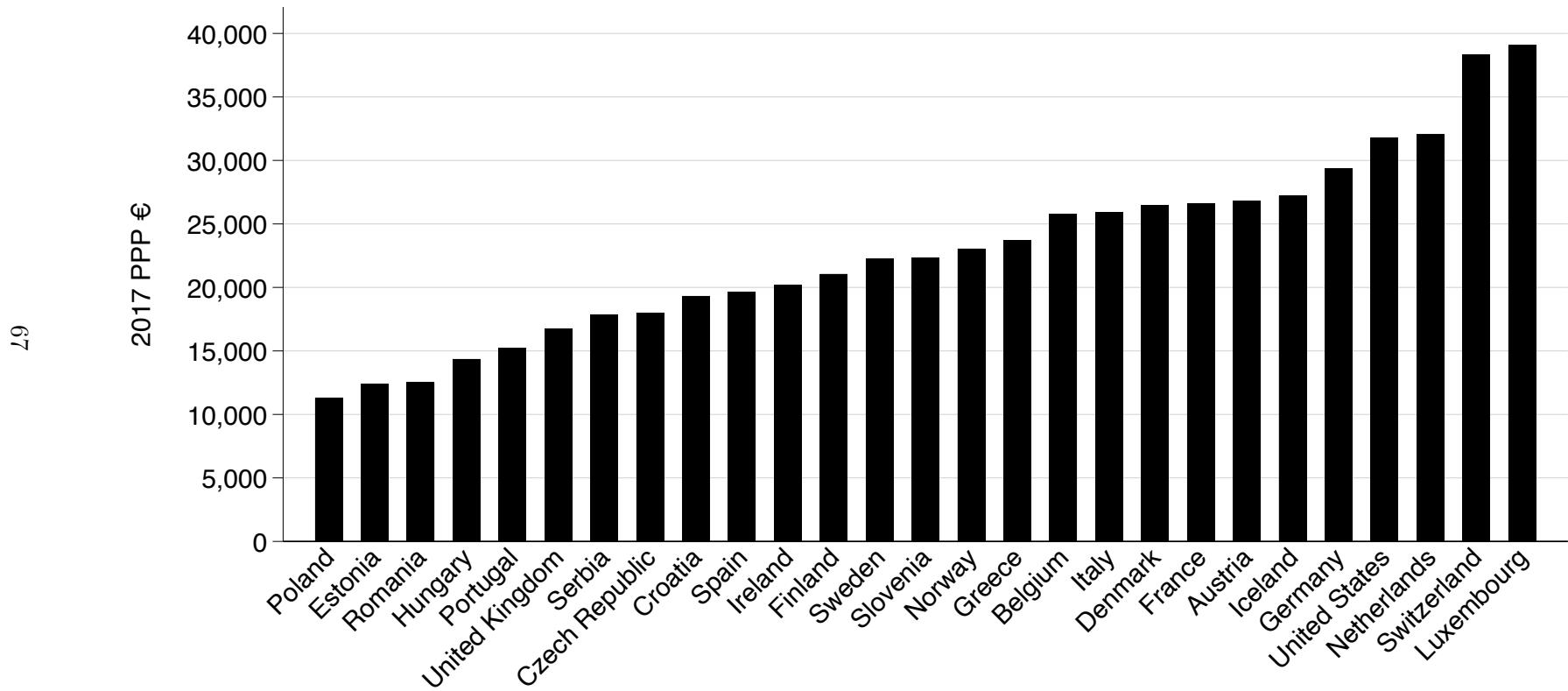
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.22**  
Change in top 50% pretax income share by country, 1980-2017



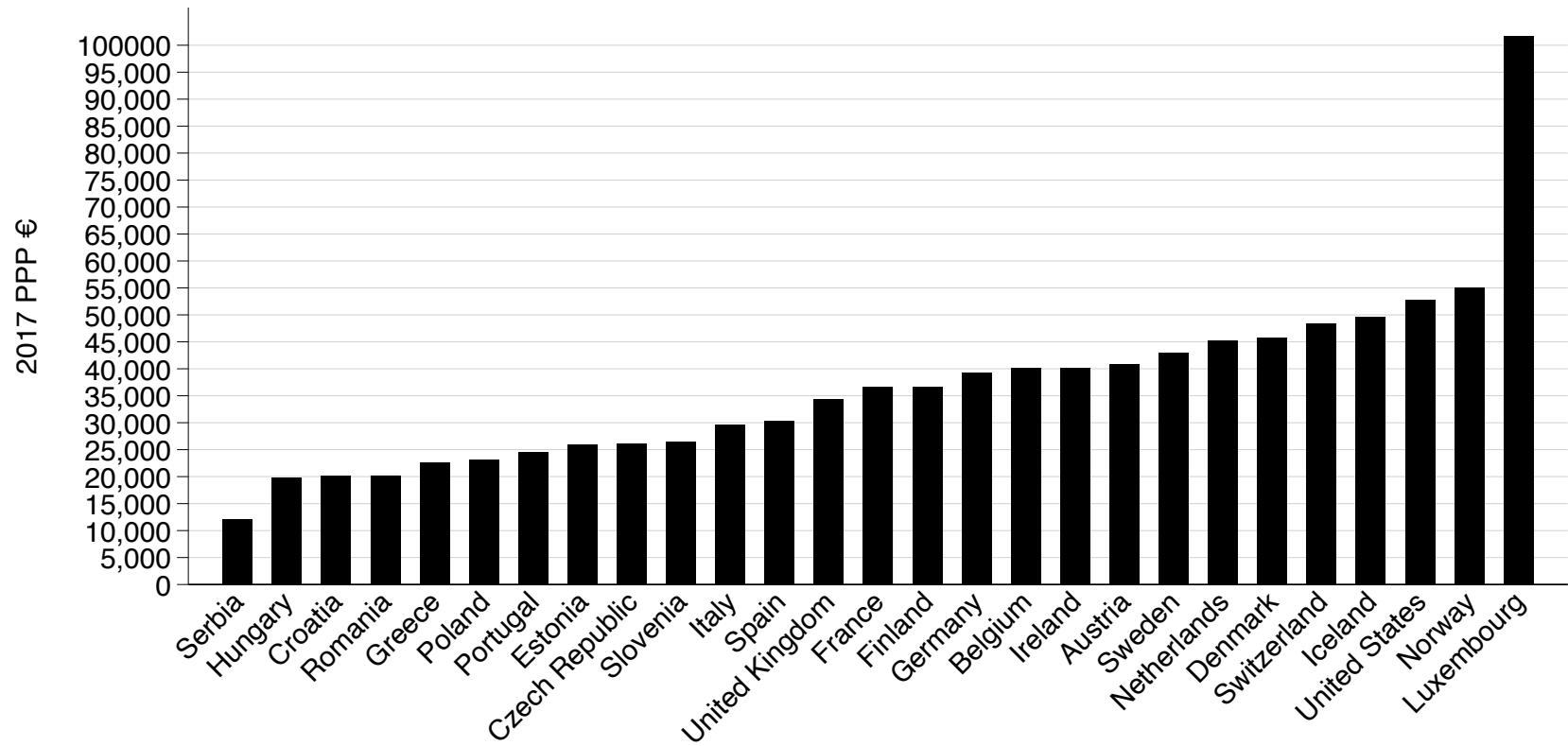
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.2.2.23**  
Average national incomes in Europe and the United States, 1980



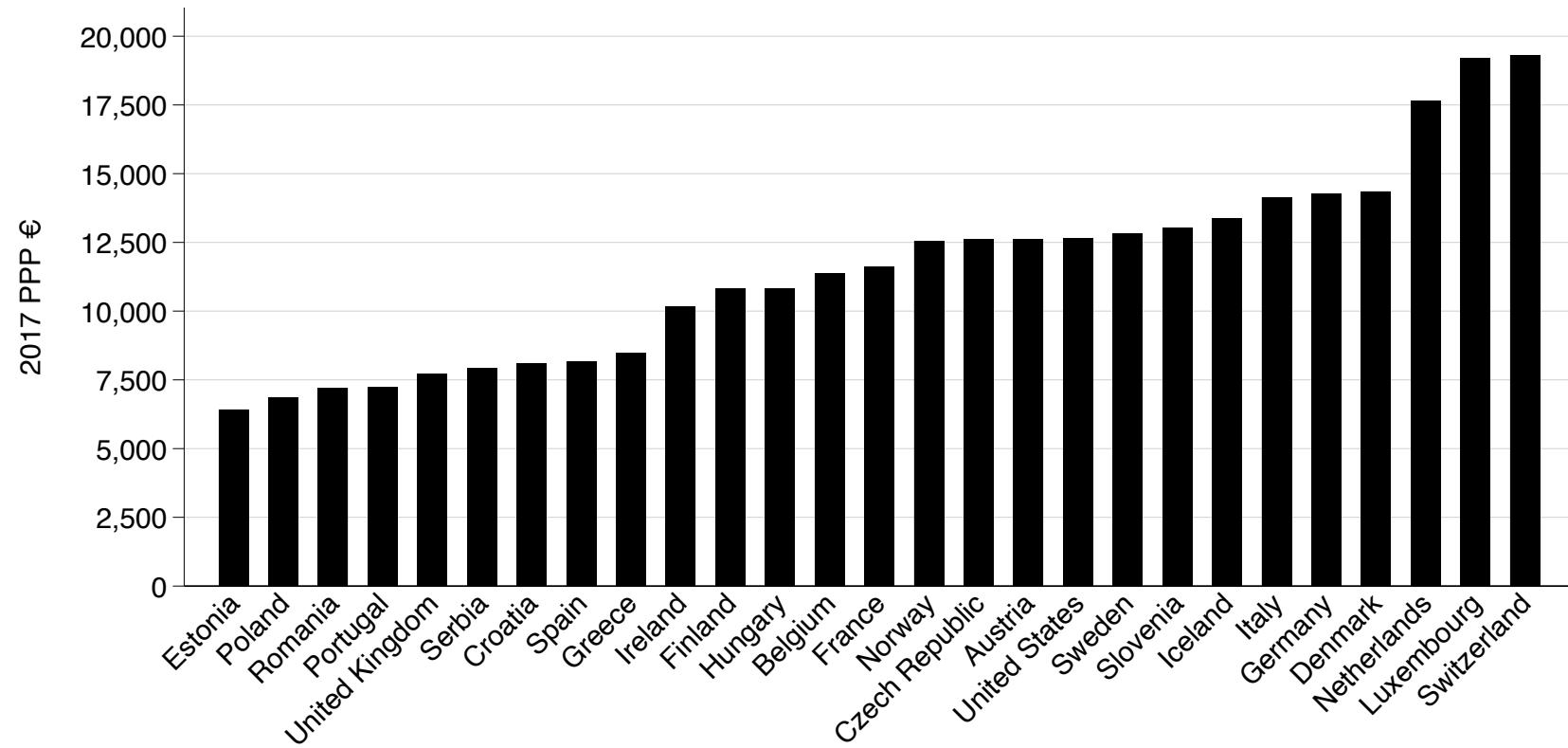
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US.

Figure A.2.2.24  
Average national incomes in Europe and the United States, 2017



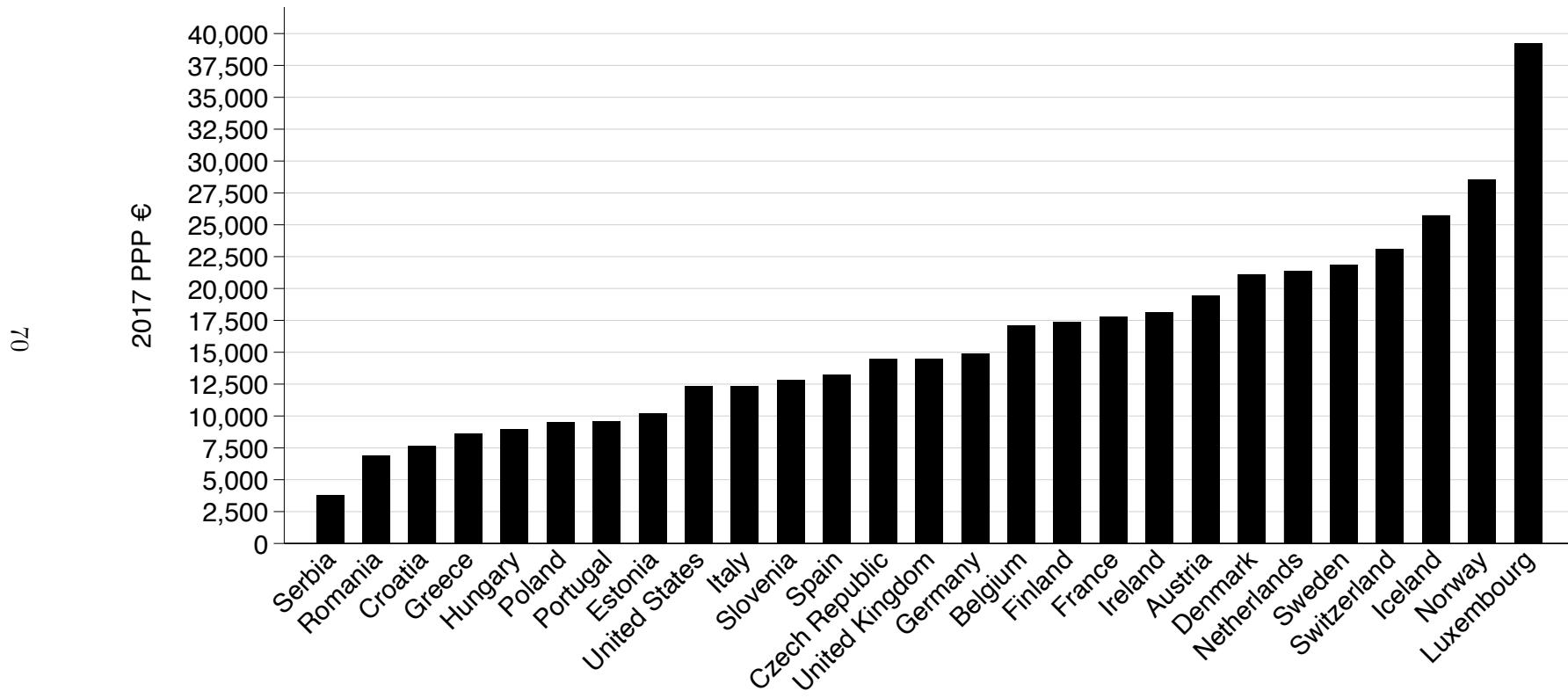
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US.

Figure A.2.2.25  
Average bottom 50% pretax incomes in Europe and the United States, 1980



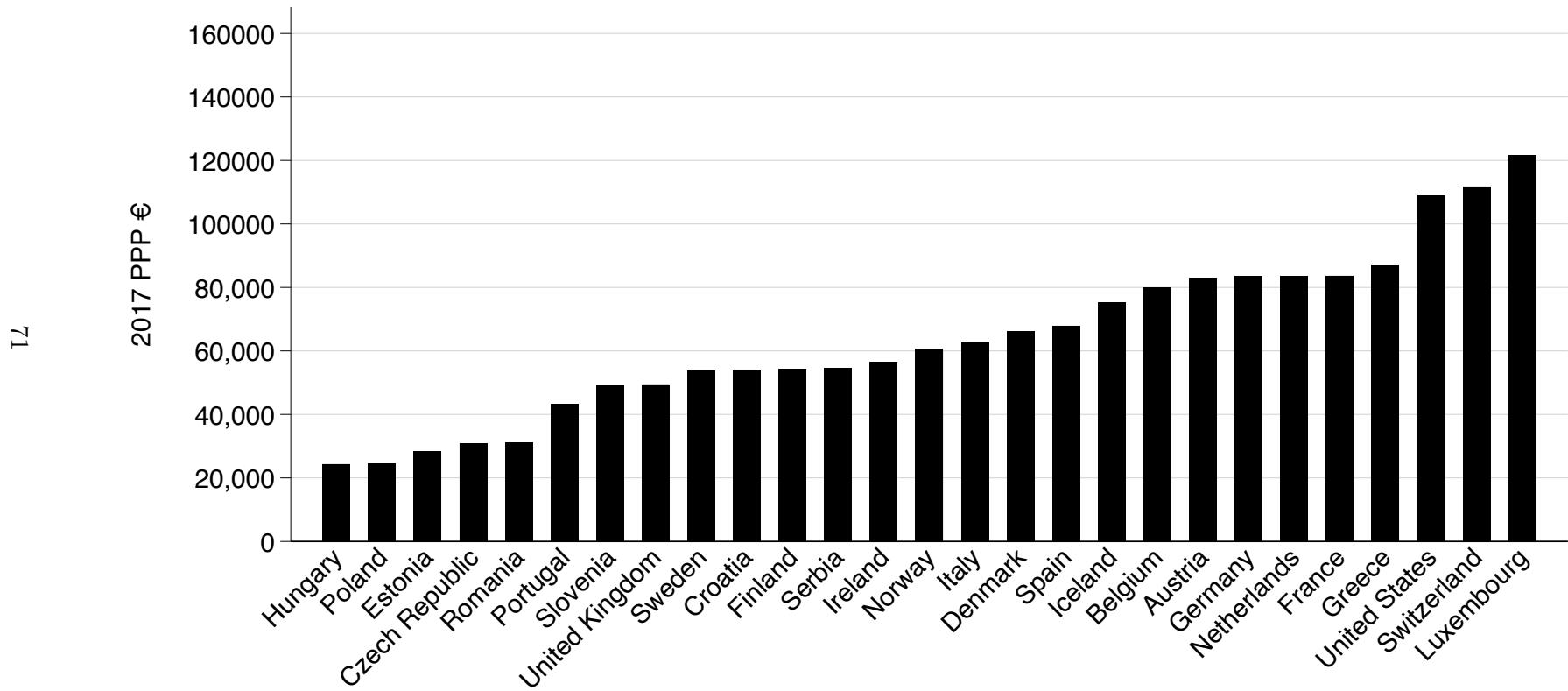
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US.

**Figure A.2.2.26**  
Average bottom 50% pretax incomes in Europe and the United States, 2017



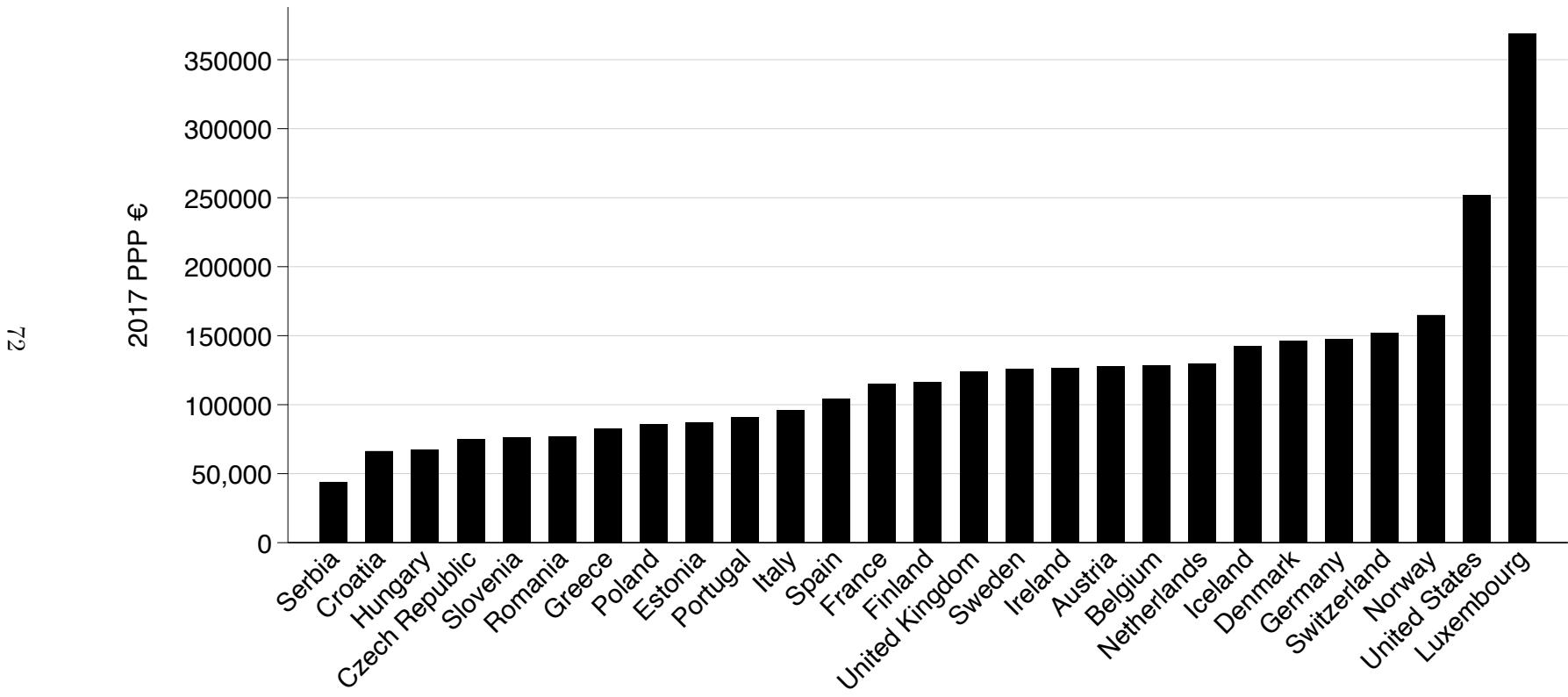
Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US.

**Figure A.2.2.27**  
Average top 10% pretax incomes in Europe and the United States, 1980



Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US.

**Figure A.2.2.28**  
Average top 10% pretax incomes in Europe and the United States, 2017

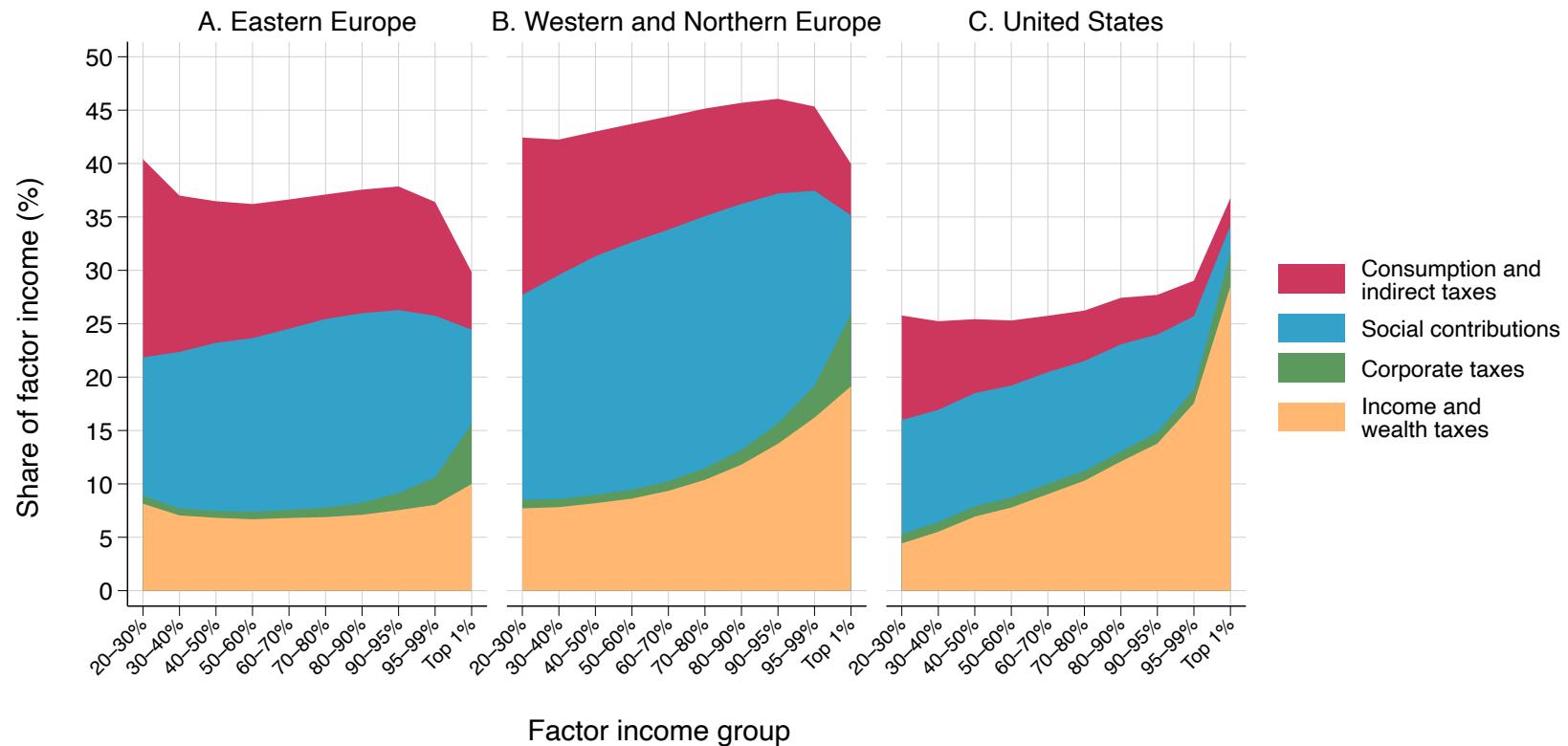


Source: Authors' computations combining surveys, tax data and national accounts for Europe; [Piketty, Saez, and Zucman, 2018](#) for the US.

## 2.3 Distribution of taxes

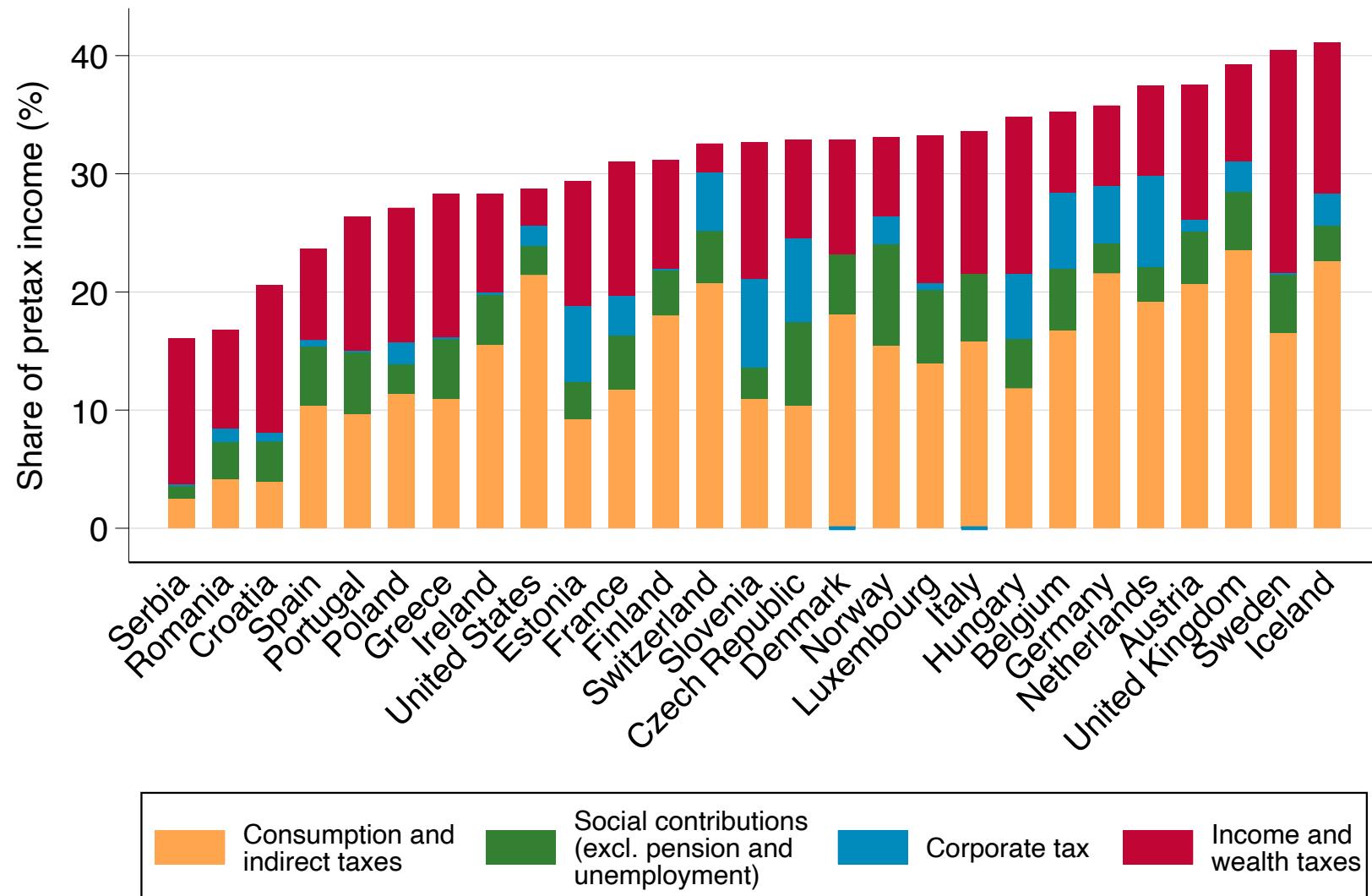
Figure A.2.3.1

Total taxes paid as a share of factor income (working-age population) in Europe and the United States



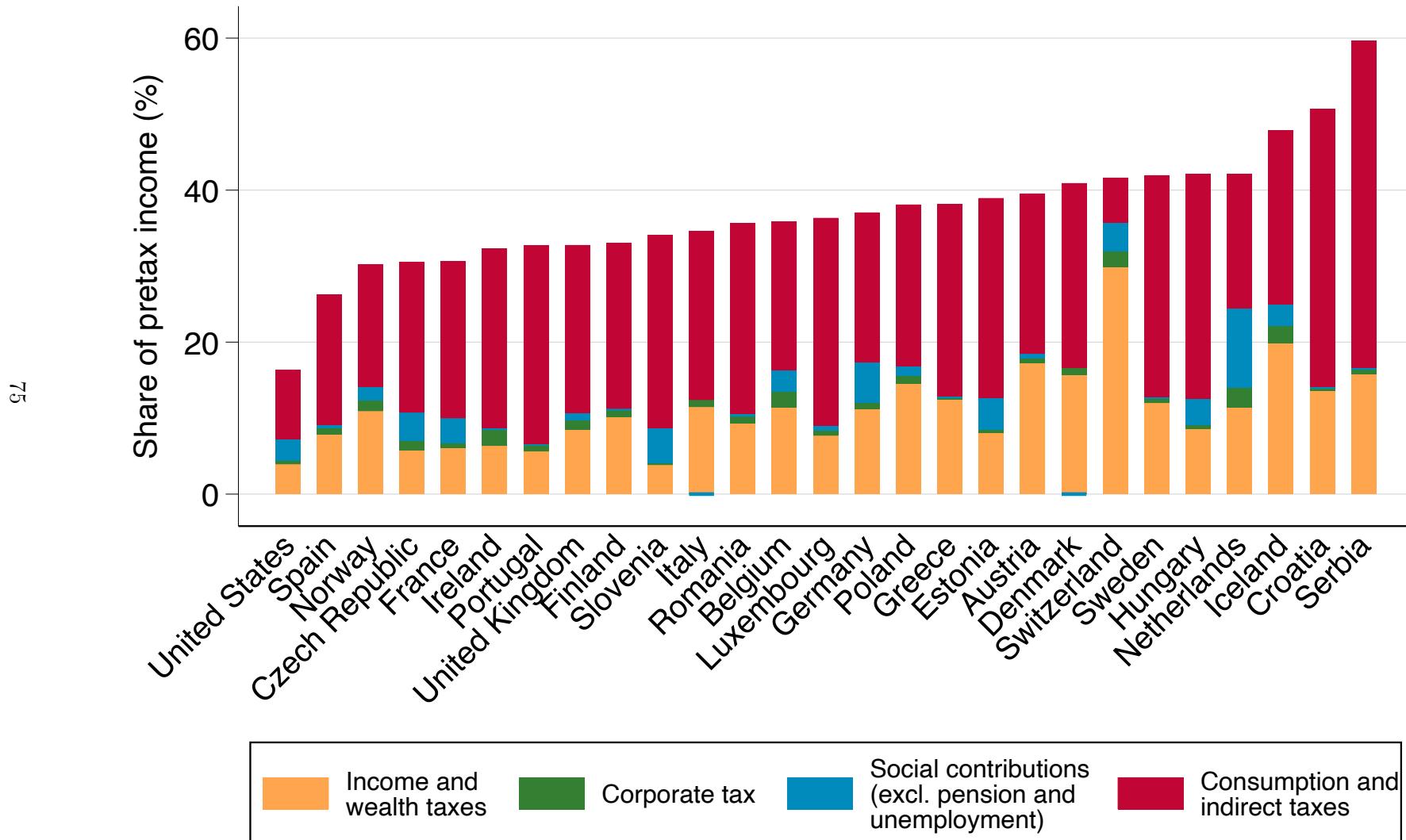
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income. The data correspond to population-weighted averages over the period 2007–2017 for Europe, and to 2017–2018 for the US. The unit of observation is the adult individual aged between 25 and 59 (working-age population). Income is split equally among spouses.

**Figure A.2.3.2**  
**Effective tax rate of the top 10% by country (non-contributory taxes, % of pretax income)**



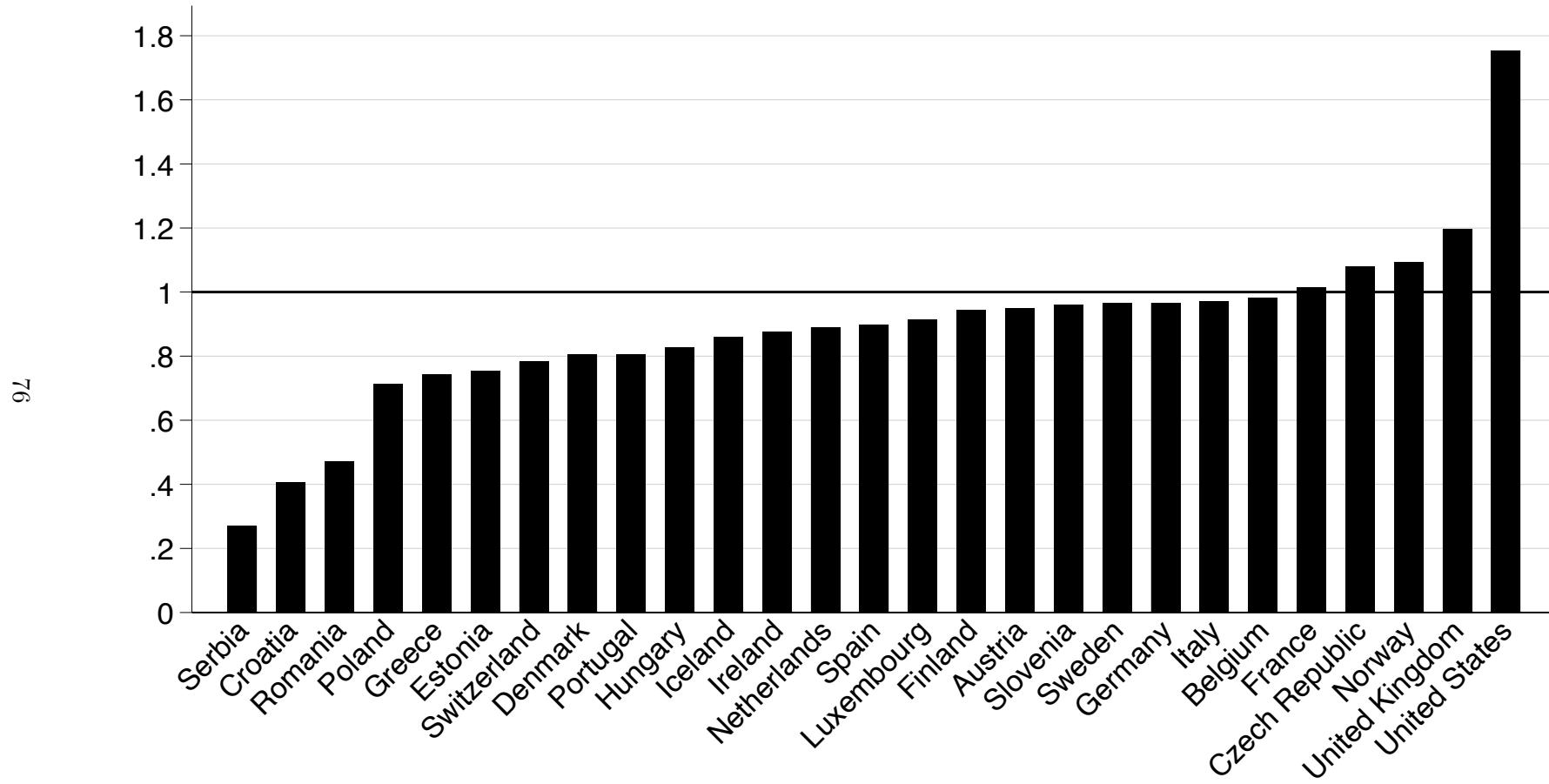
Source: Authors' computations combining surveys, tax data and national accounts. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Average over the 2007-2017 period.

**Figure A.2.3.3**  
**Effective tax rate of the bottom 50% by country (non-contributory taxes, % of pretax income)**



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Average over the 2007-2017 period.

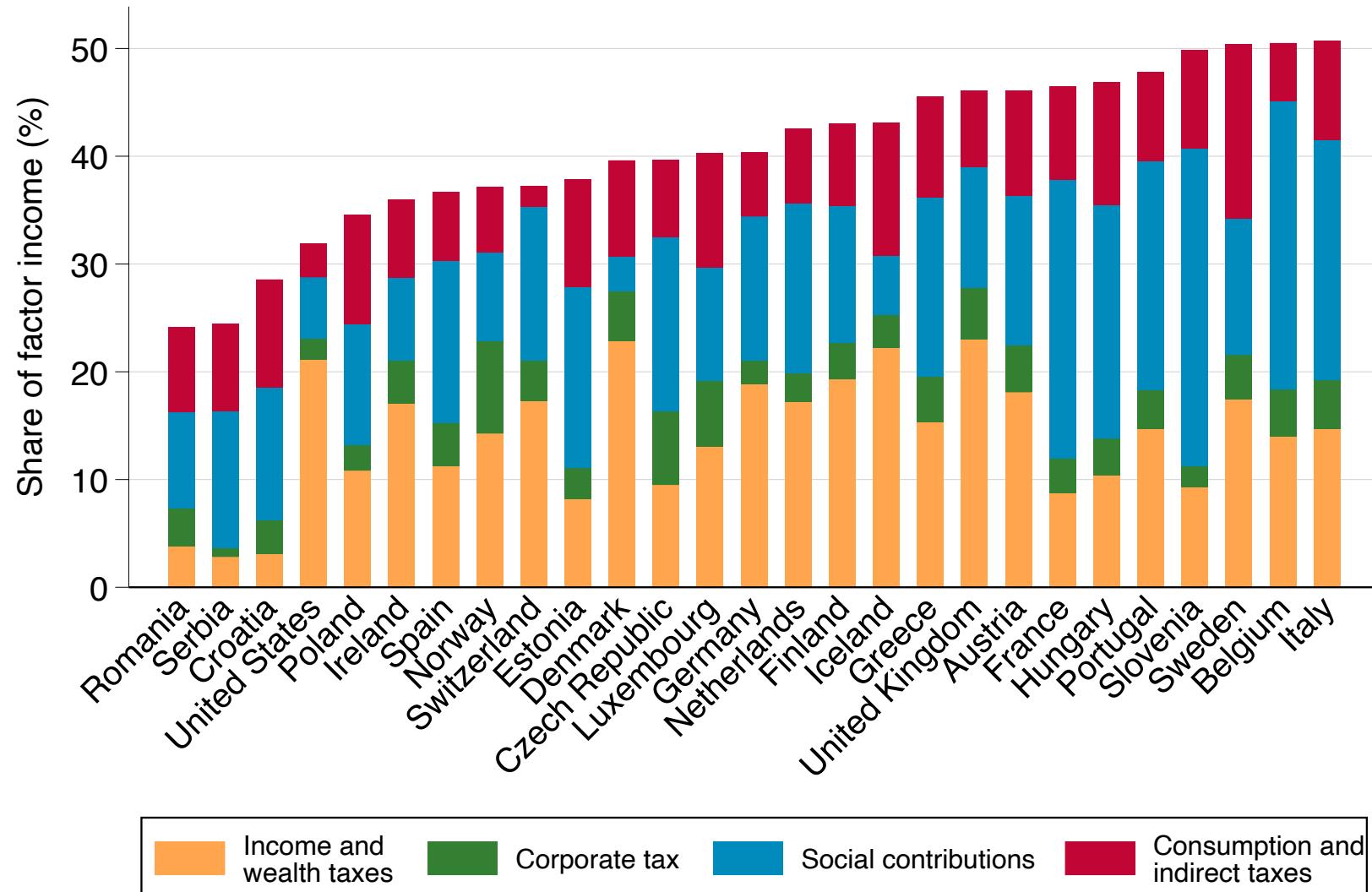
**Figure A.2.3.4**  
**Ratio of top 10% to bottom 50% effective tax rates by country (non-contributory taxes, % of pretax income)**



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Average over the 2007-2017 period.

Figure A.2.3.5

Effective tax rate of the top 10% by country (all taxes, % of factor income, working-age population)

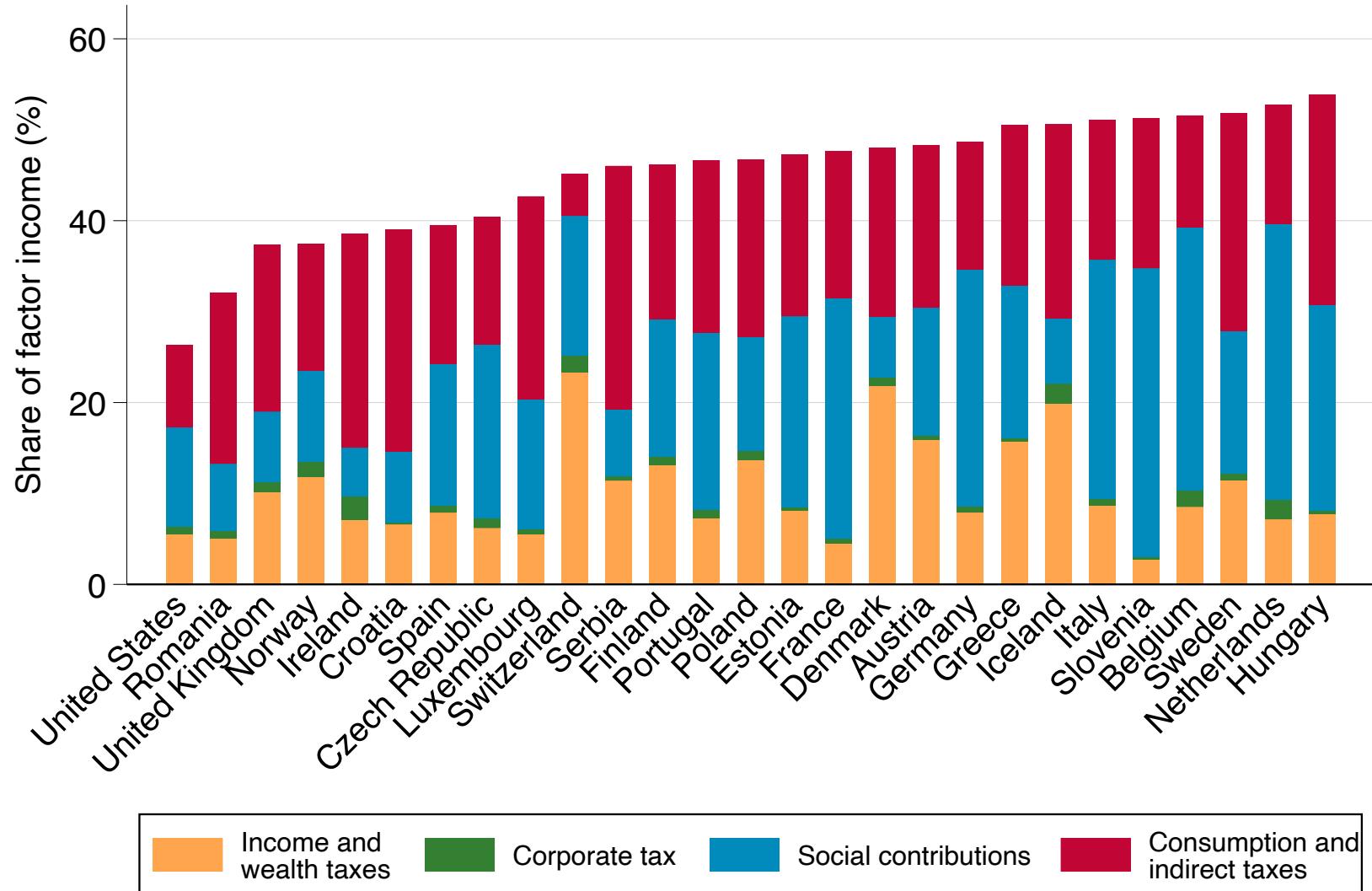


Source: Authors' computations combining surveys, tax data and national accounts. Notes: The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses. Average over the 2007-2017 period.

Figure A.2.3.6

Effective tax rate of the bottom 50% by country (all taxes, % of factor income, working-age population)

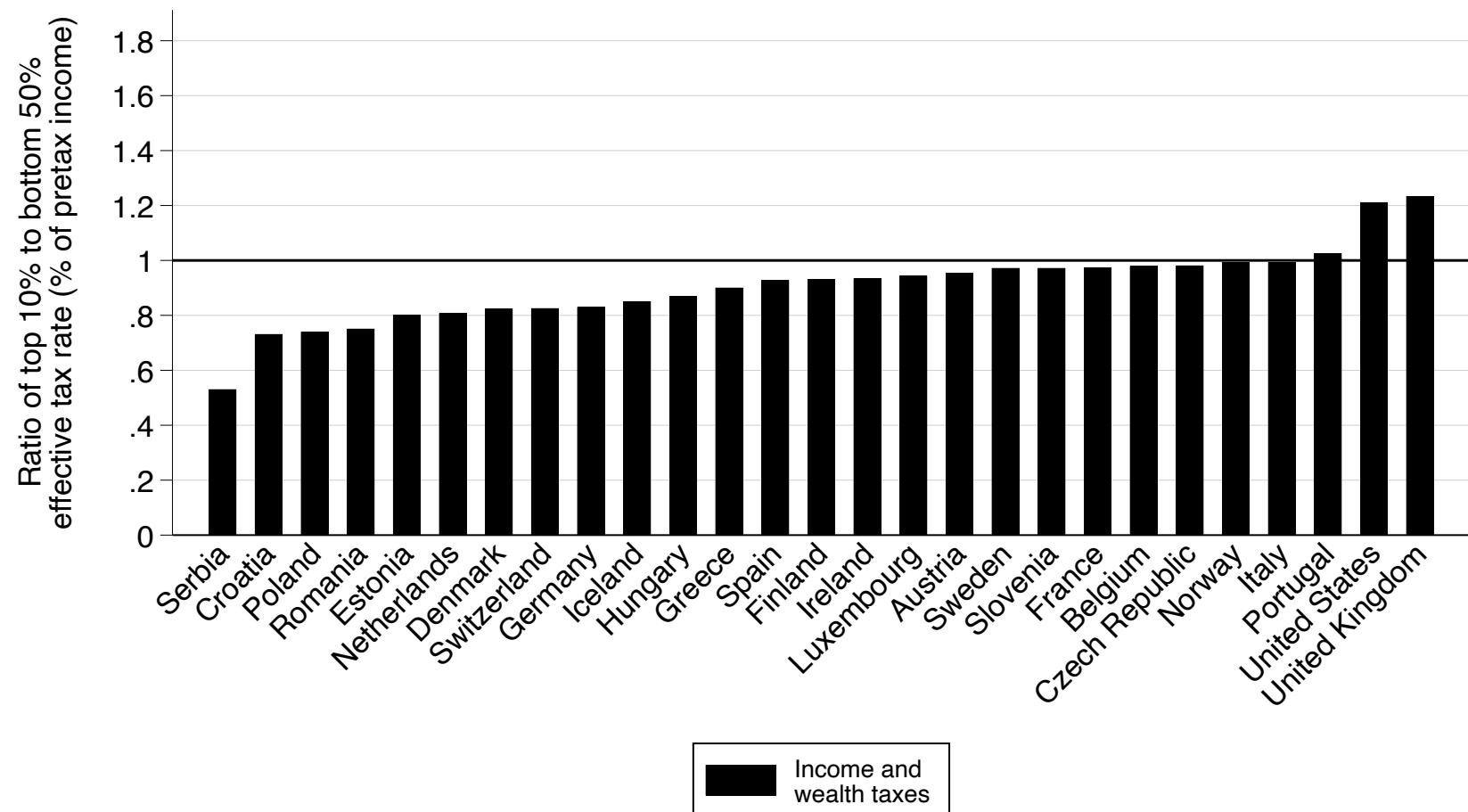
82



Source: Authors' computations combining surveys, tax data and national accounts. Notes: The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses. Average over the 2007-2017 period.

**Figure A.2.3.7**  
**Ratio of top 10% to bottom 50% effective tax rates by country (all taxes, % of factor income, working-age population)**

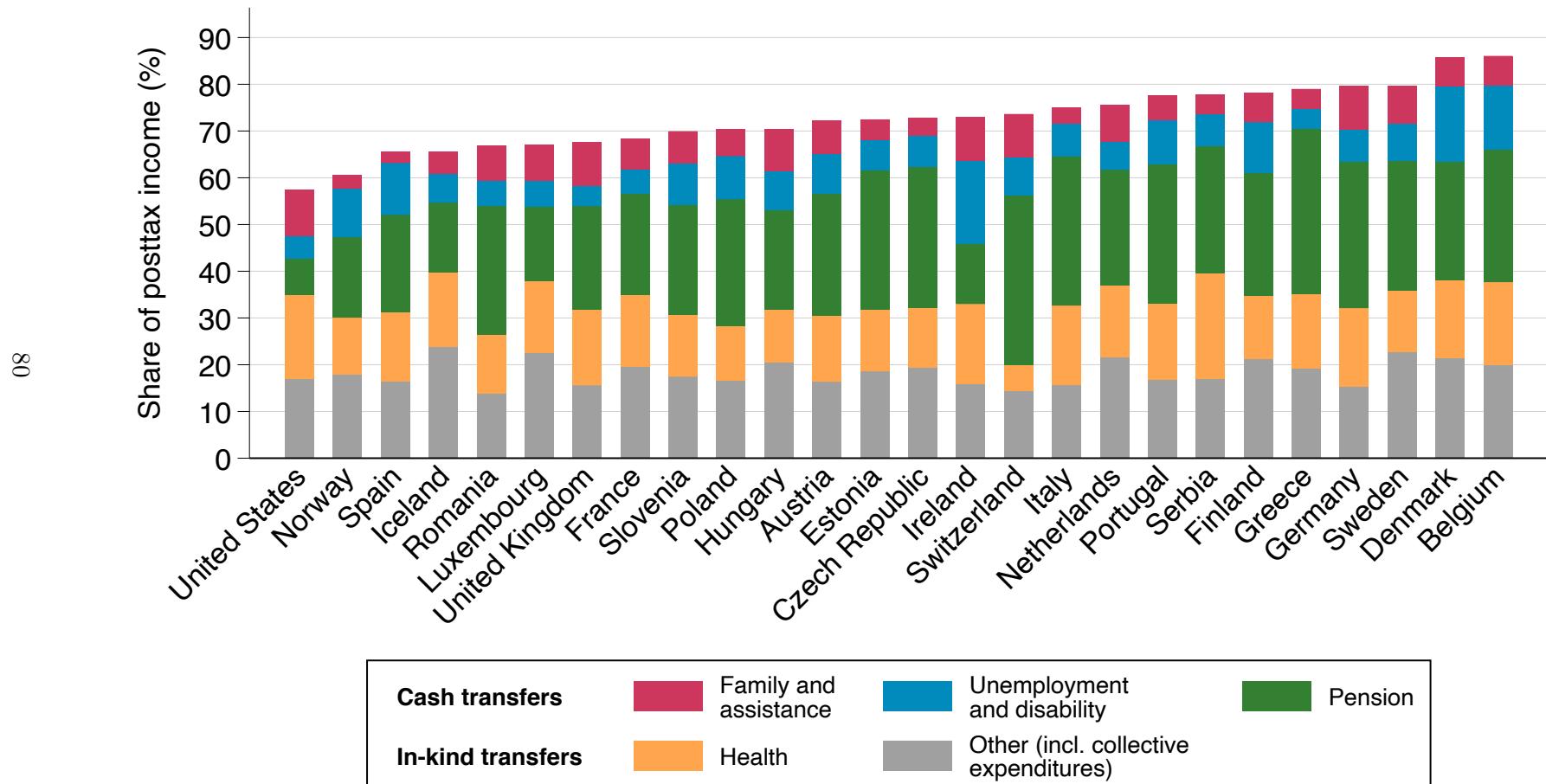
62



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses. Average over the 2007-2017 period.

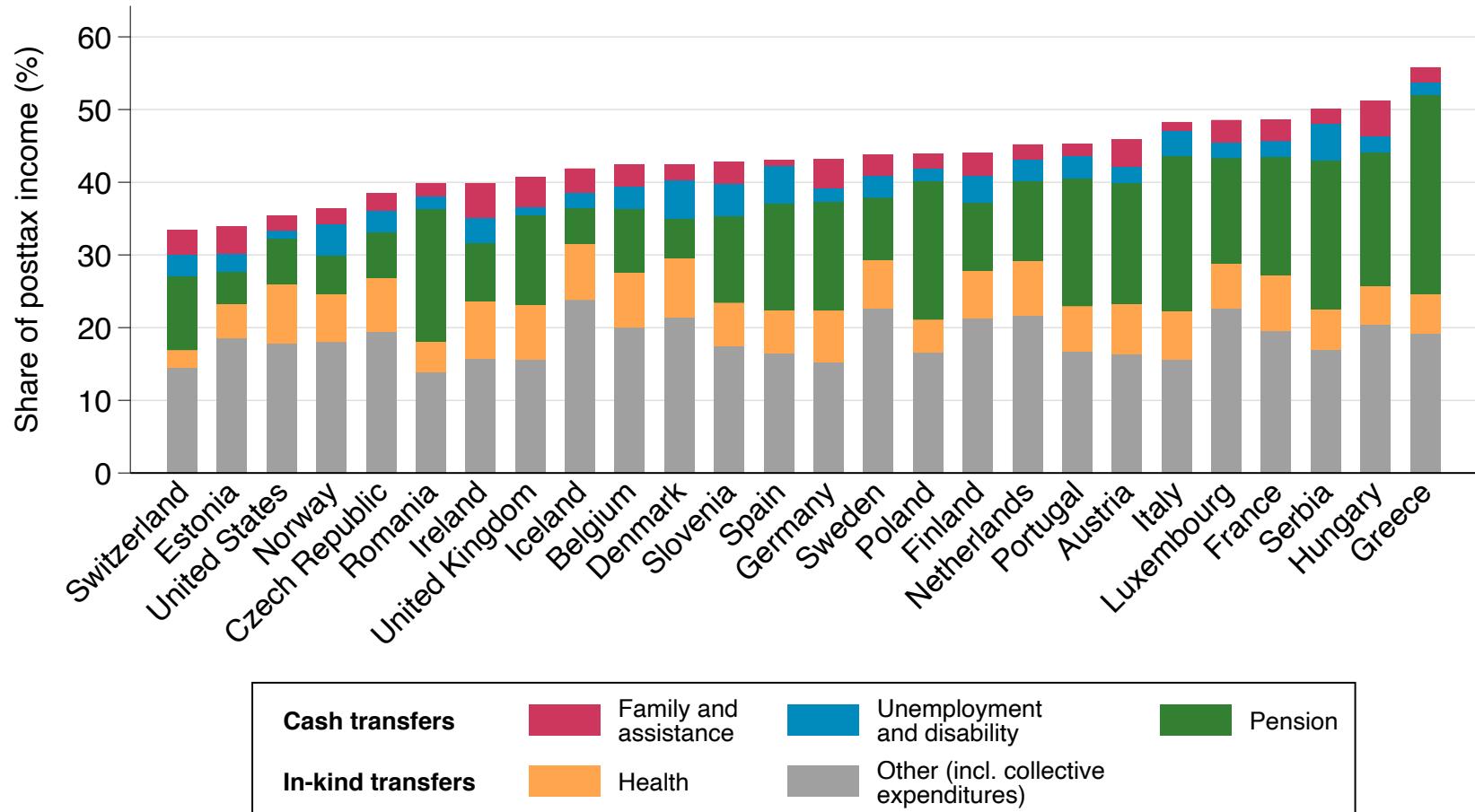
## 2.4 Distribution of transfers

**Figure A.2.4.1**  
**Total transfers received by the bottom 50% by country (% of posttax income)**



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Average over the 2007-2017 period.

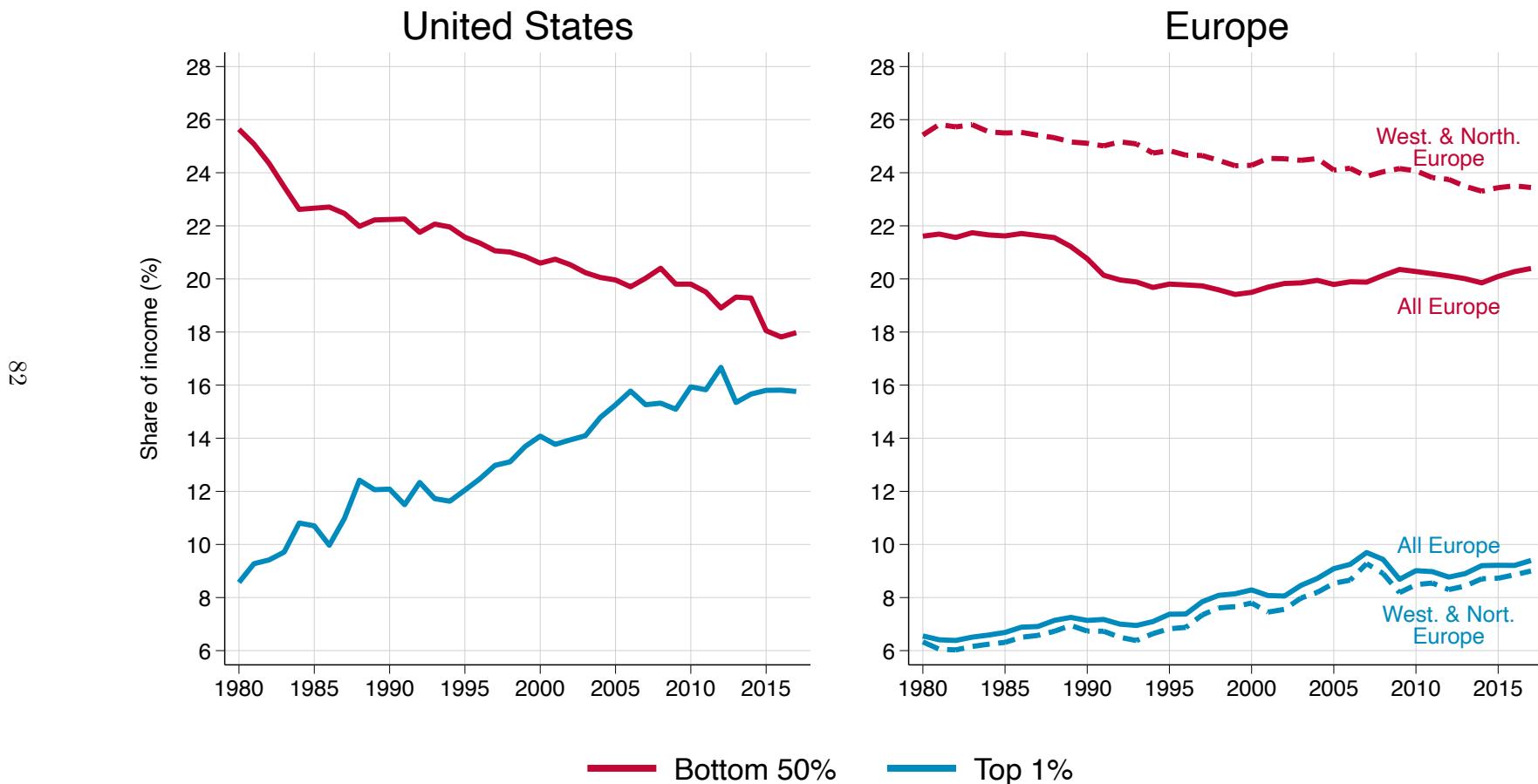
**Figure A.2.4.2**  
**Total transfers received by the middle 40% by country (% of posttax income)**



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Average over the 2007-2017 period.

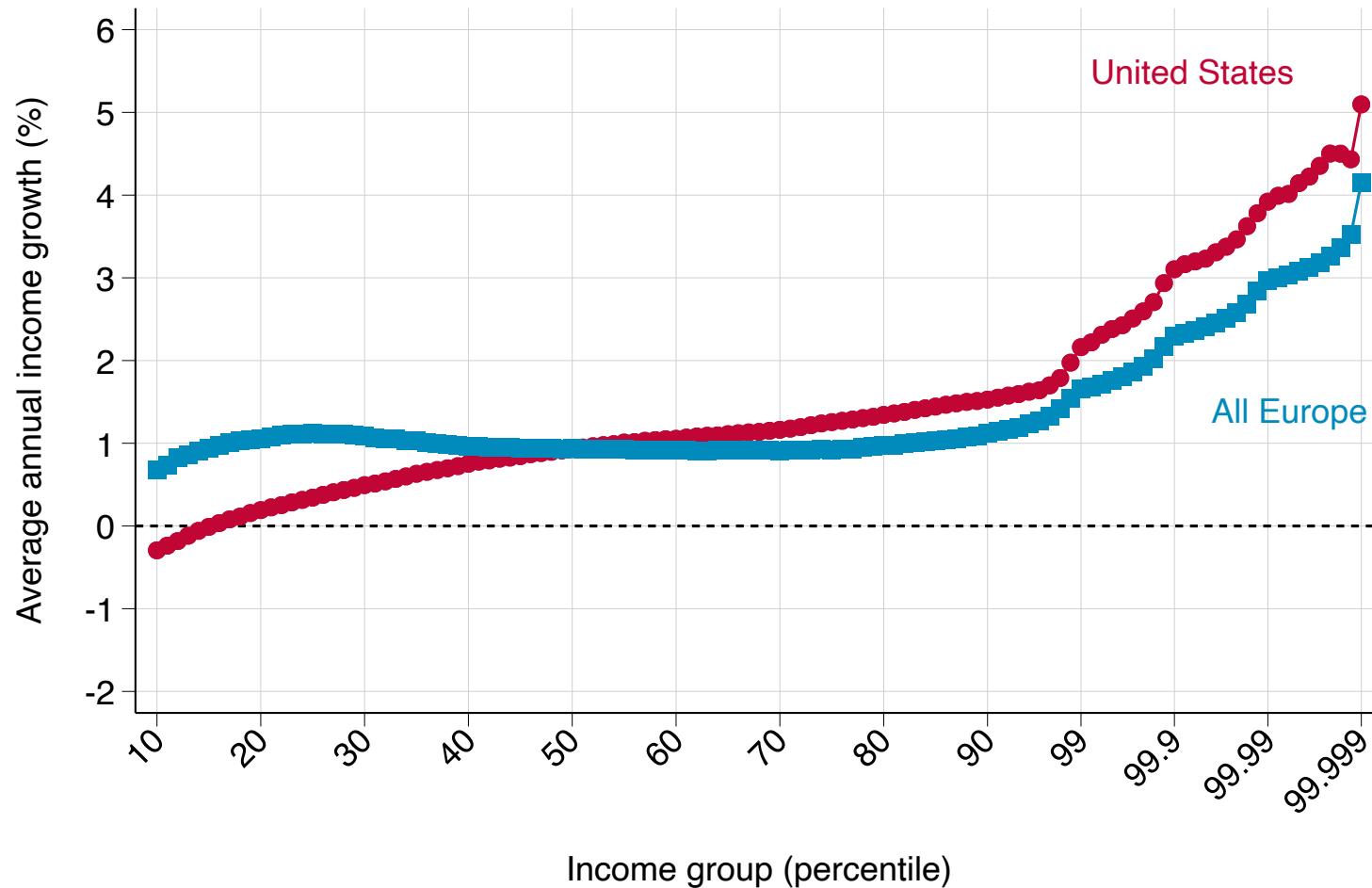
## 2.5 Distribution of posttax income

**Figure A.2.5.1**  
 Top 1% and Bottom 50% posttax income shares in Europe and the US



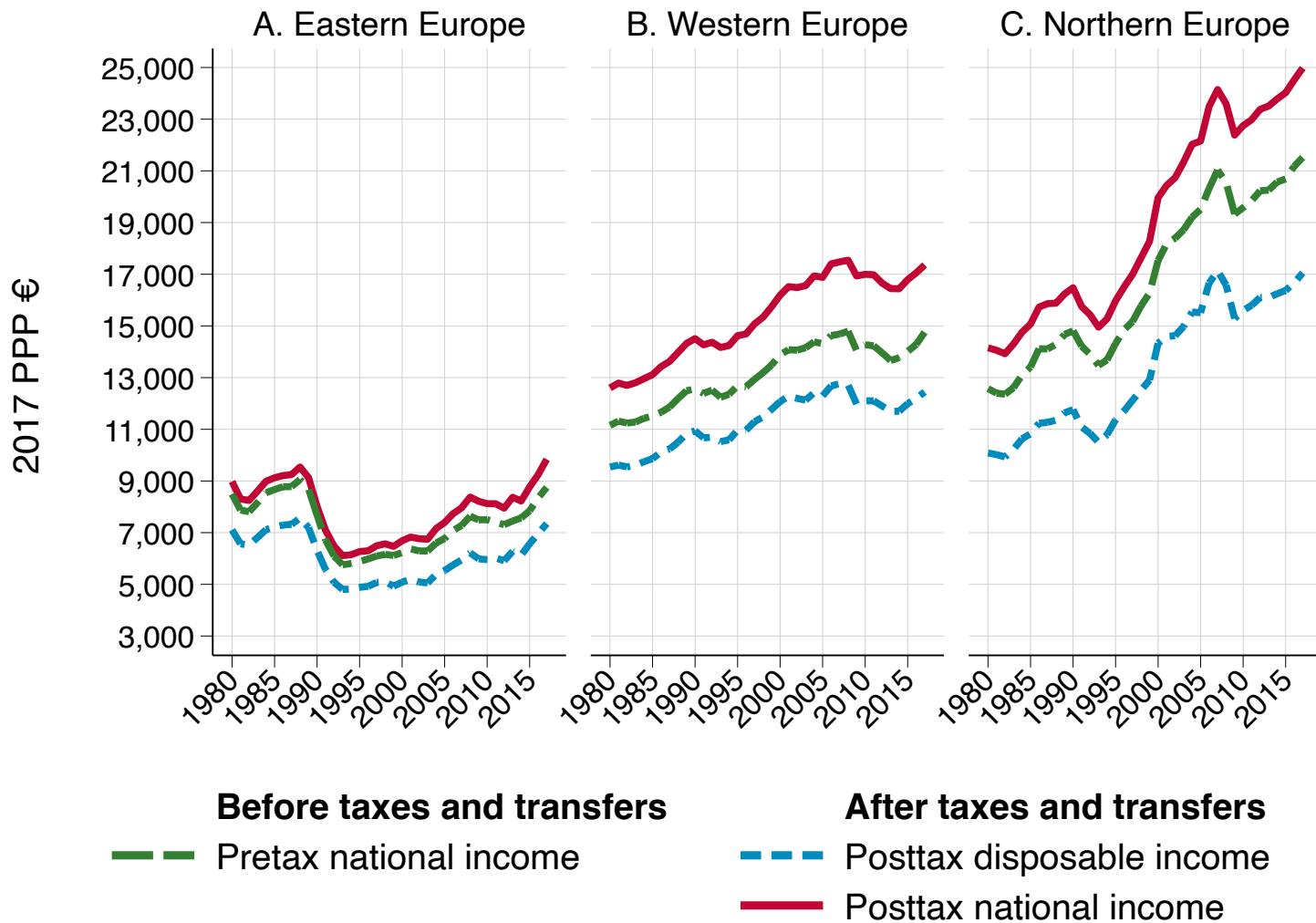
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The figure compares the share of posttax income received by the bottom 50% to that received by the top 1% of the regional population. Figures for the US come from [Piketty, Saez, and Zucman \(2018\)](#). Figures for Europe are aggregated using market exchange rates. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. See Table A.2.7.1 for the composition of European regions.

**Figure A.2.5.2**  
**Average annual posttax income growth by percentile, 1980-2017**



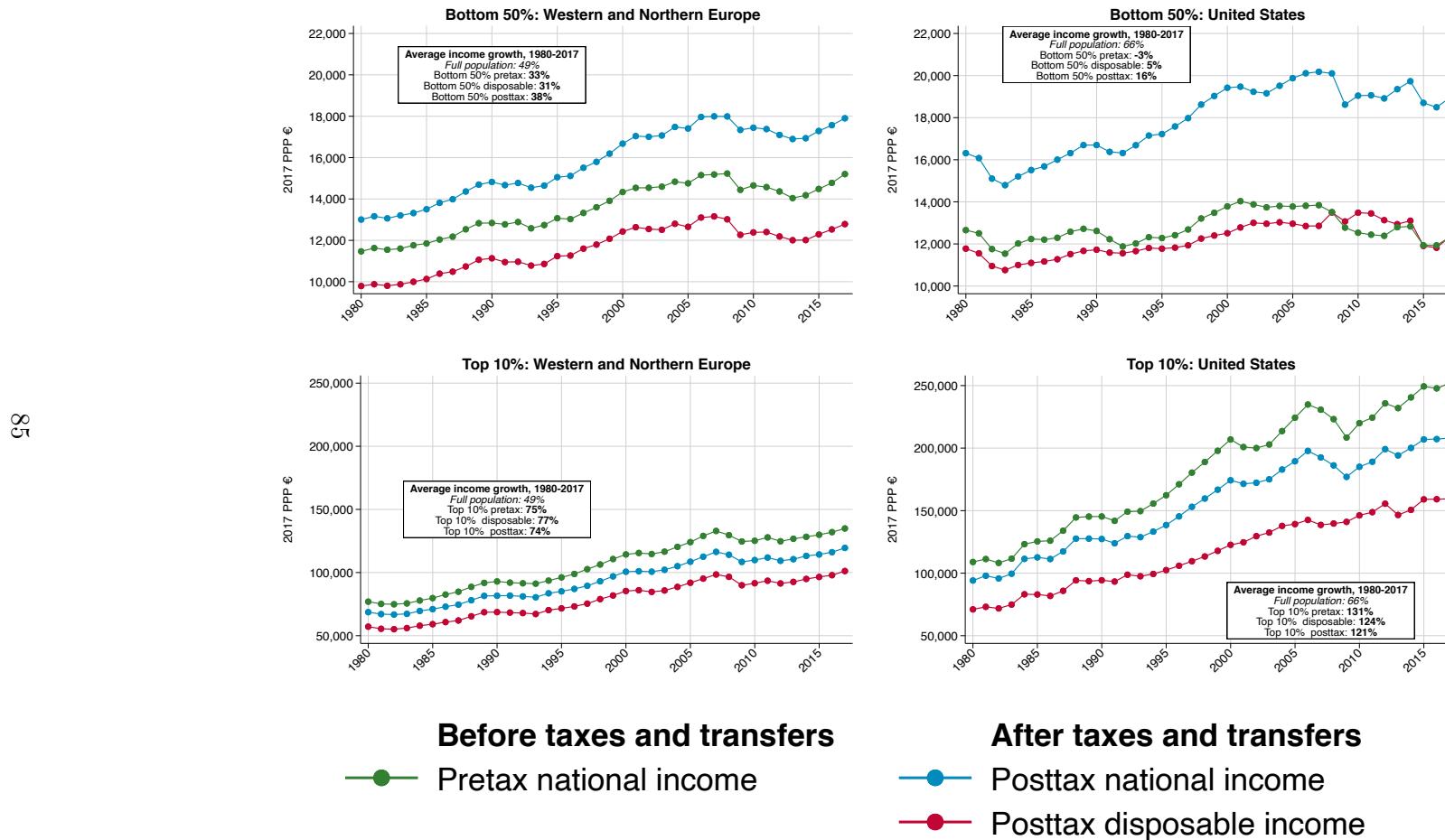
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The figure plots the average annual posttax income growth rate by percentile, with a further decomposition of the top percentile. Figures for the US come from [Piketty, Saez, and Zucman \(2018\)](#). Figures for Europe are aggregated using market exchange rates. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. See Table [A.2.7.1](#) for the composition of European regions.

**Figure A.2.5.3**  
**Bottom 50% incomes in Europe, 1980-2017**



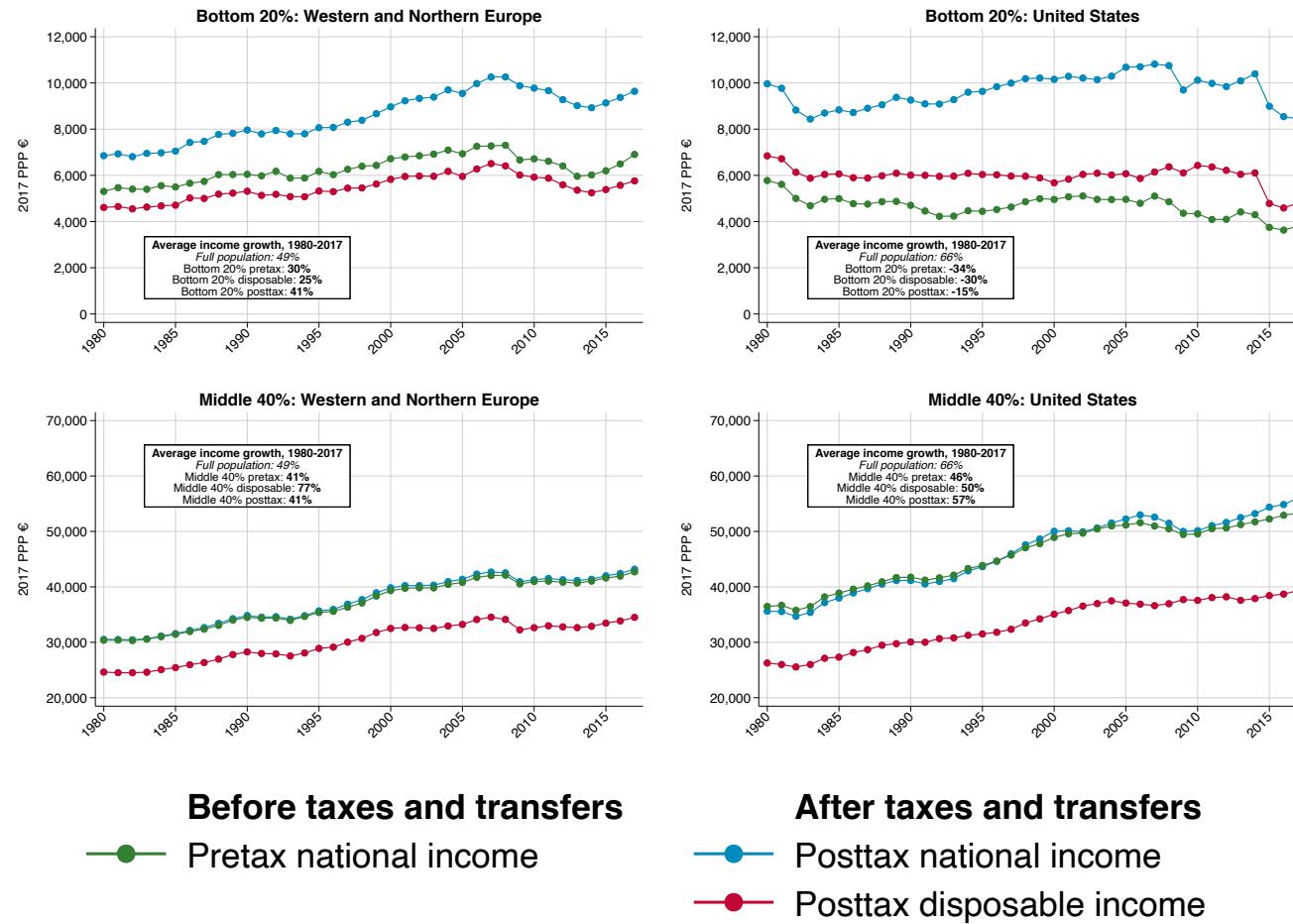
*Source:* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* Incomes are measured at Purchasing Power Parity in real 2017 Euros. PPP Euro 1 = PPP\$ 1.3. The unit of observation is the adult individual aged 20. See Table A.2.7.1 for the composition of European regions.

**Figure A.2.5.4**  
**Bottom 50% and Top 10% real incomes in Europe and the US, 1980-2017**



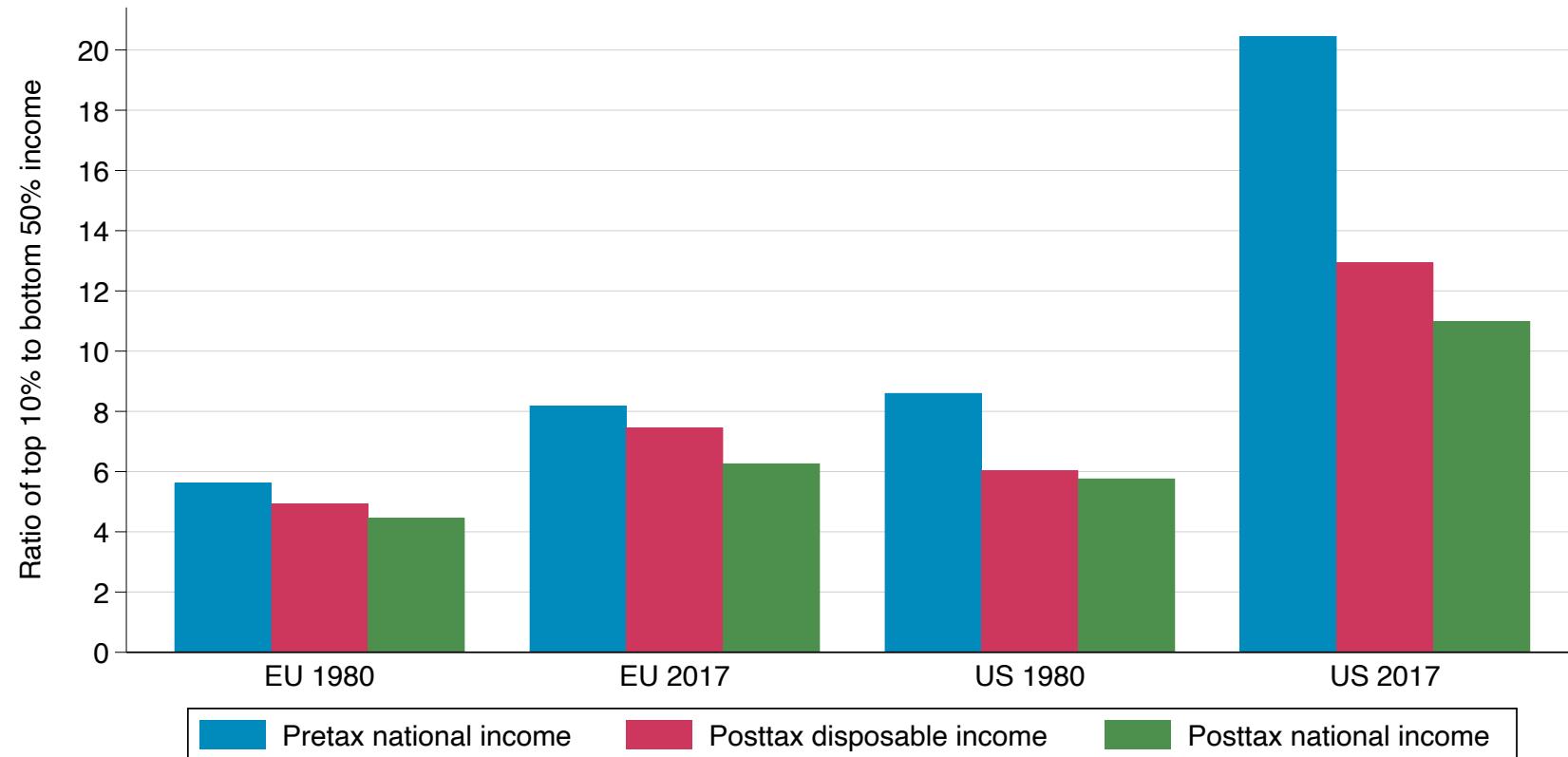
*Source:* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* Incomes are measured at Purchasing Power Parity in real 2017 Euros. PPP €1 = PPP\$ 1.3. The unit of observation is the adult individual aged 20. See Table A.2.7.1 for the composition of European regions.

**Figure A.2.5.5**  
**Middle 40% and Bottom 20% incomes in Europe and the US, 1980-2017**



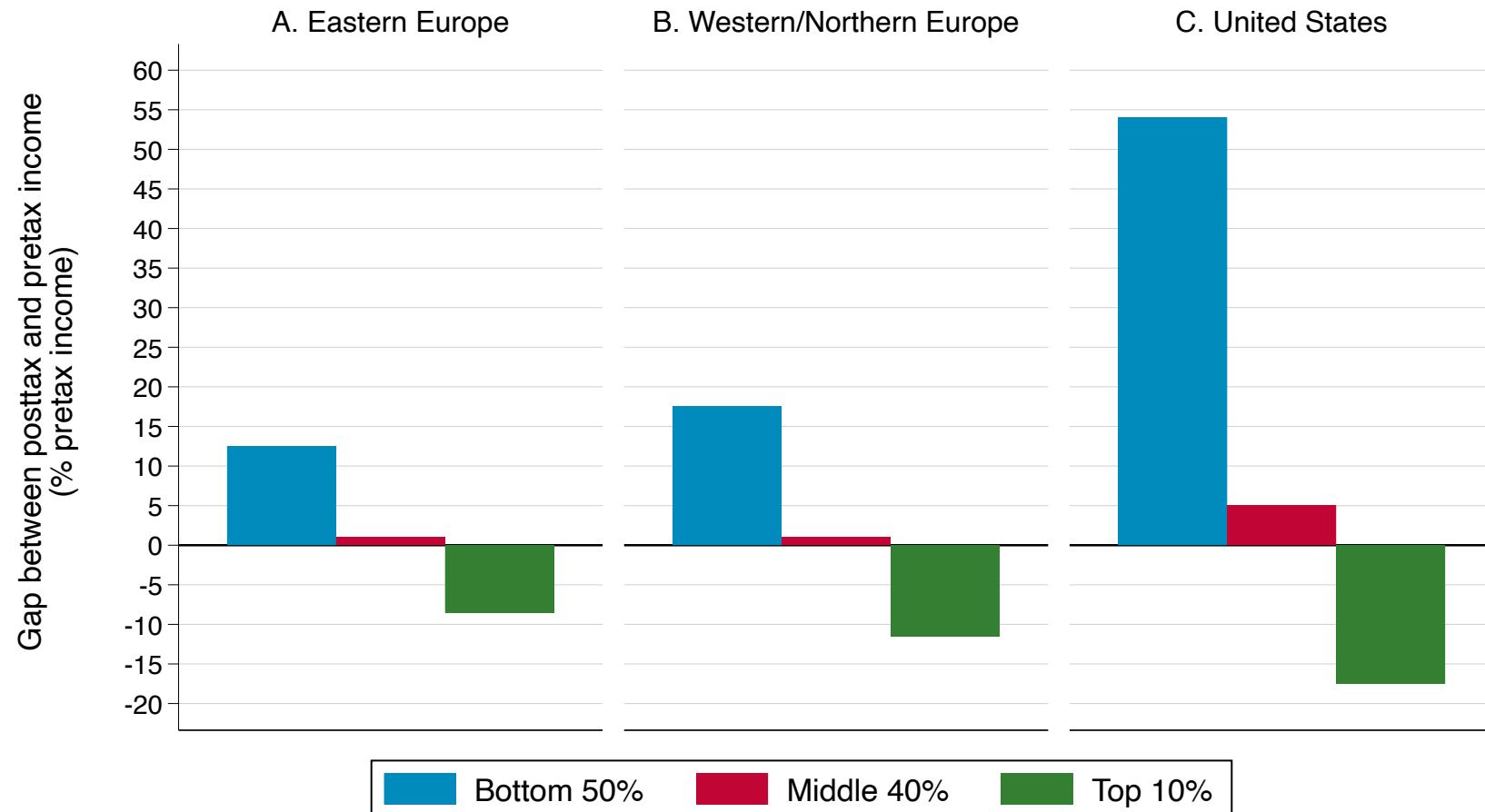
*Source:* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* Incomes are measured at Purchasing Power Parity in real 2017 Euros. PPP Euro 1 = PPP\$ 1.3. The unit of observation is the adult individual aged 20. See Table A.2.7.1 for the composition of European regions.

**Figure A.2.5.6**  
**Redistribution in Europe and the United States, 1980-2017:**  
**Ratio of top 10% to bottom 50% average incomes**

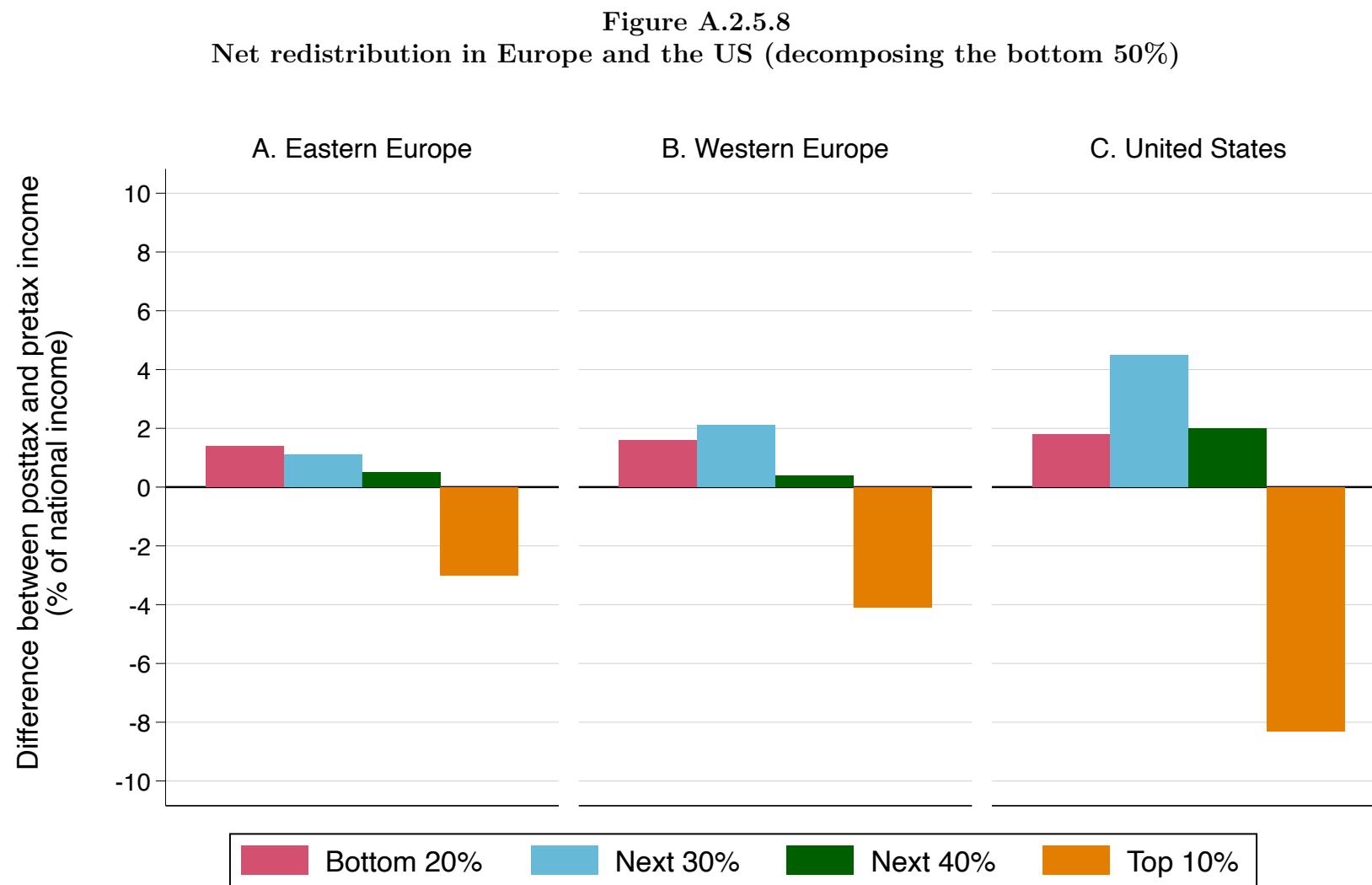


*Source:* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* The unit of observation is the adult individual aged 20. Indicators are population weighted. European inequality estimates contain all Western, Northern and Eastern European countries. See Appendix Table [A.2.7.1](#) for the composition of European regions.

**Figure A.2.5.7**  
 Net redistribution in Europe and the US (% of pretax income)



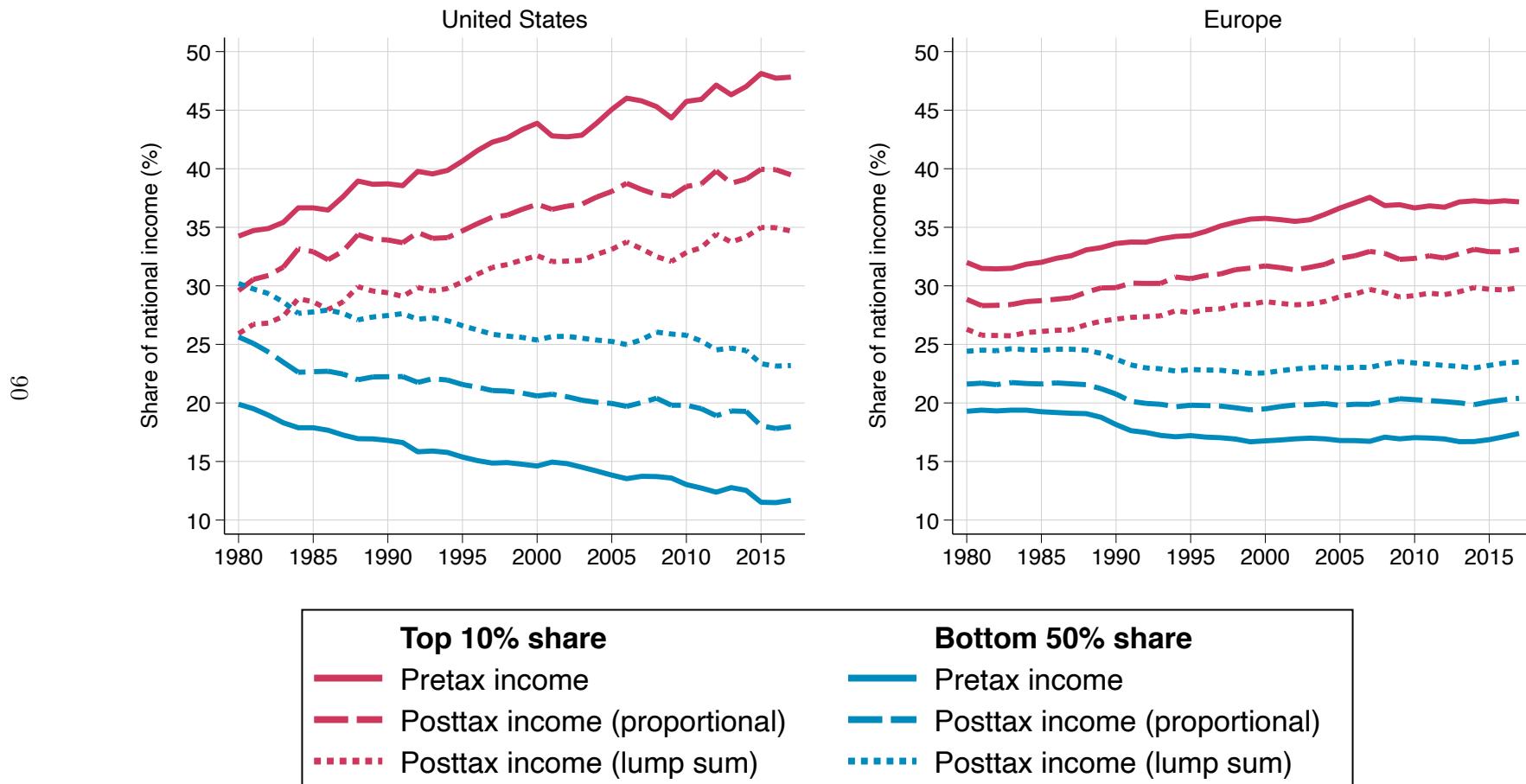
*Source:* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* The unit of observation is the adult individual aged 20. Indicators are population weighted. European inequality estimates contain all Western, Northern and Eastern European countries.



Source: Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: The unit of observation is the adult individual aged 20. Indicators are population weighted. European inequality estimates contain all Western, Northern and Eastern European countries.

**Figure A.2.5.9**

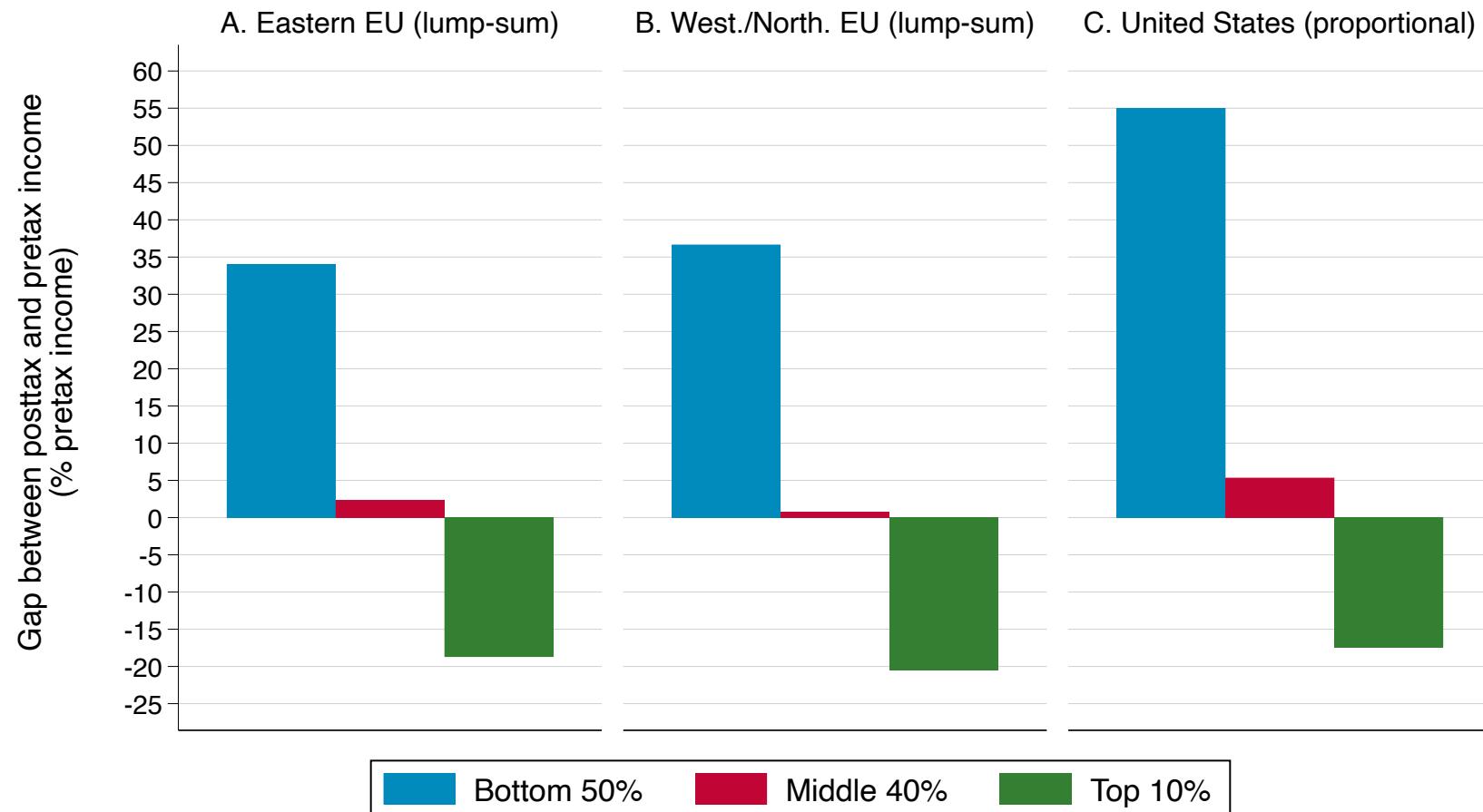
Top 10% and bottom 50% posttax income shares in Europe and the United States: lump-sum vs. proportional allocation of collective expenditure



*Source:* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* The figure represents the top 10% and bottom 50% shares in Europe and the United States in terms of pretax income, posttax national income assuming that all non-health collective government expenditure is distributed proportionally to posttax disposable income, and posttax national income assuming that all non-health collective government expenditure is distributed on a lump sum basis. The unit of observation is the adult individual aged 20. Income is split equally among spouses. See Table A.2.7.1 for the composition of European regions.

Figure A.2.5.10

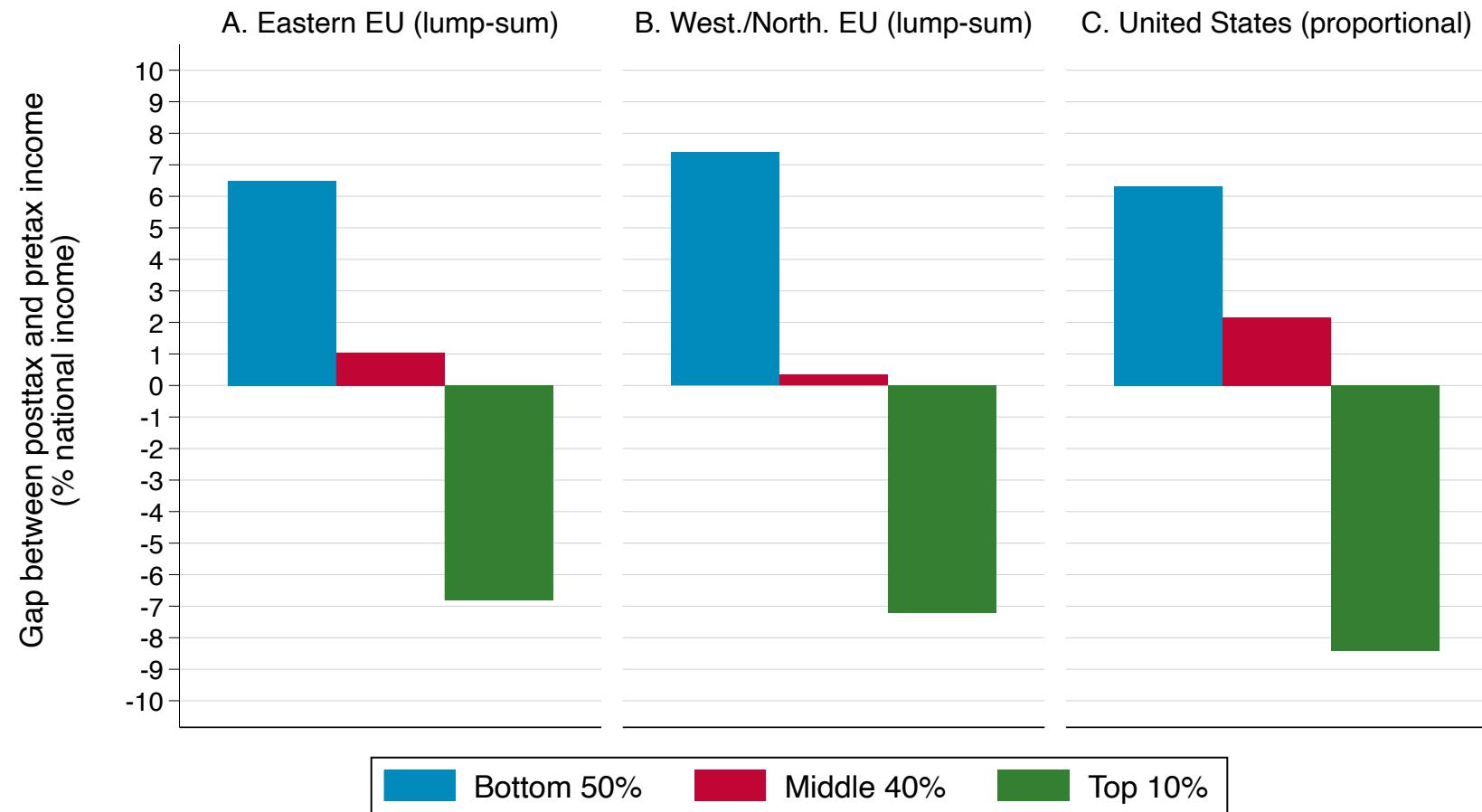
Net redistribution (% of group average income): lump-sum vs. proportional allocation of collective expenditures



Source: Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: The figure represents the net transfer operated between pretax income groups, expressed as a share of national income, assuming that all non-health collective expenditures are allocated on a lump-sum basis in Europe, and proportionally to income in the United States. The unit of observation is the adult individual aged 20. Income is split equally among spouses. See Table A.2.7.1 for the composition of European regions.

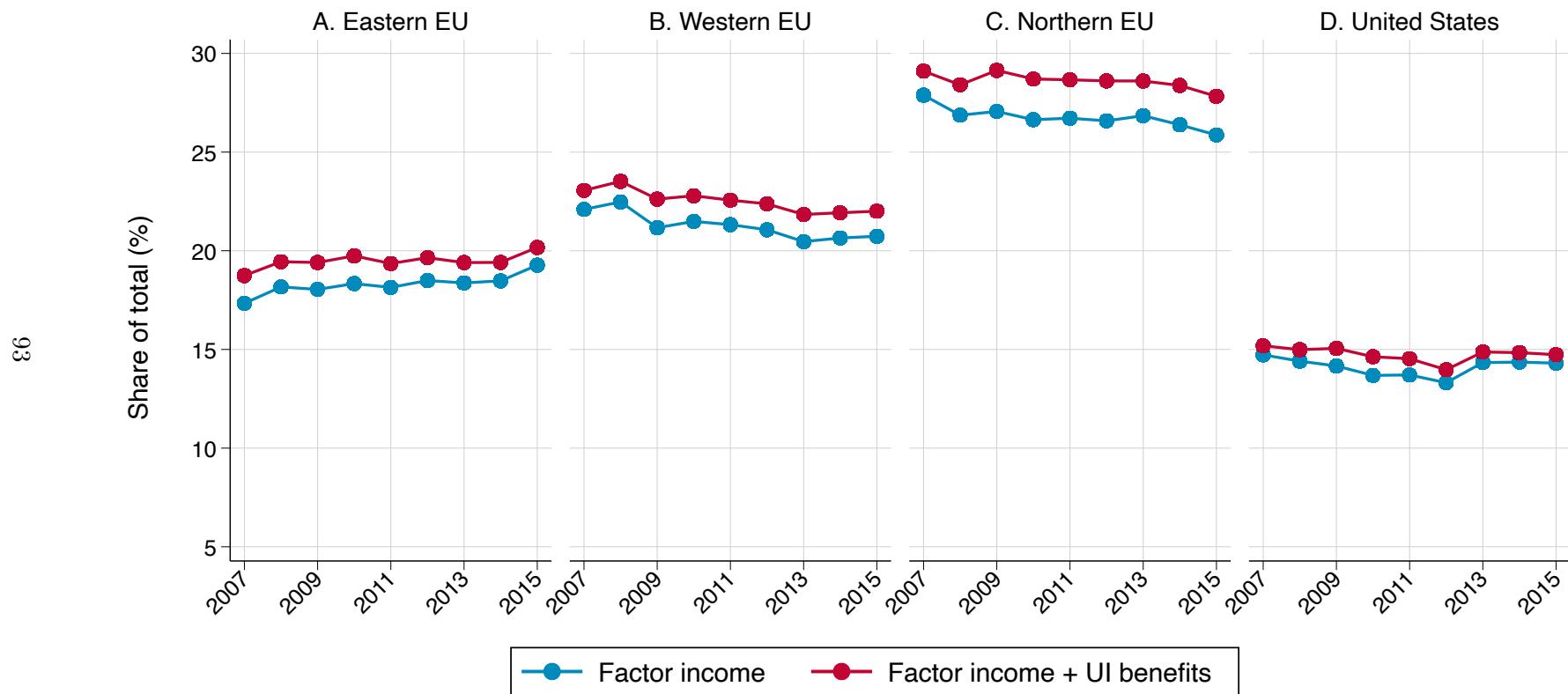
Figure A.2.5.11

Net redistribution (% of national income): lump-sum vs. proportional allocation of collective expenditures



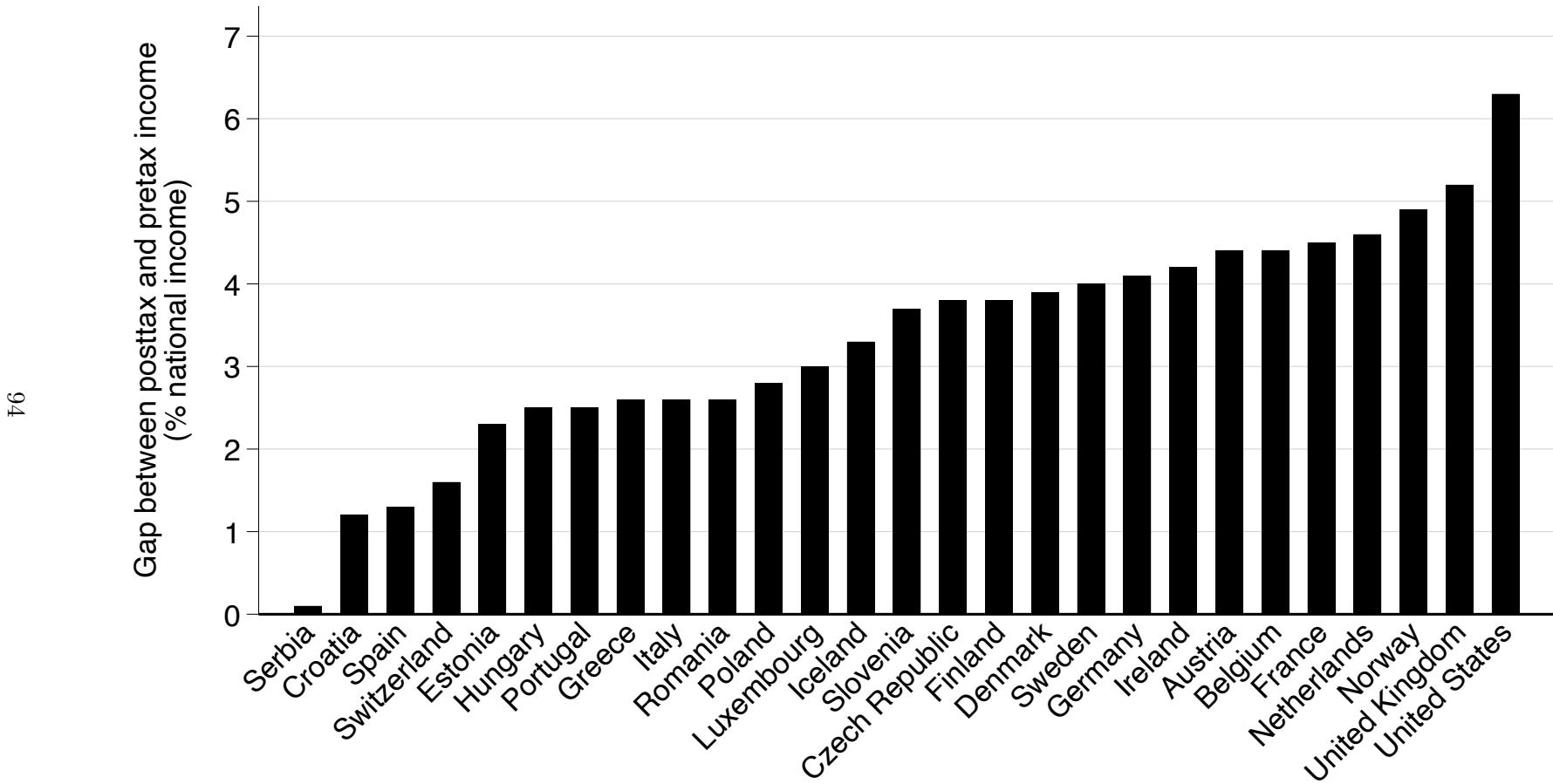
*Source:* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes:* The figure represents the net transfer operated between pretax income groups, expressed as a share of national income, assuming that all non-health collective expenditures are allocated on a lump-sum basis in Europe, and proportionally to income in the United States. The unit of observation is the adult individual aged 20. Income is split equally among spouses. See Table [A.2.7.1](#) for the composition of European regions.

**Figure A.2.5.12**  
**Bottom 50% factor income share, working-age population, Europe vs. US, 2007-2015**



Source: Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. Notes: Distribution of factor income among the working age population. The unit of observation is the adult individual aged 25-59 in European countries and 20-64 in the US. Available microdata does not allow for a detailed decomposition of factor income and UI benefits in Europe before 2007, see methodology section.

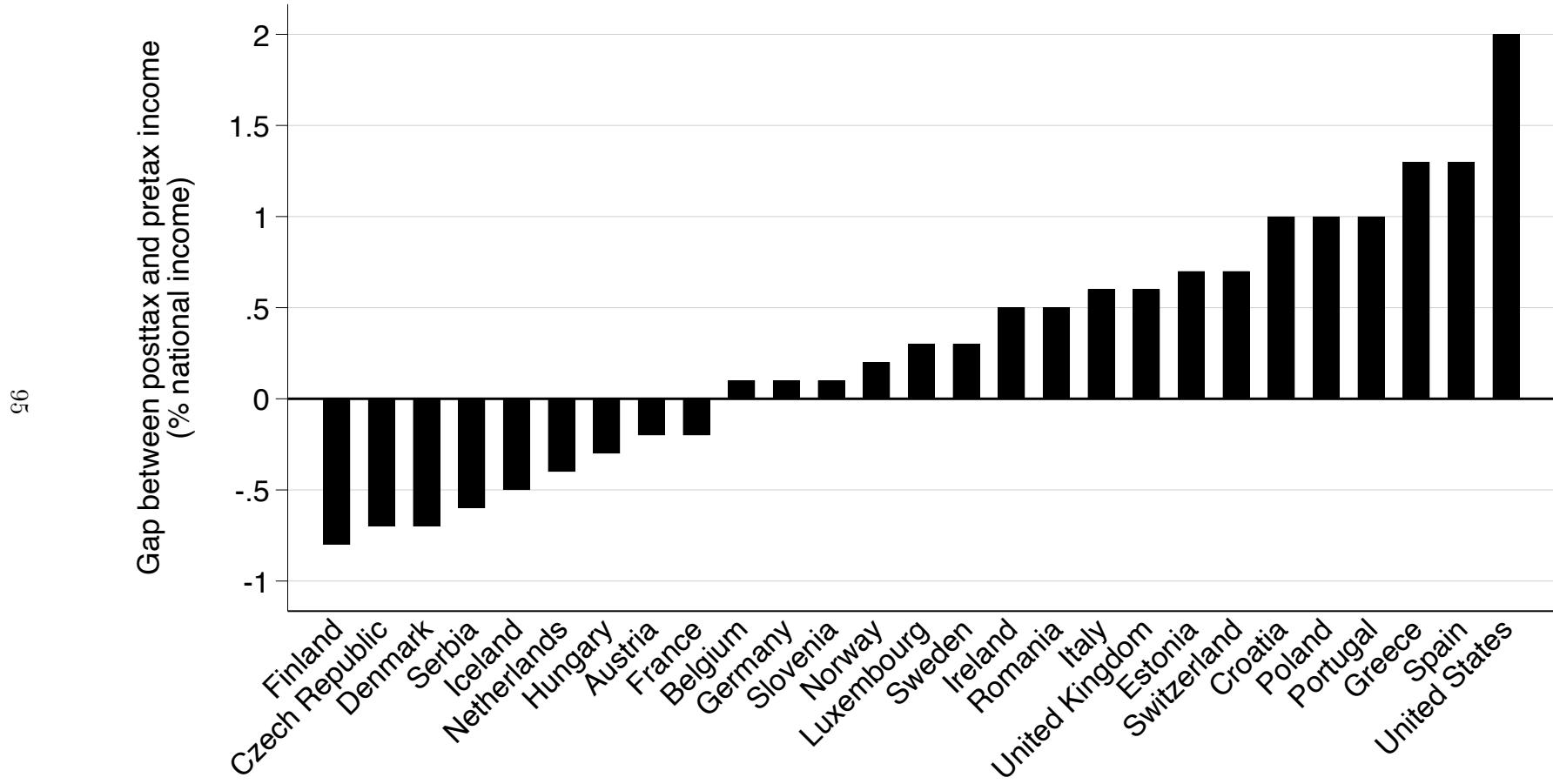
**Figure A.2.5.13**  
Net transfer received by the bottom 50% by country (% of national income)



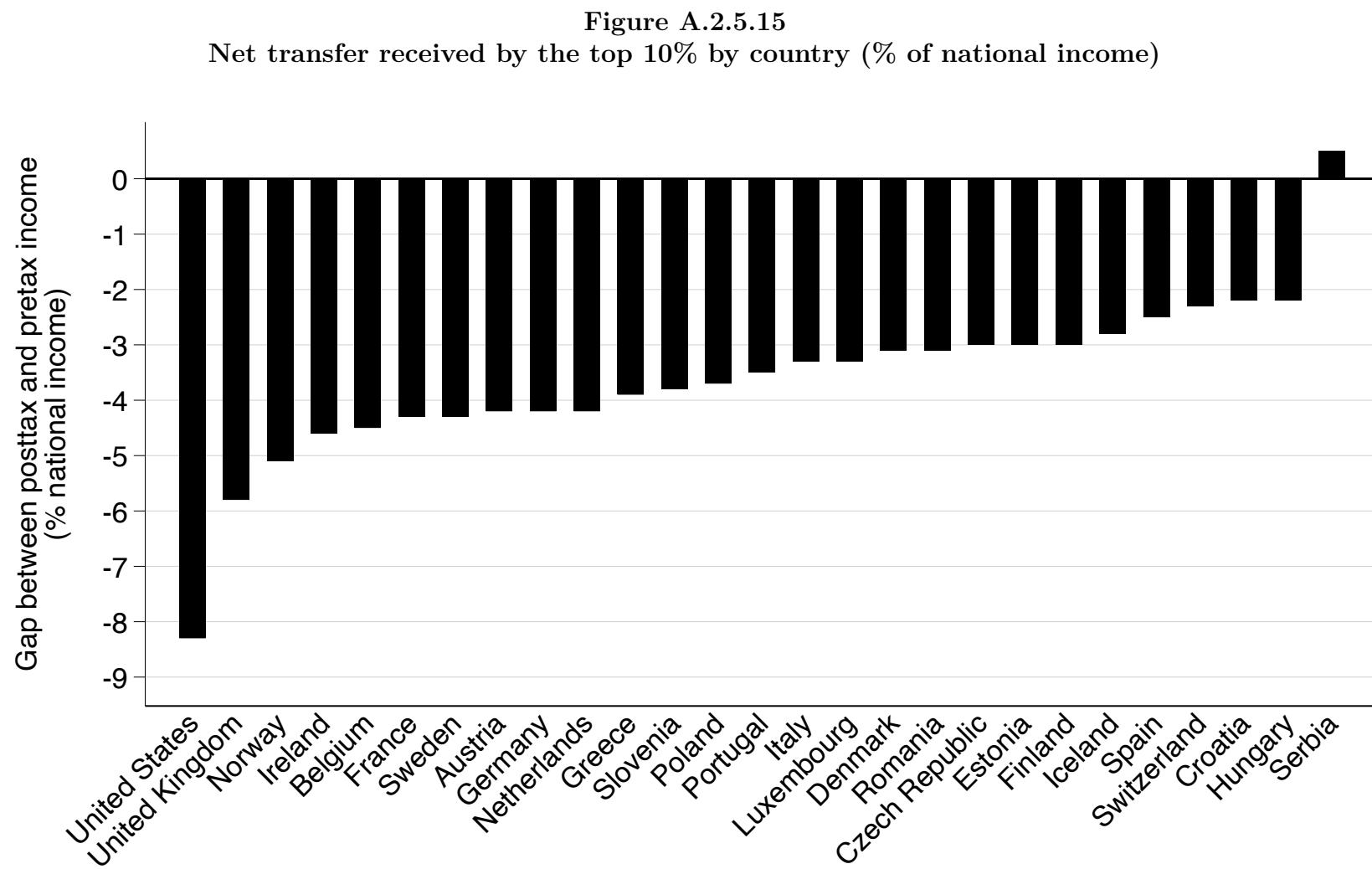
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed proportionally to posttax disposable income.

Figure A.2.5.14

Net transfer received by the middle 40% by country (% of national income)

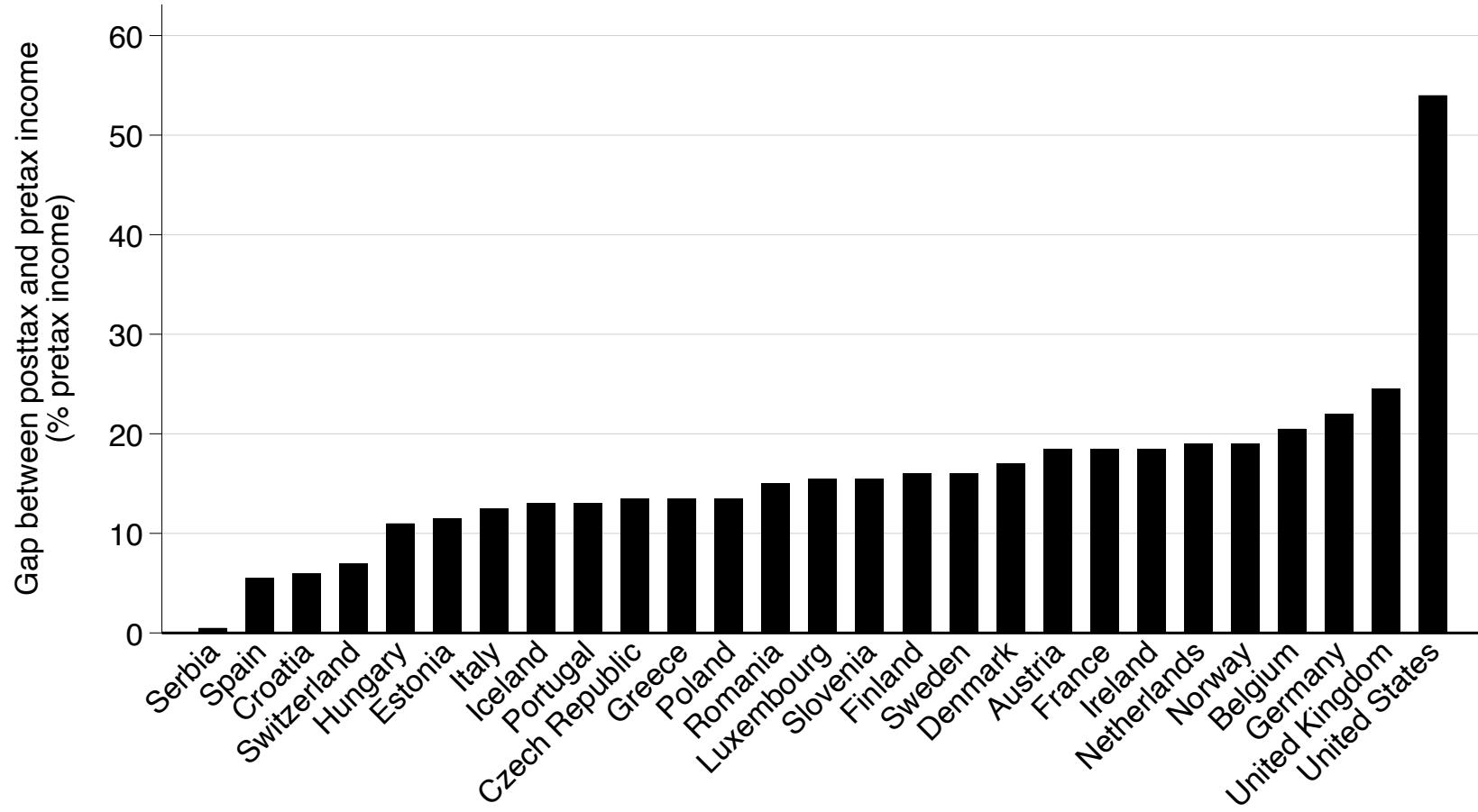


Source: Authors' computations combining surveys, tax data and national accounts. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed proportionally to posttax disposable income.

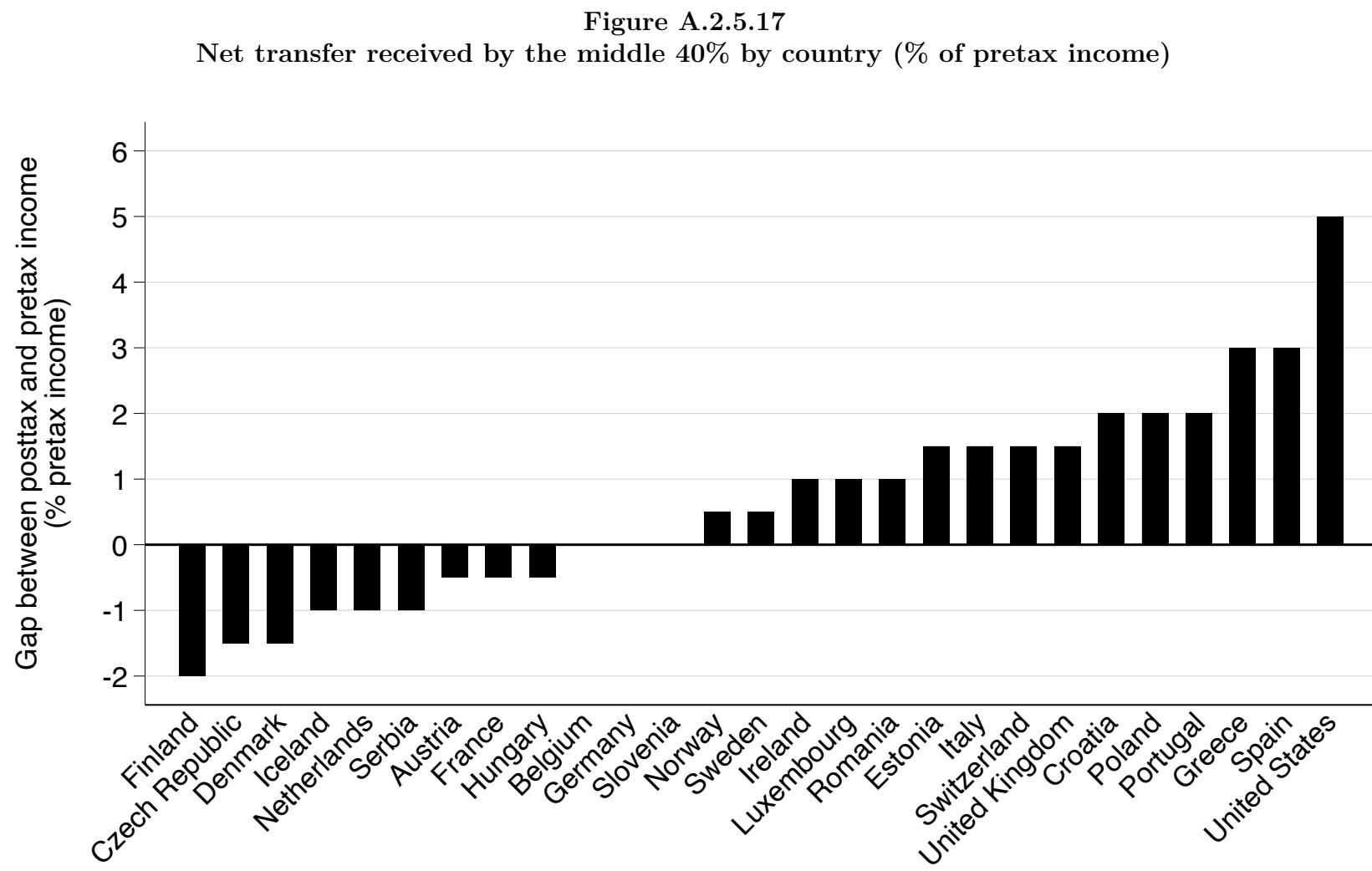


*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed proportionally to posttax disposable income.

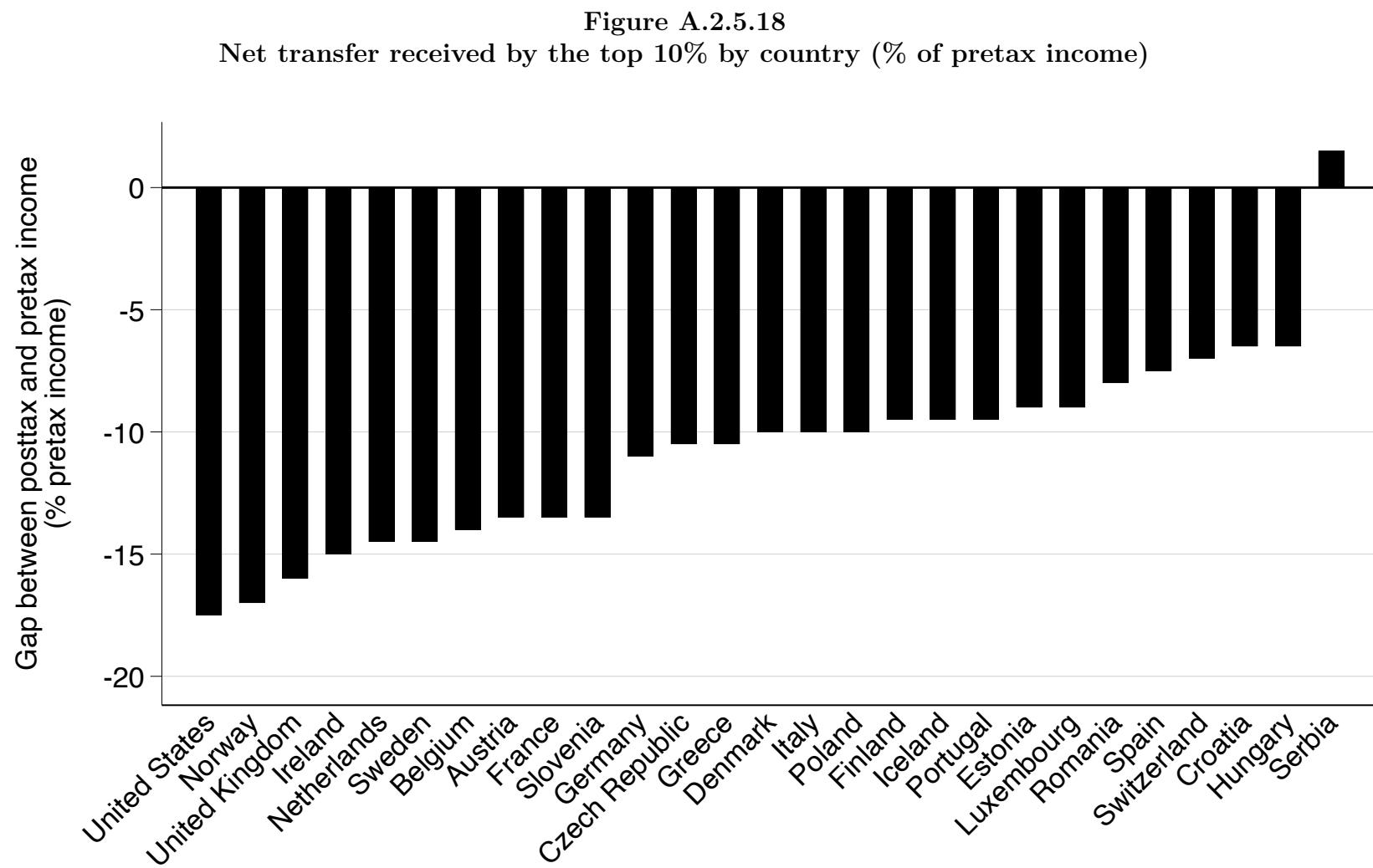
Figure A.2.5.16  
Net transfer received by the bottom 50% by country (% of pretax income)



Source: Authors' computations combining surveys, tax data and national accounts. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed proportionally to posttax disposable income.

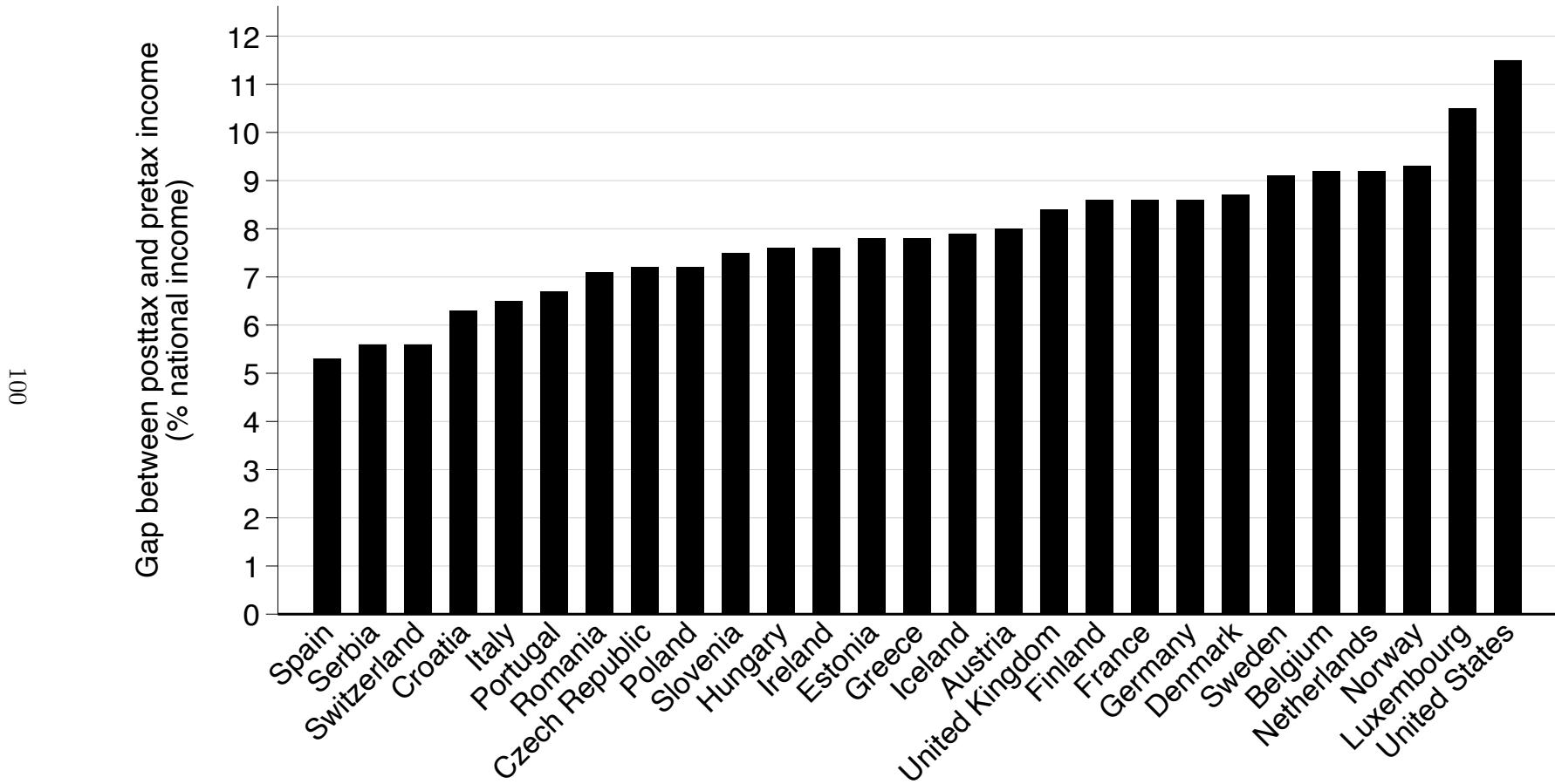


*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed proportionally to posttax disposable income.



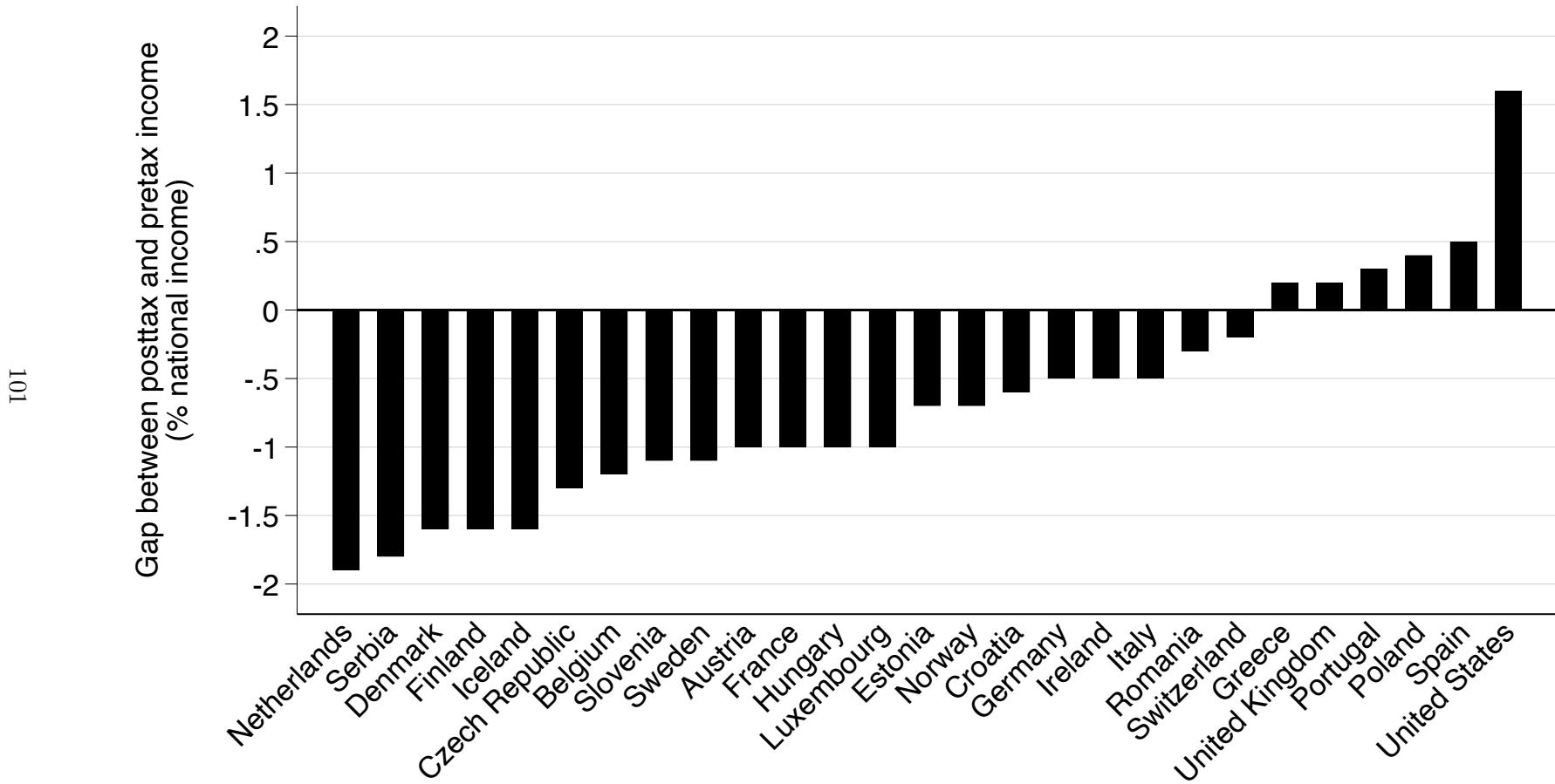
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed proportionally to posttax disposable income.

**Figure A.2.5.19**  
**Net transfer received by the bottom 50% by country**  
 (% of national income, lump sum allocation of collective expenditure)



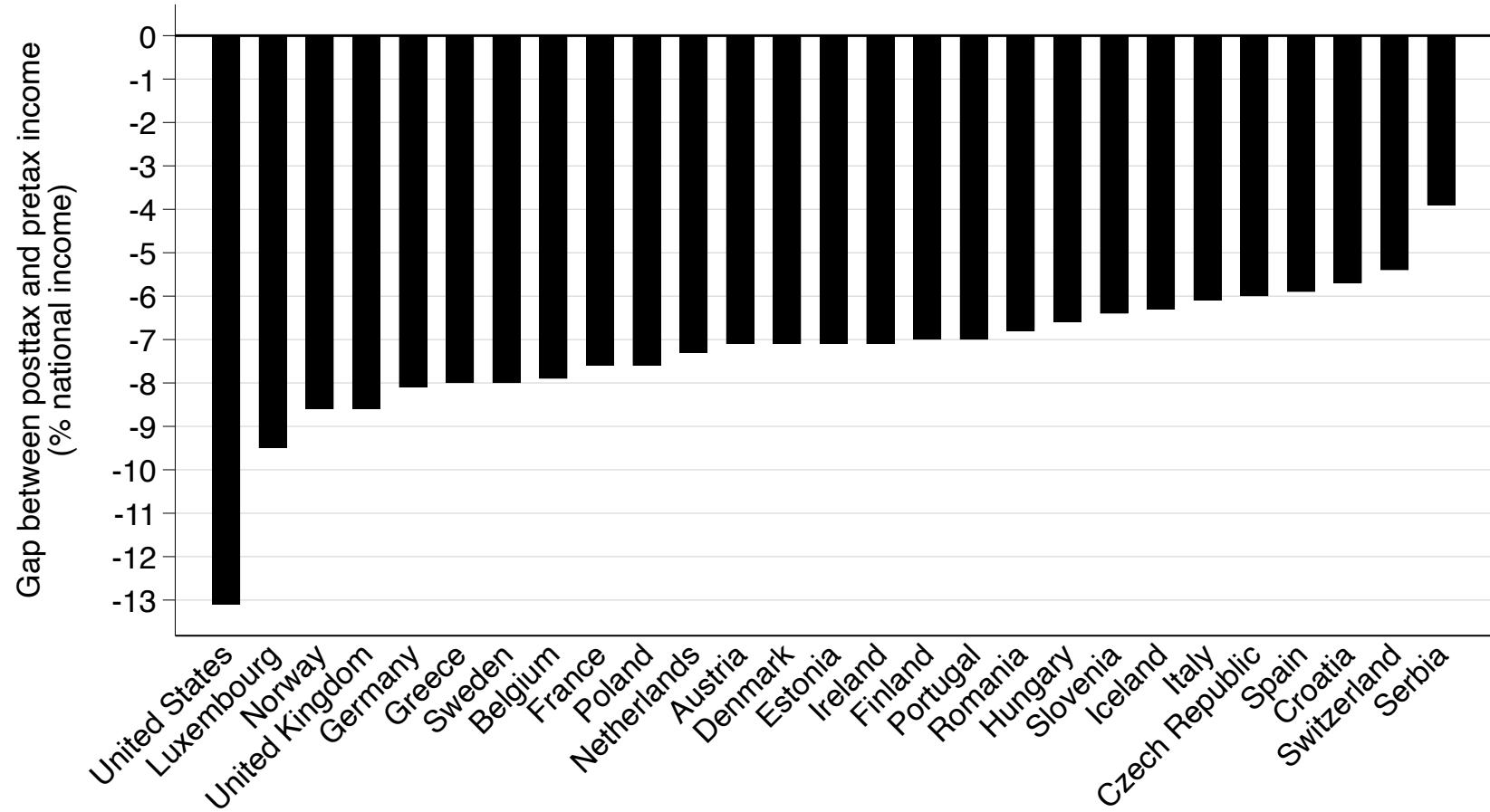
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed on a lump sum basis.

**Figure A.2.5.20**  
**Net transfer received by the middle 40% by country**  
 (% of national income, lump sum allocation of collective expenditure)



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed on a lump sum basis.

**Figure A.2.5.21**  
Net transfer received by the top 10% by country  
(% of national income, lump sum allocation of collective expenditure)

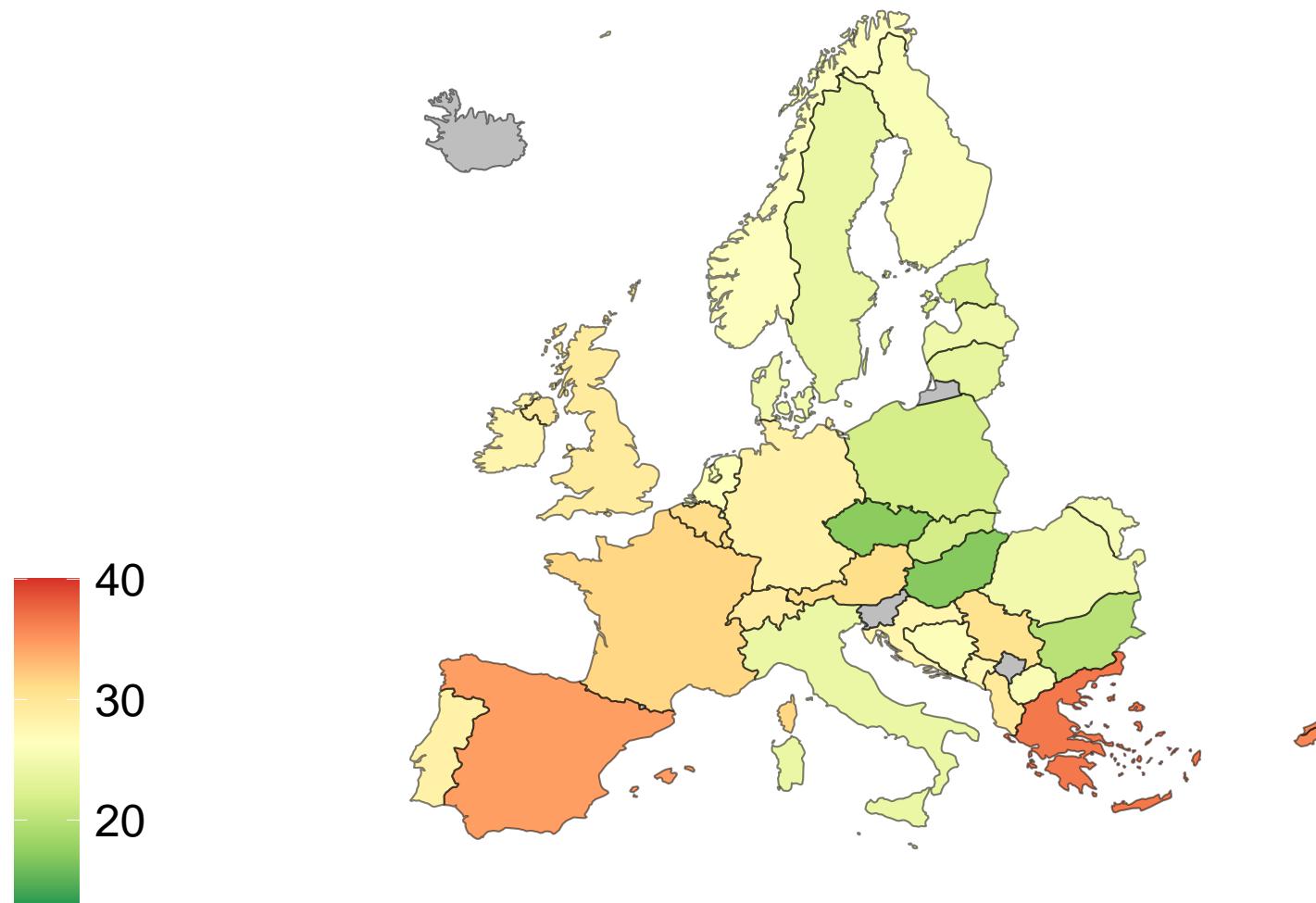


*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Results reported for the year 2017. Non-health collective government expenditures are assumed to be distributed on a lump sum basis.

## 2.6 Maps

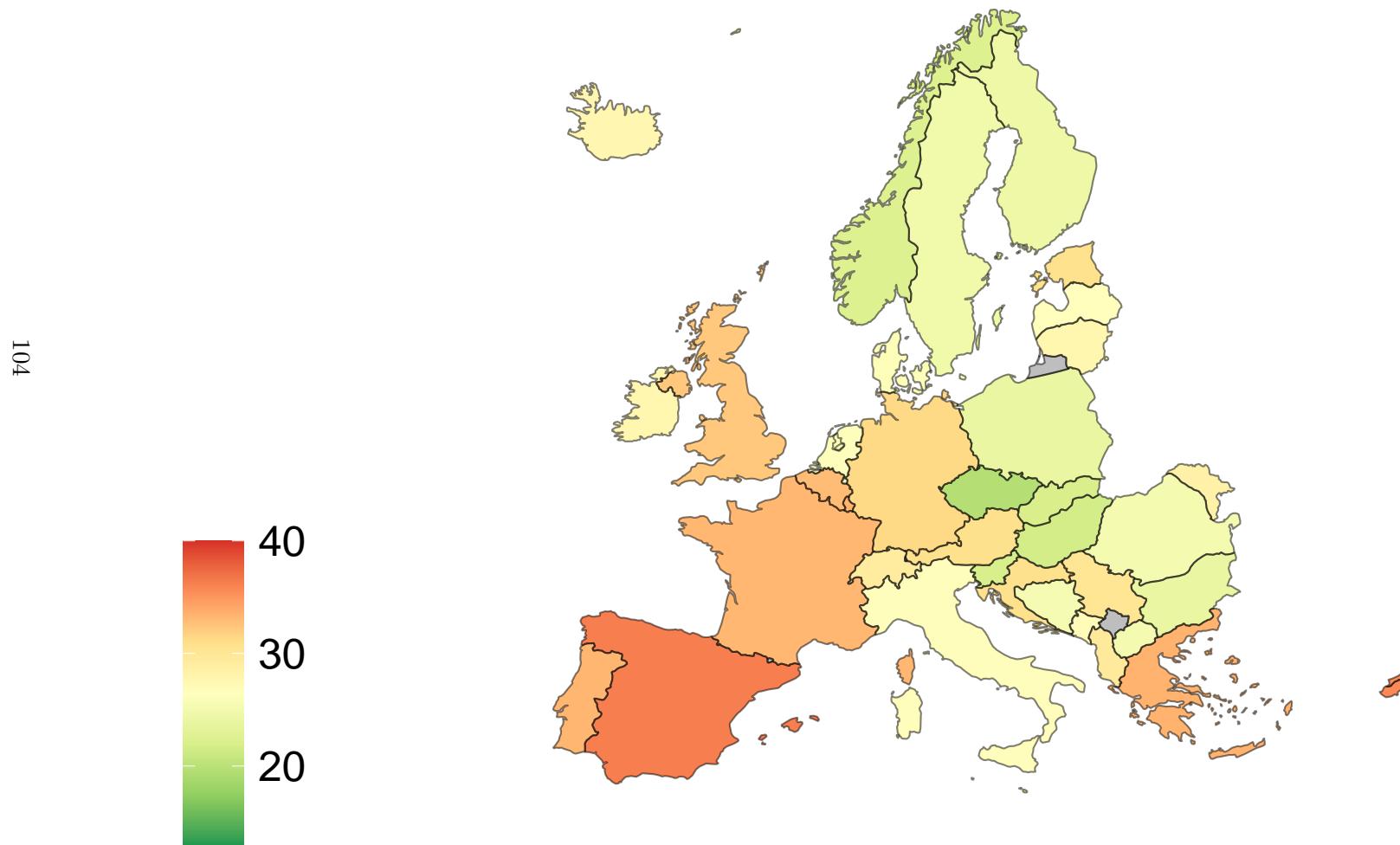
Figure A.2.6.22  
Map of top 10% pretax income share in Europe, 1980

103



Source: Authors' computations combining surveys, tax data and national accounts. Notes: The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

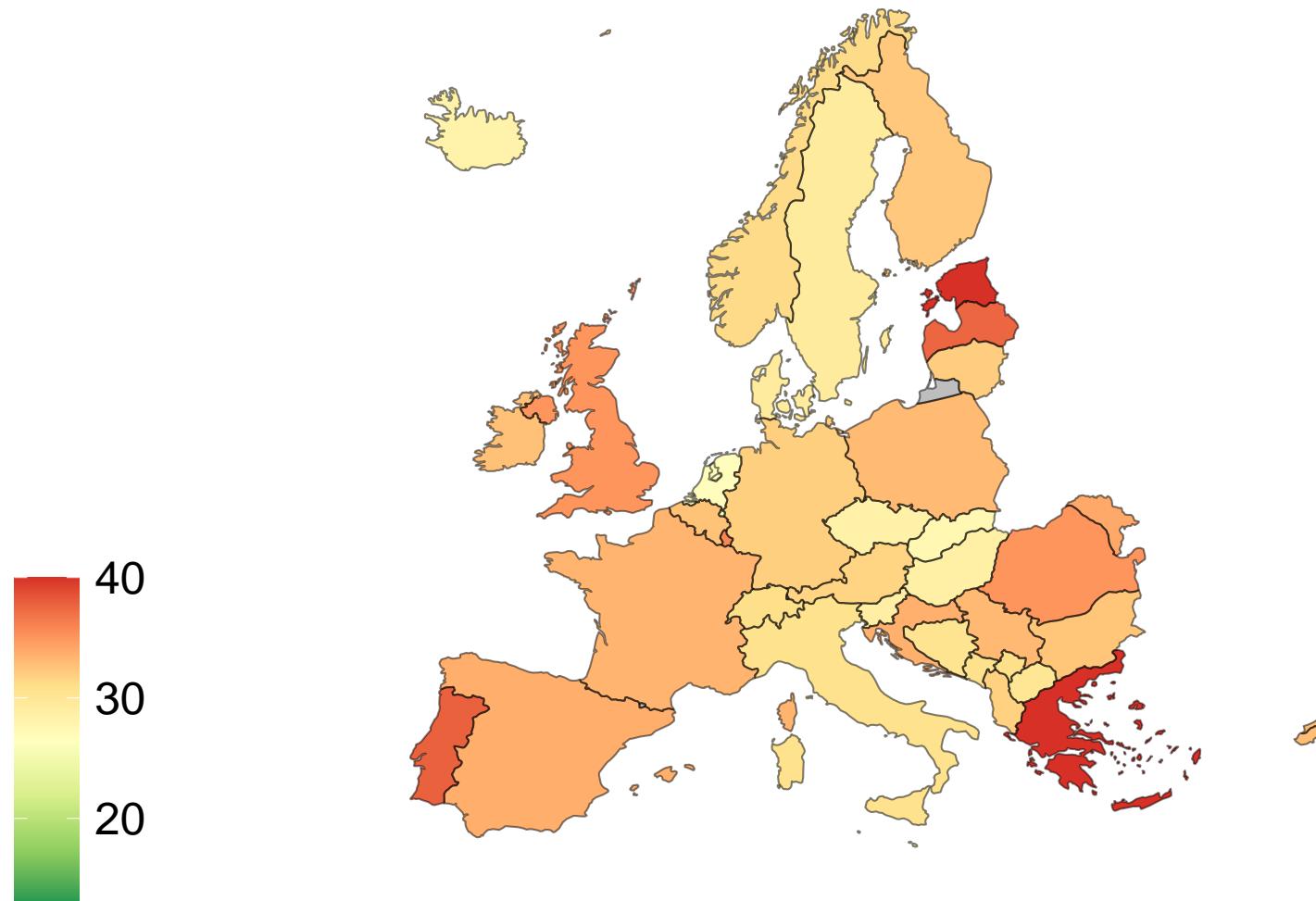
**Figure A.2.6.23**  
Map of top 10% pretax income share in Europe, 1990



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.24**  
Map of top 10% pretax income share in Europe, 2000

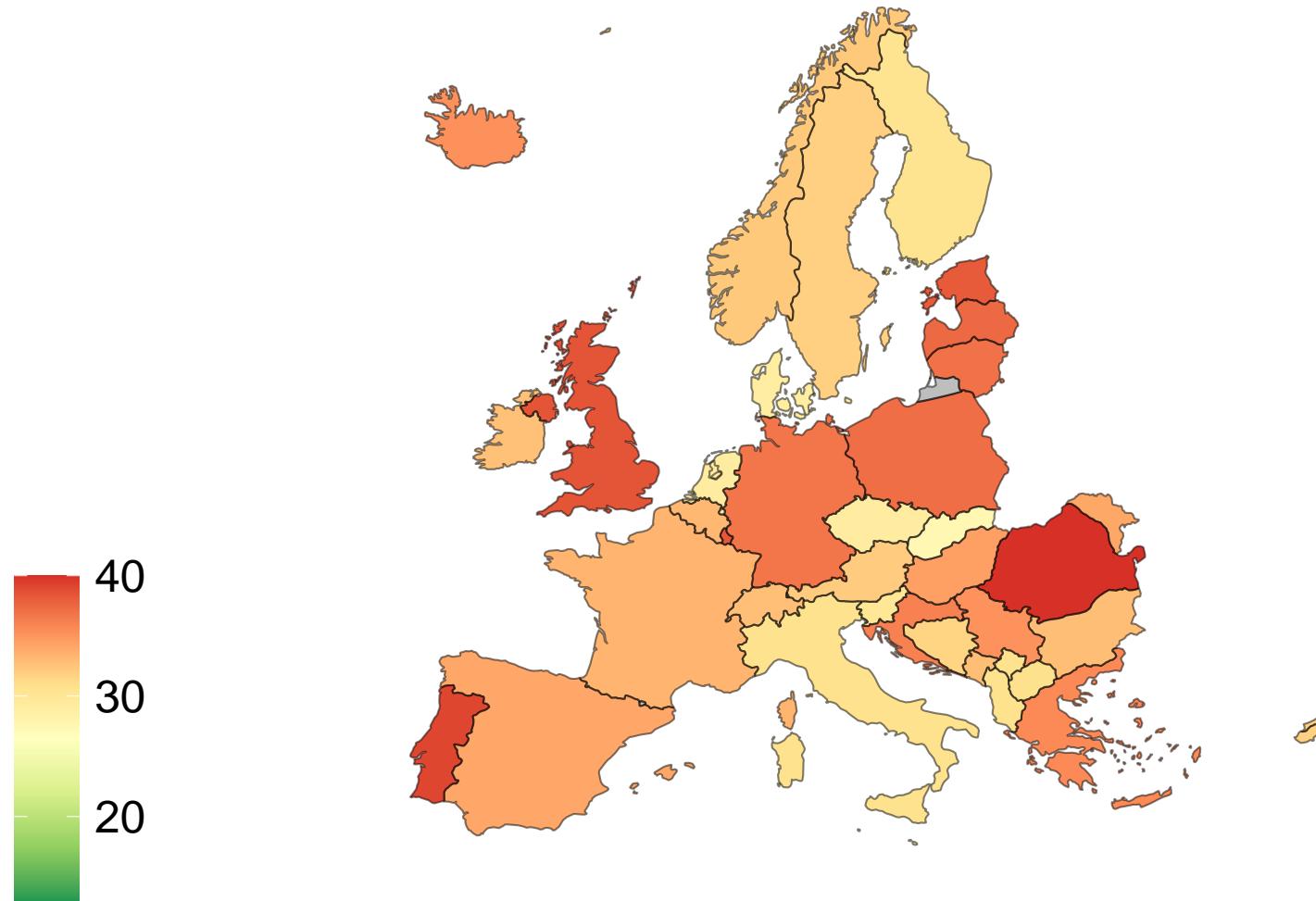
105



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.25**  
Map of top 10% pretax income share in Europe, 2007

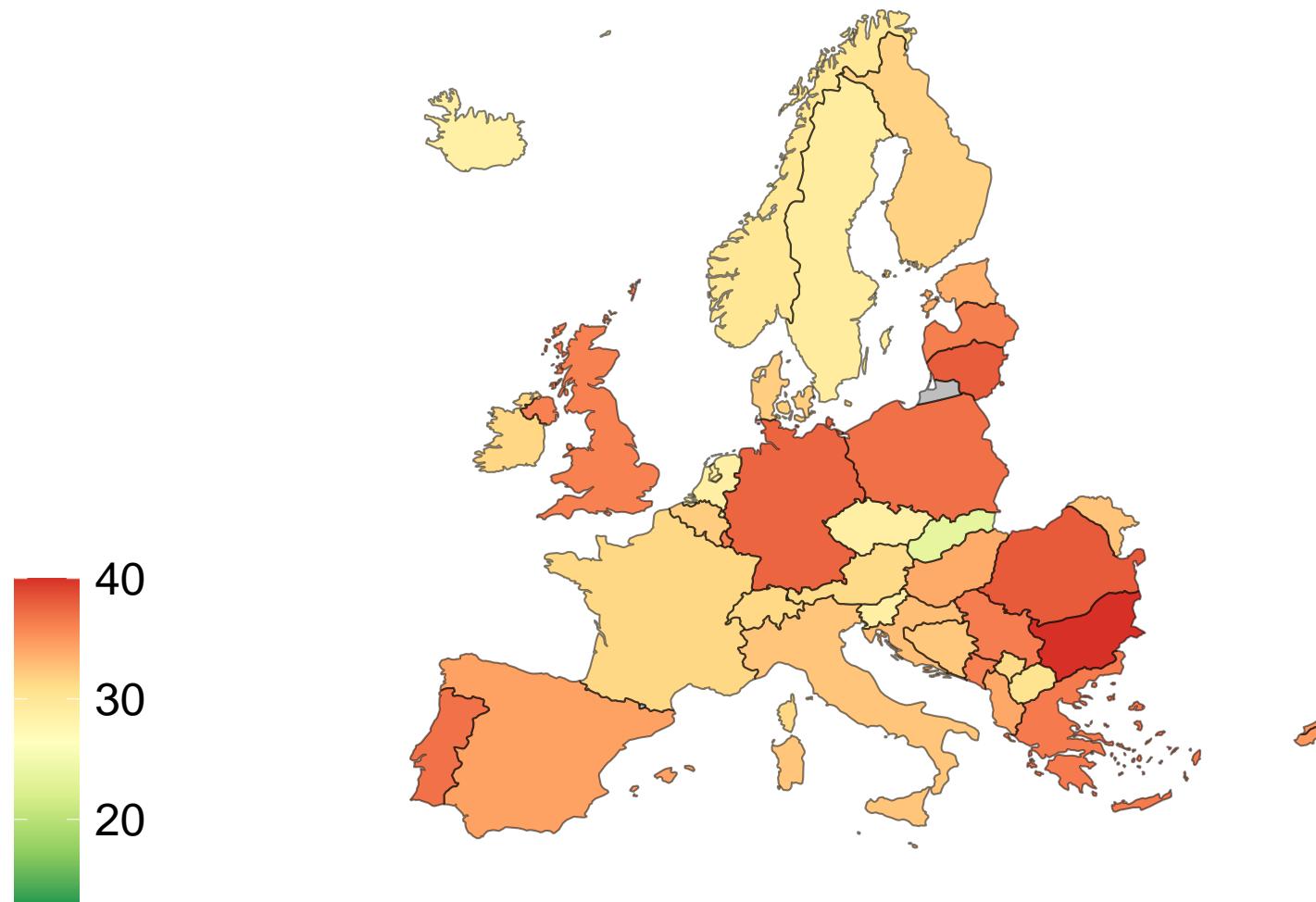
106



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.26**  
Map of top 10% pretax income share in Europe, 2017

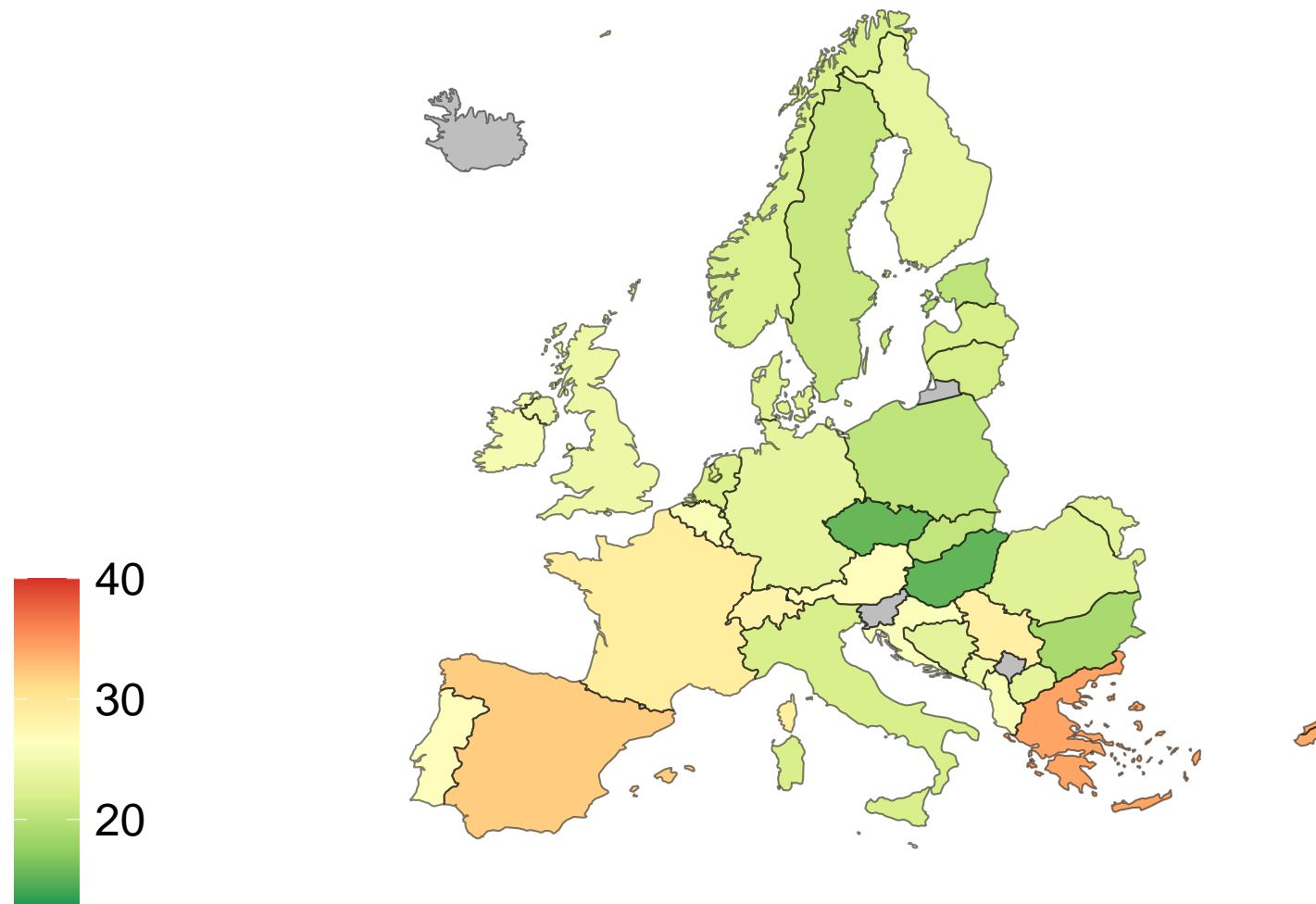
107



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.27**  
Map of top 10% posttax income share in Europe, 1980

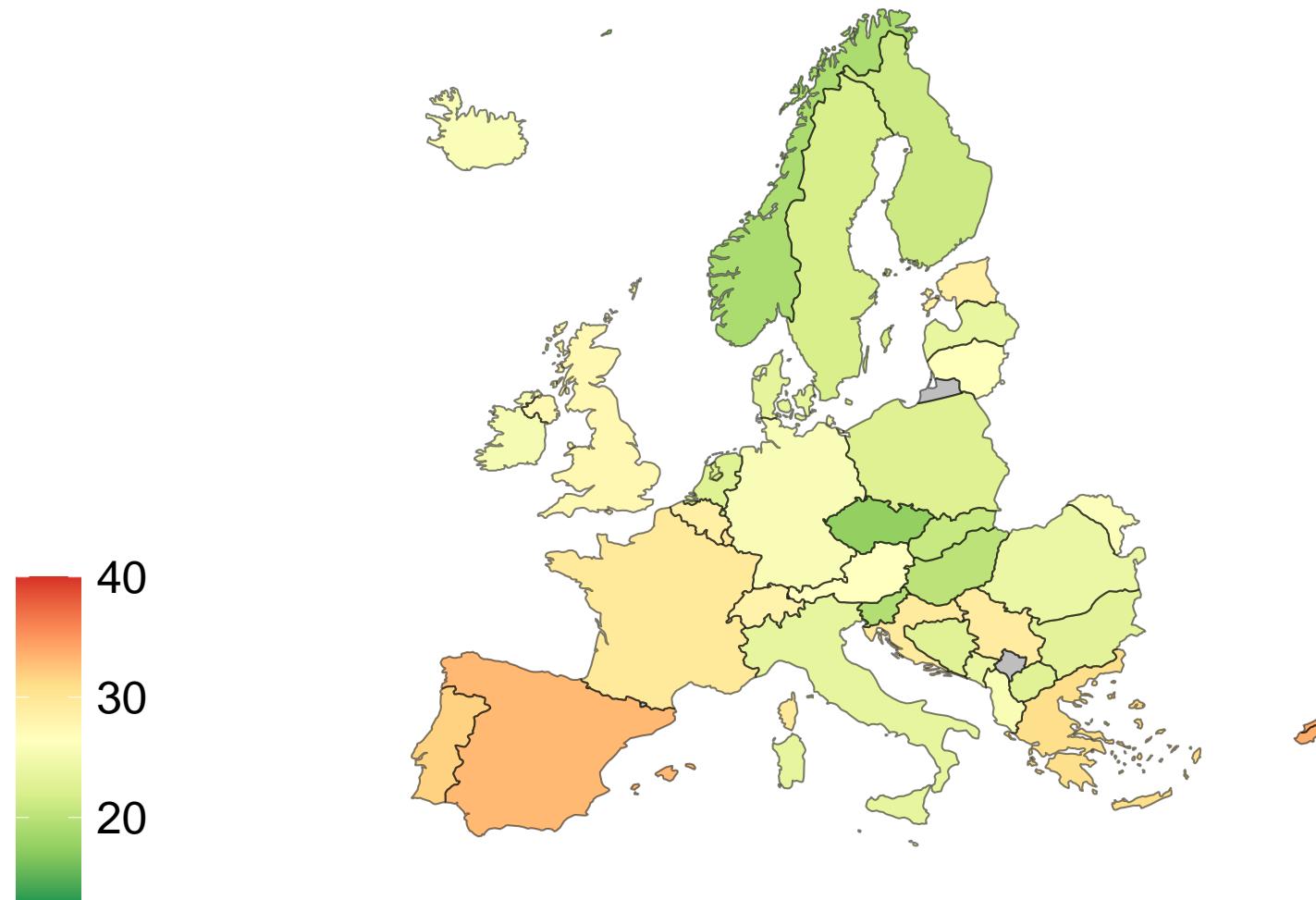
108



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.28**  
Map of top 10% posttax income share in Europe, 1990

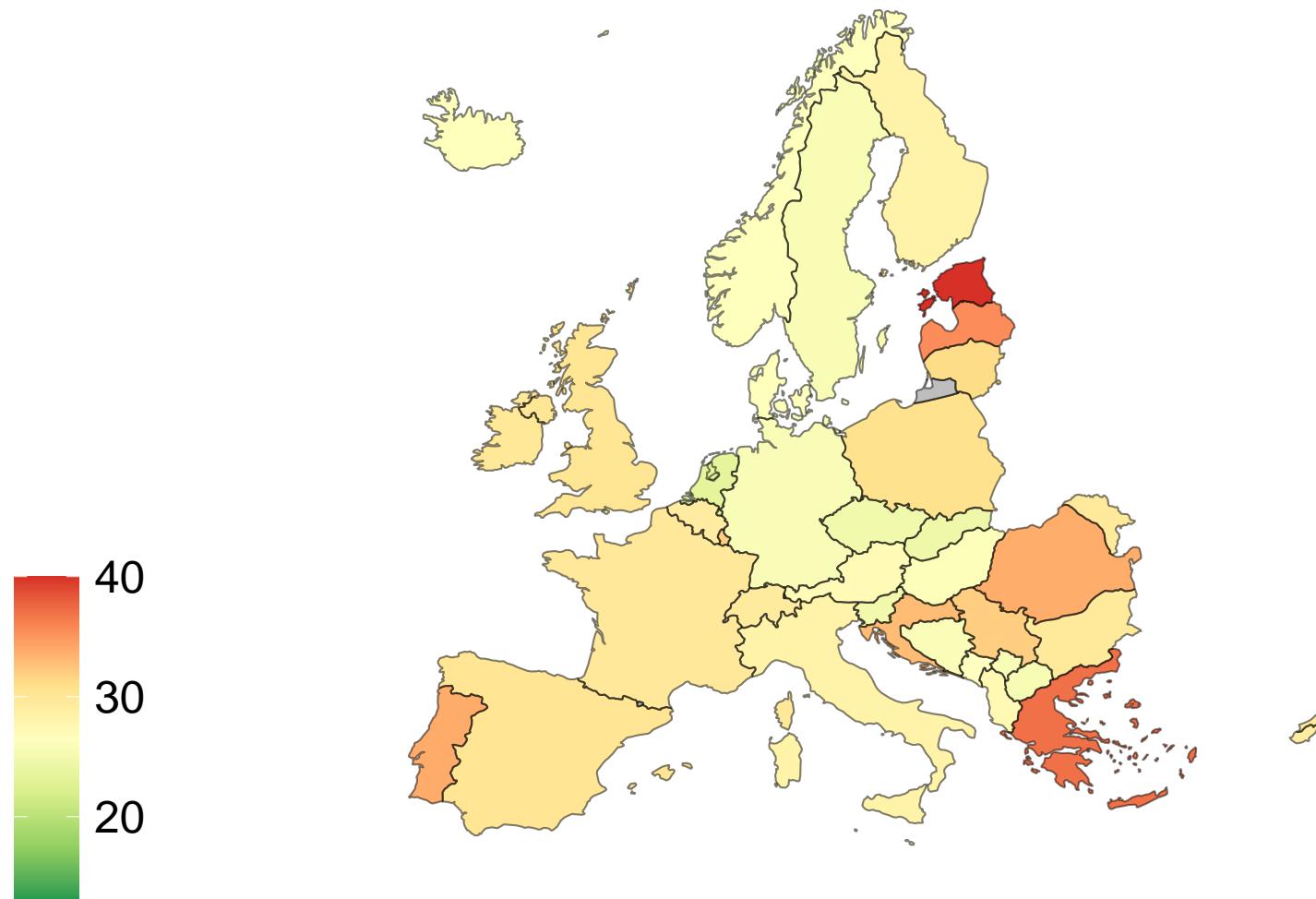
109



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

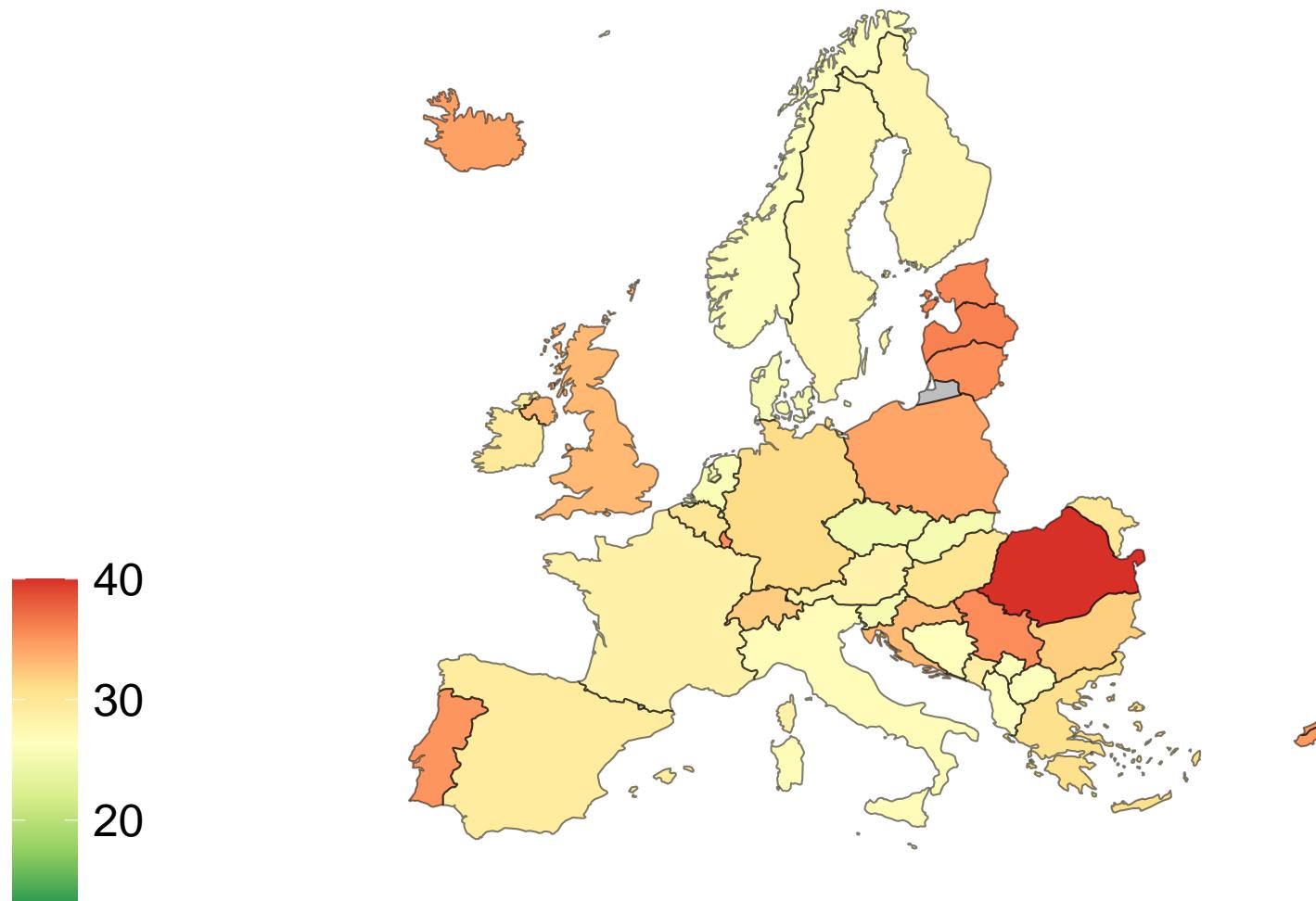
**Figure A.2.6.29**  
Map of top 10% posttax income share in Europe, 2000

110



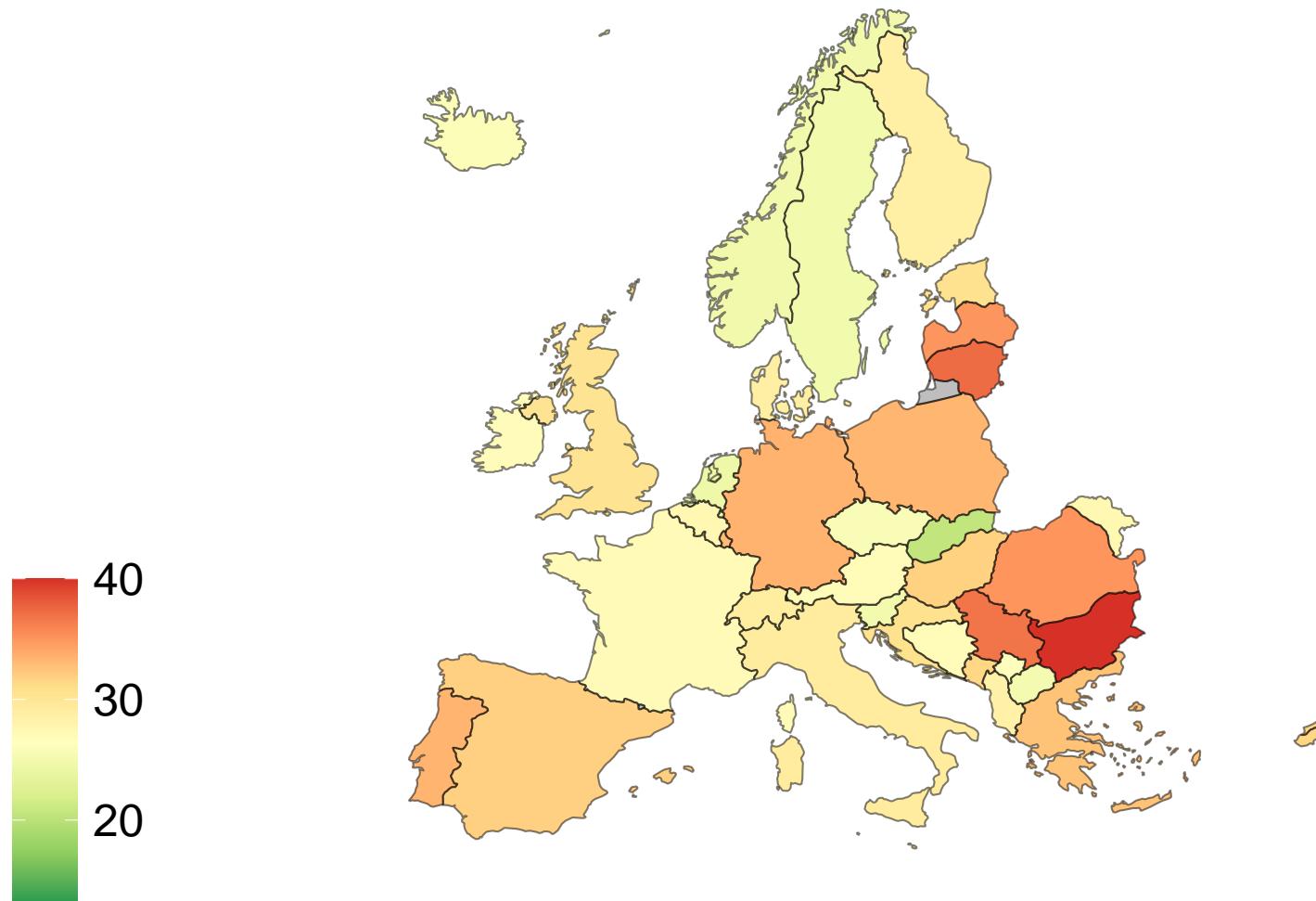
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.30**  
Map of top 10% posttax income share in Europe, 2007



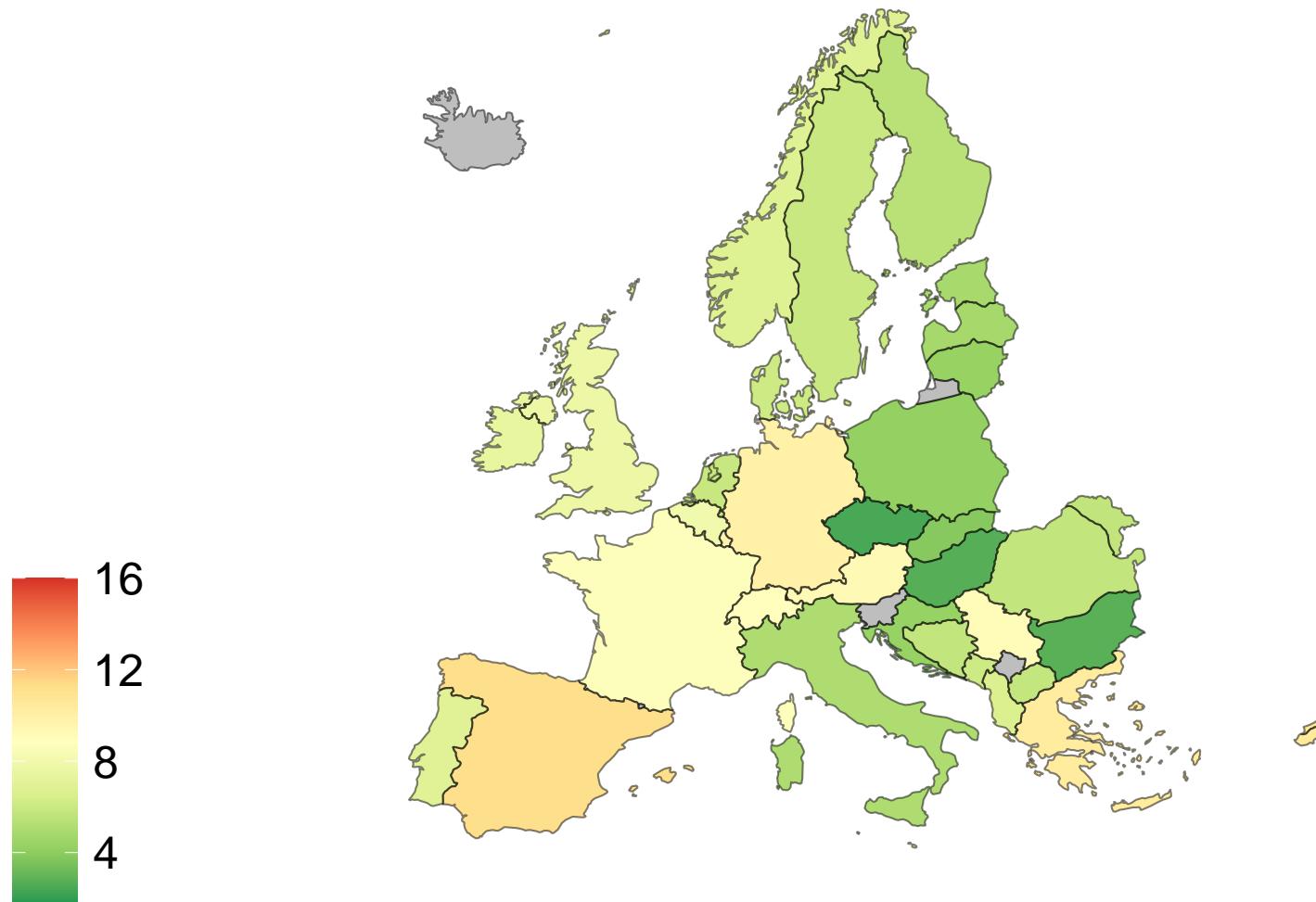
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.31**  
Map of top 10% posttax income share in Europe, 2017



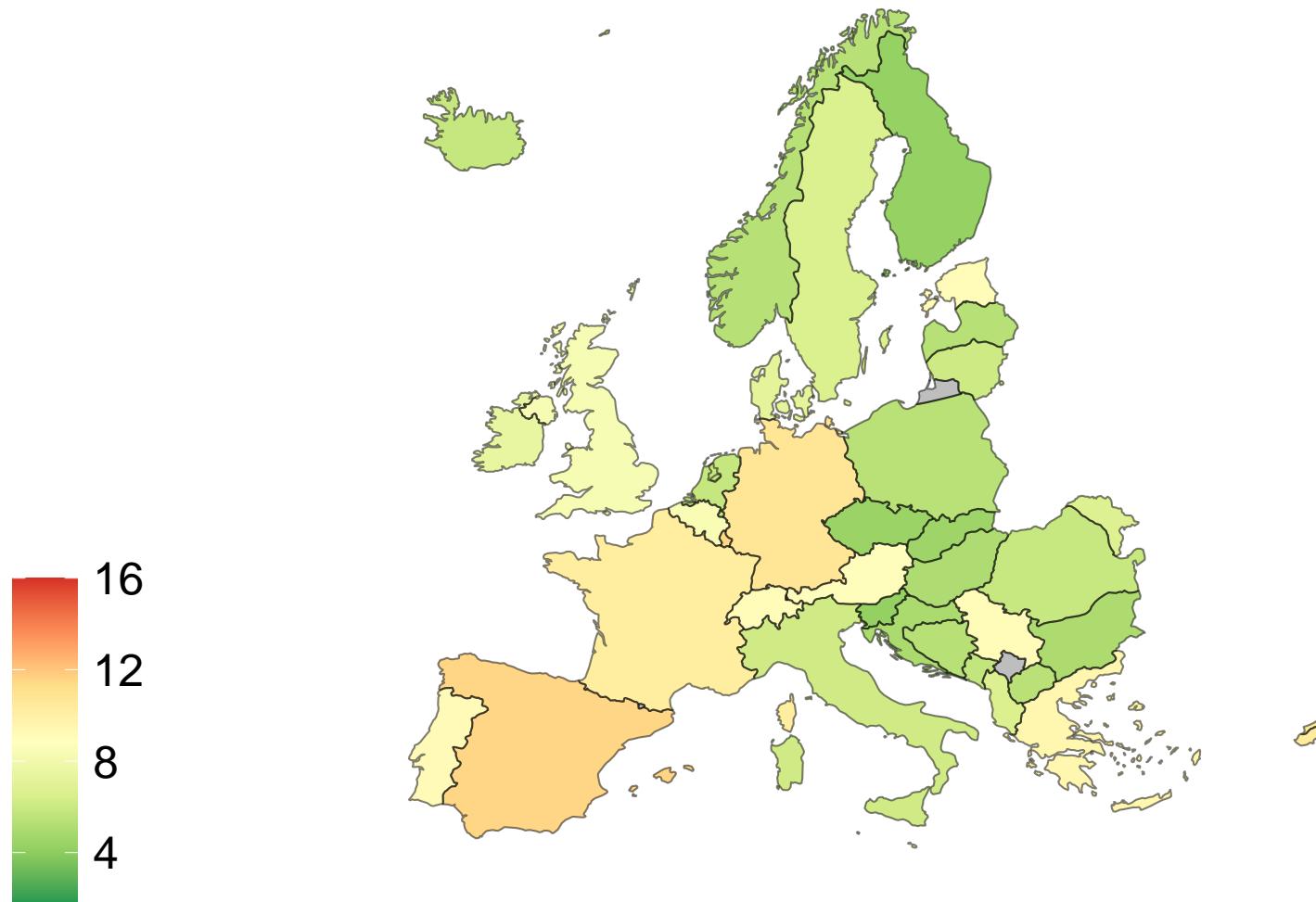
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.32**  
Map of top 1% pretax income share in Europe, 1980



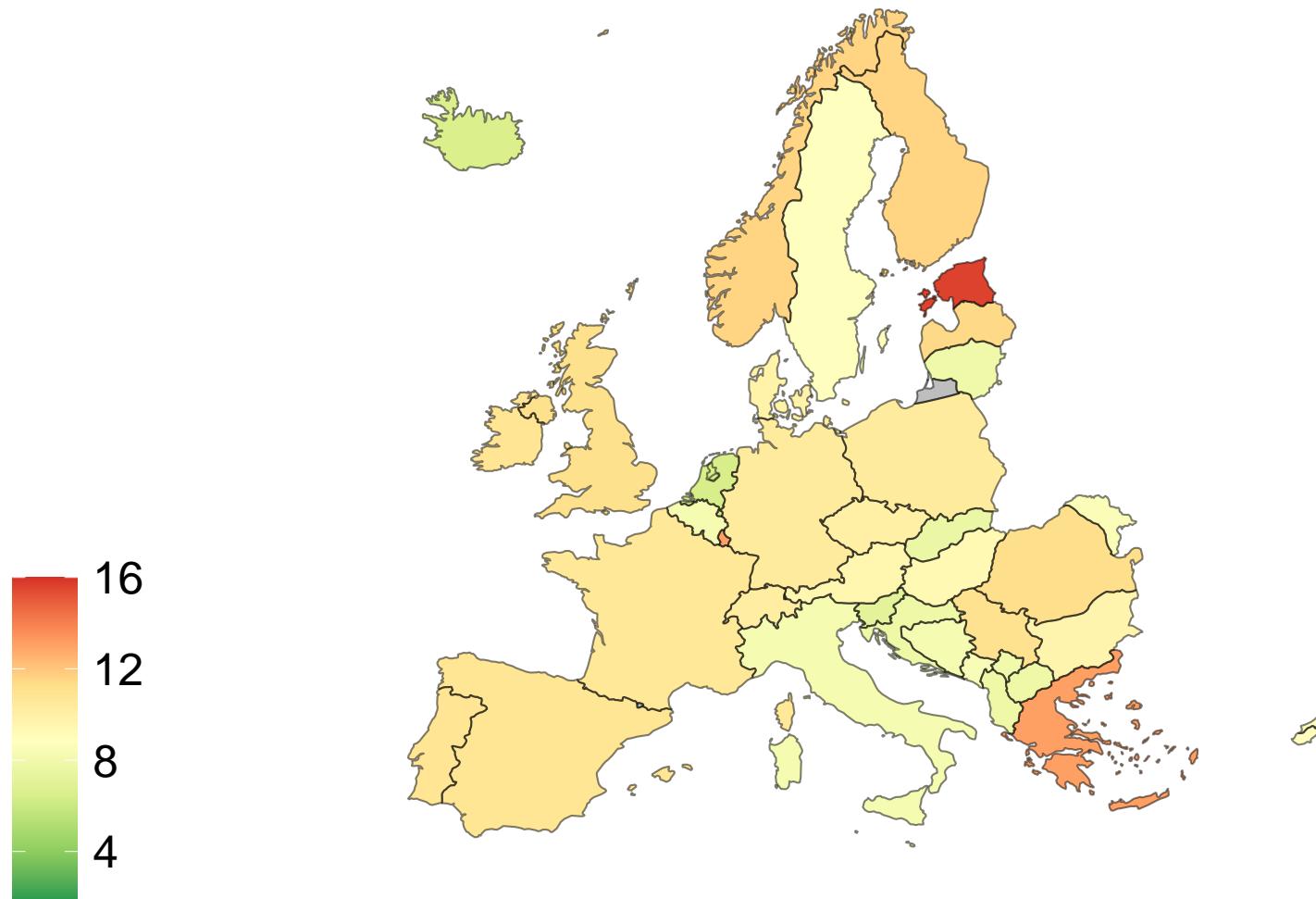
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.33**  
Map of top 1% pretax income share in Europe, 1990



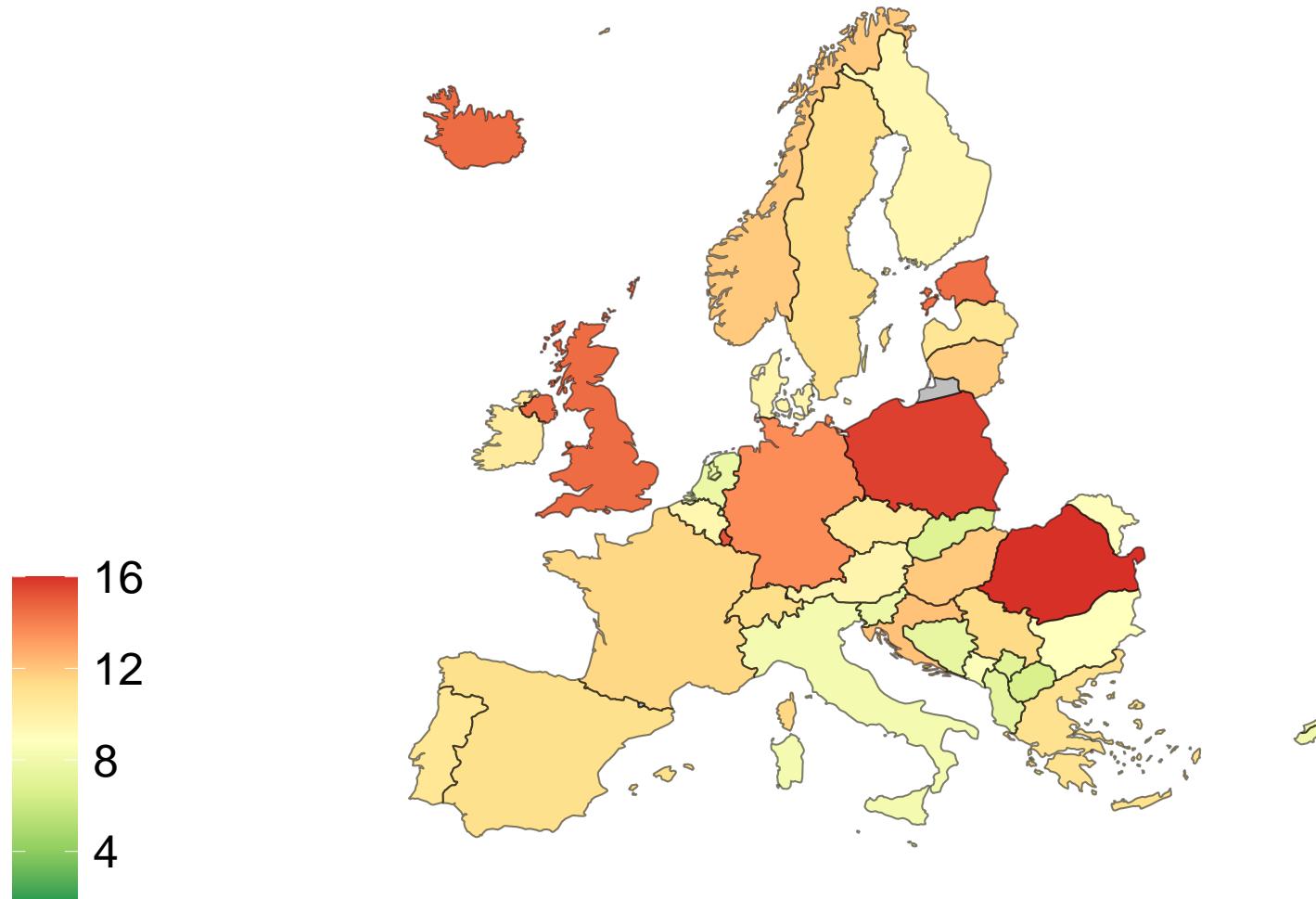
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.34**



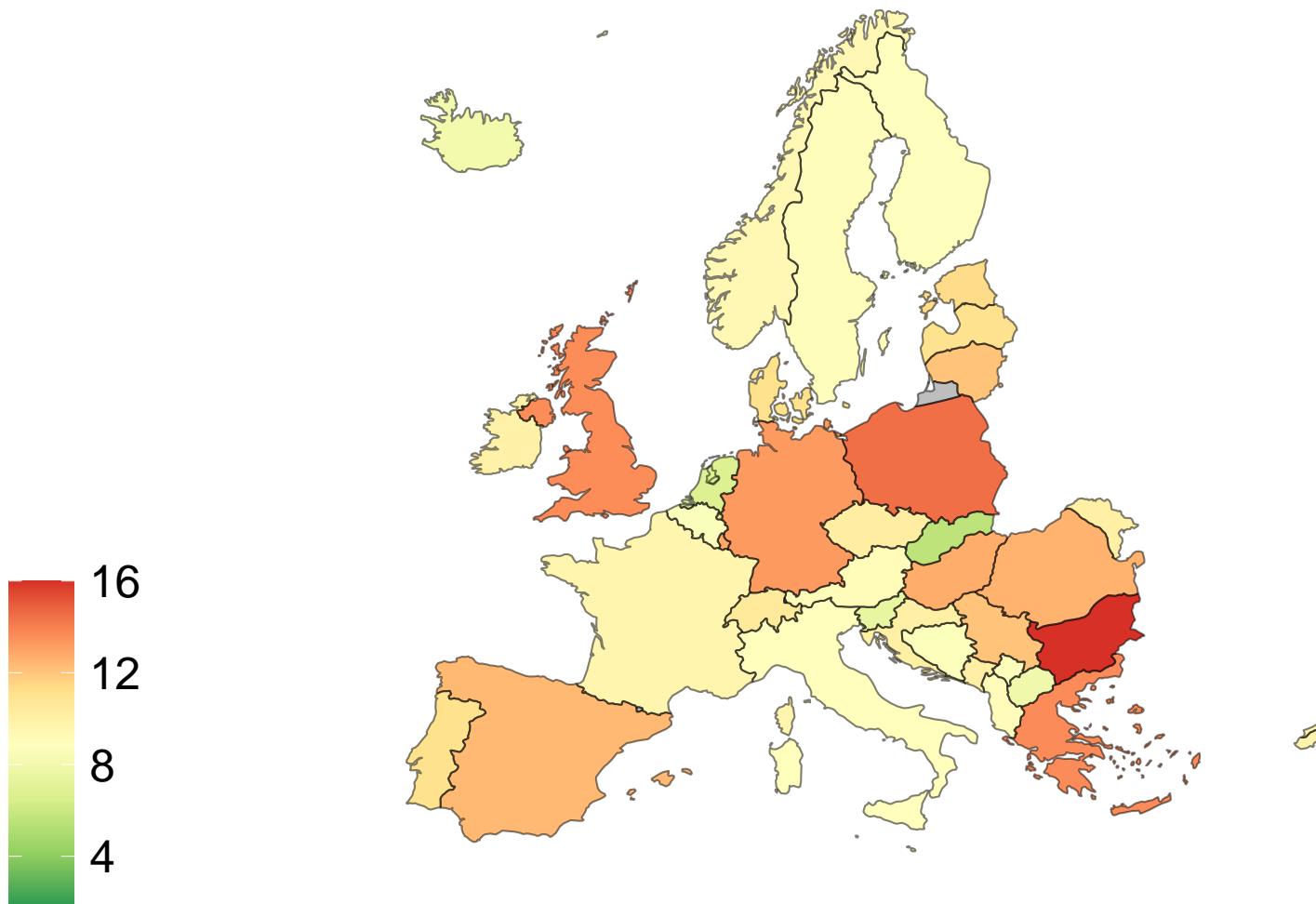
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.35**  
Map of top 1% pretax income share in Europe, 2007



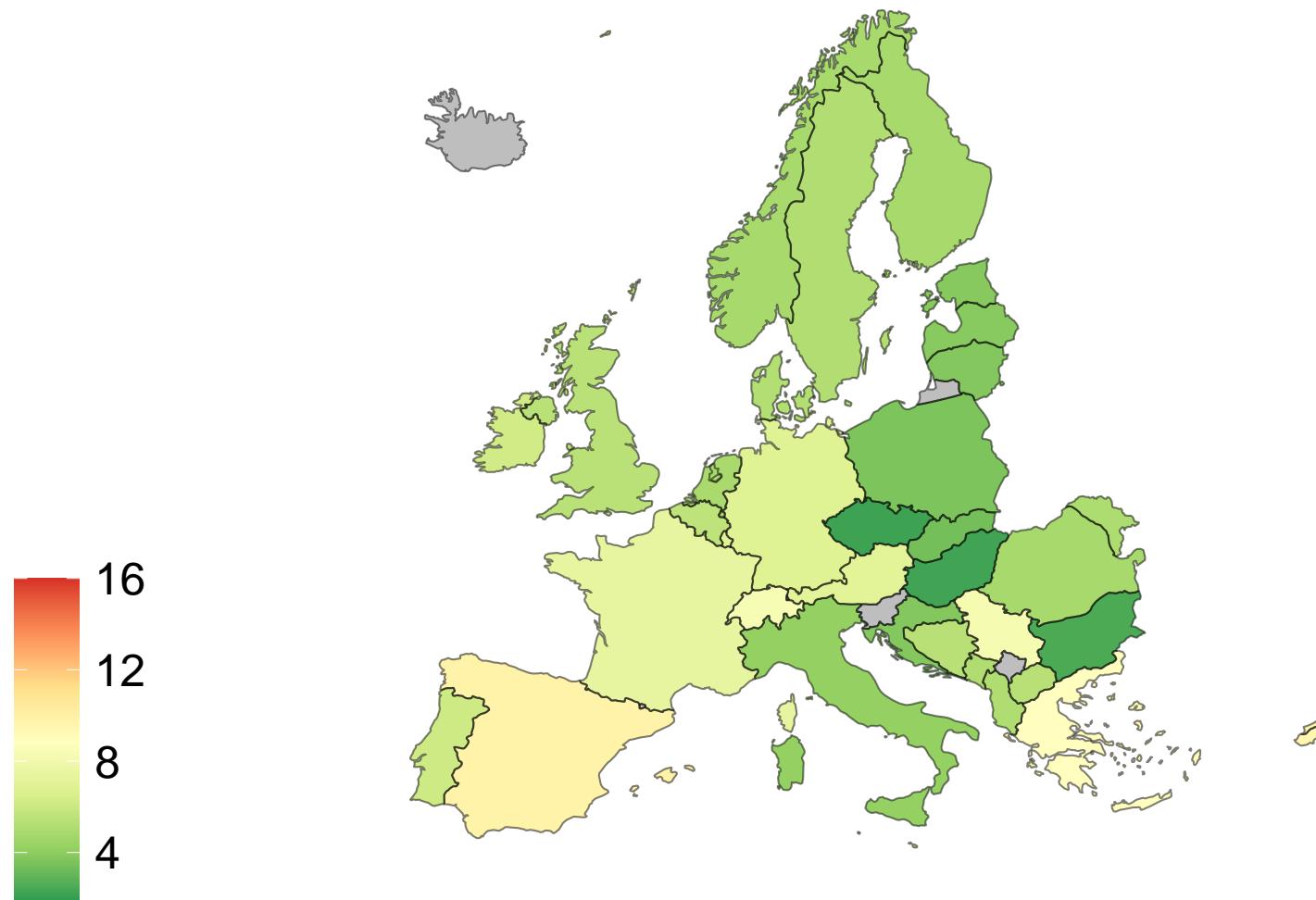
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.36**  
Map of top 1% pretax income share in Europe, 2017



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

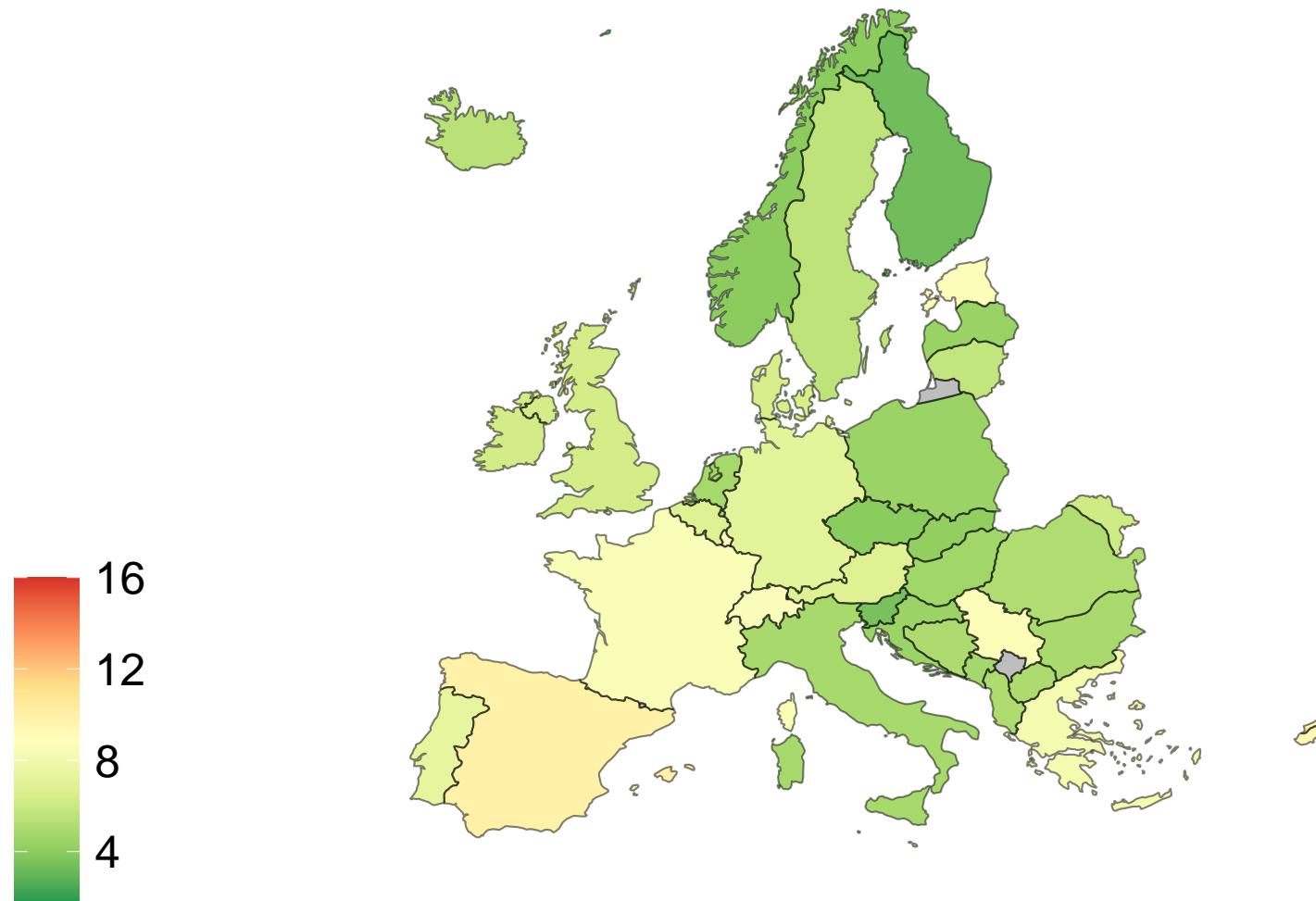
**Figure A.2.6.37**  
Map of top 1% posttax income share in Europe, 1980



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.38**  
**Map of top 1% posttax income share in Europe, 1990**

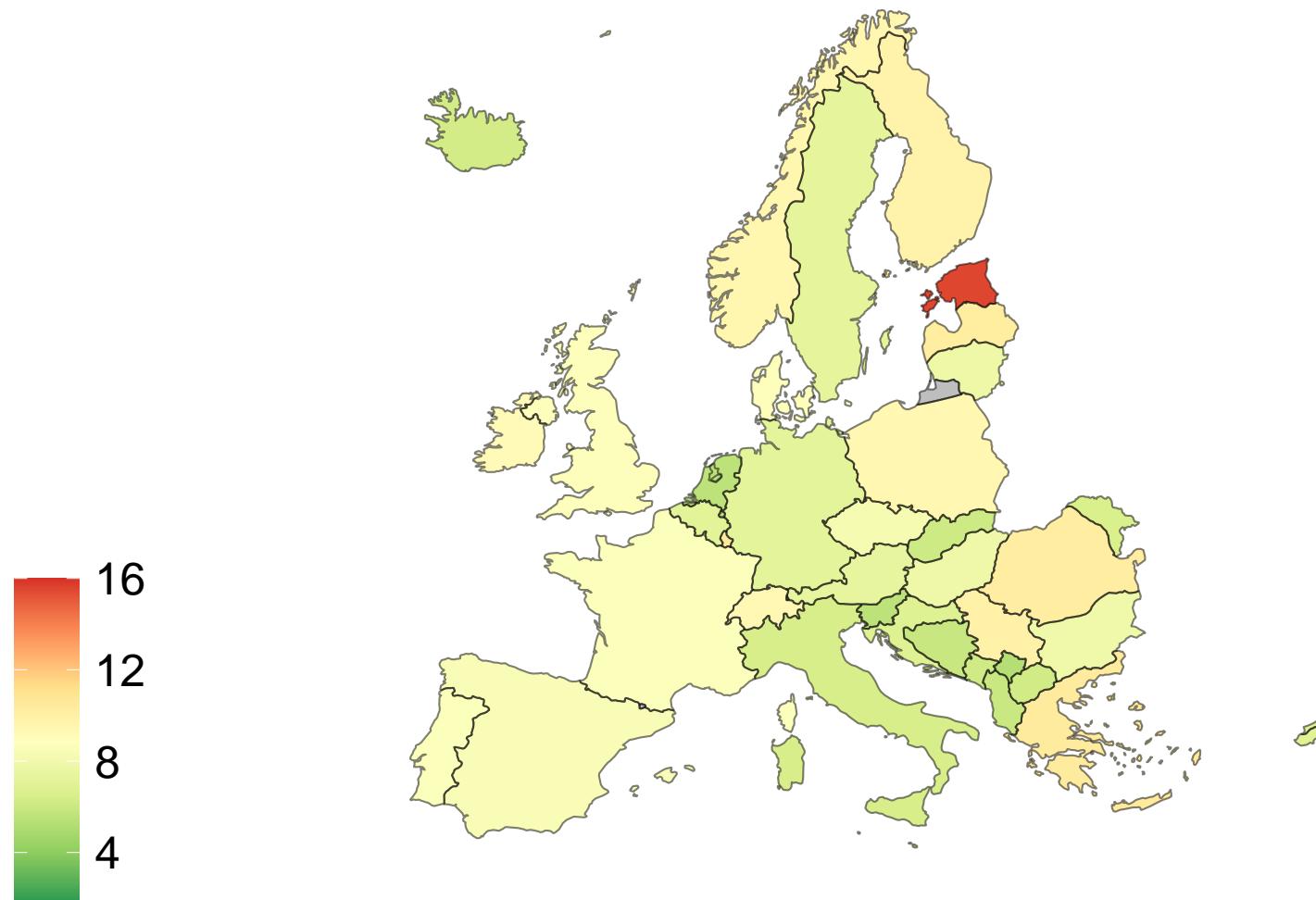
119



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

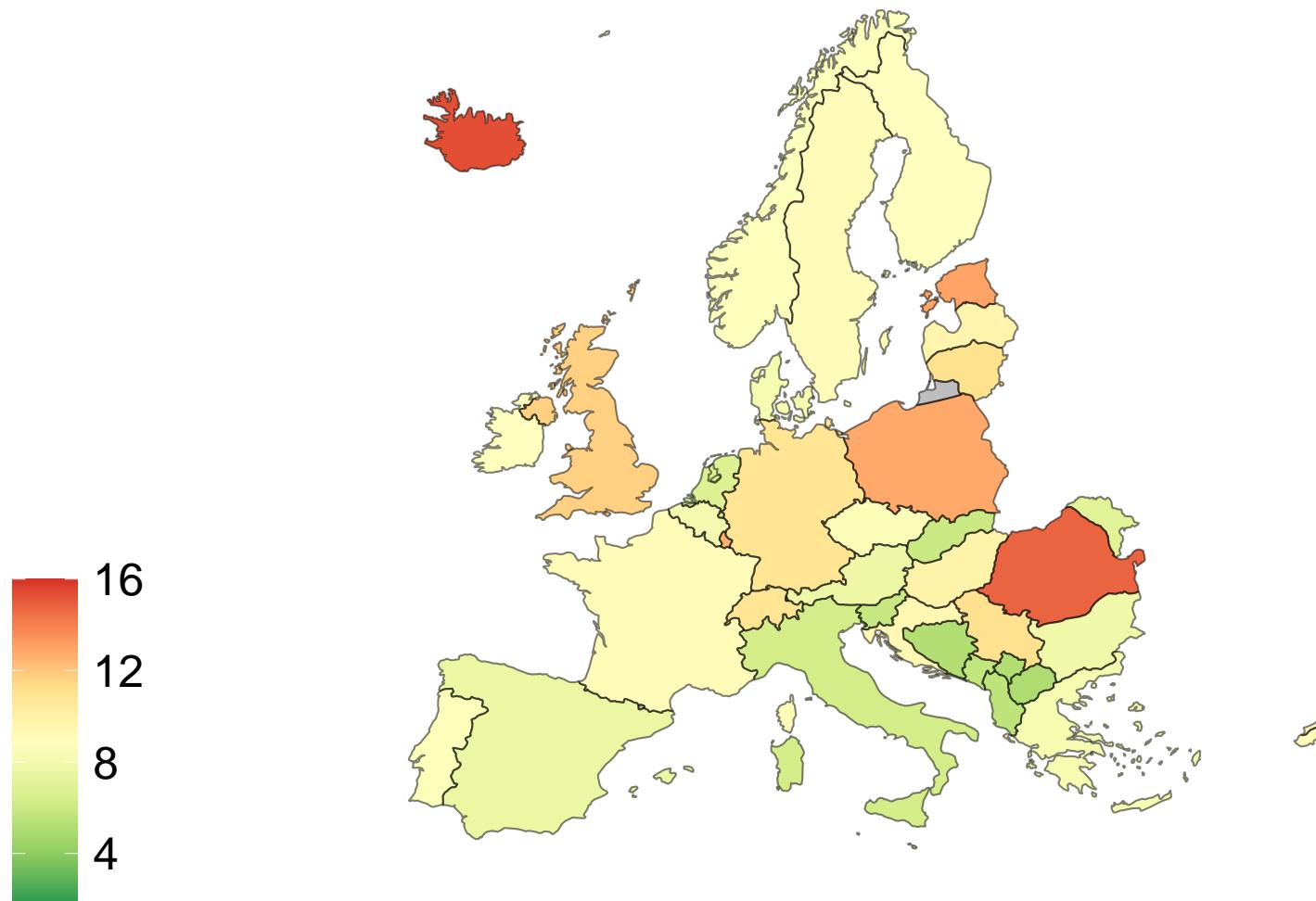
**Figure A.2.6.39**  
**Map of top 1% posttax income share in Europe, 2000**

120



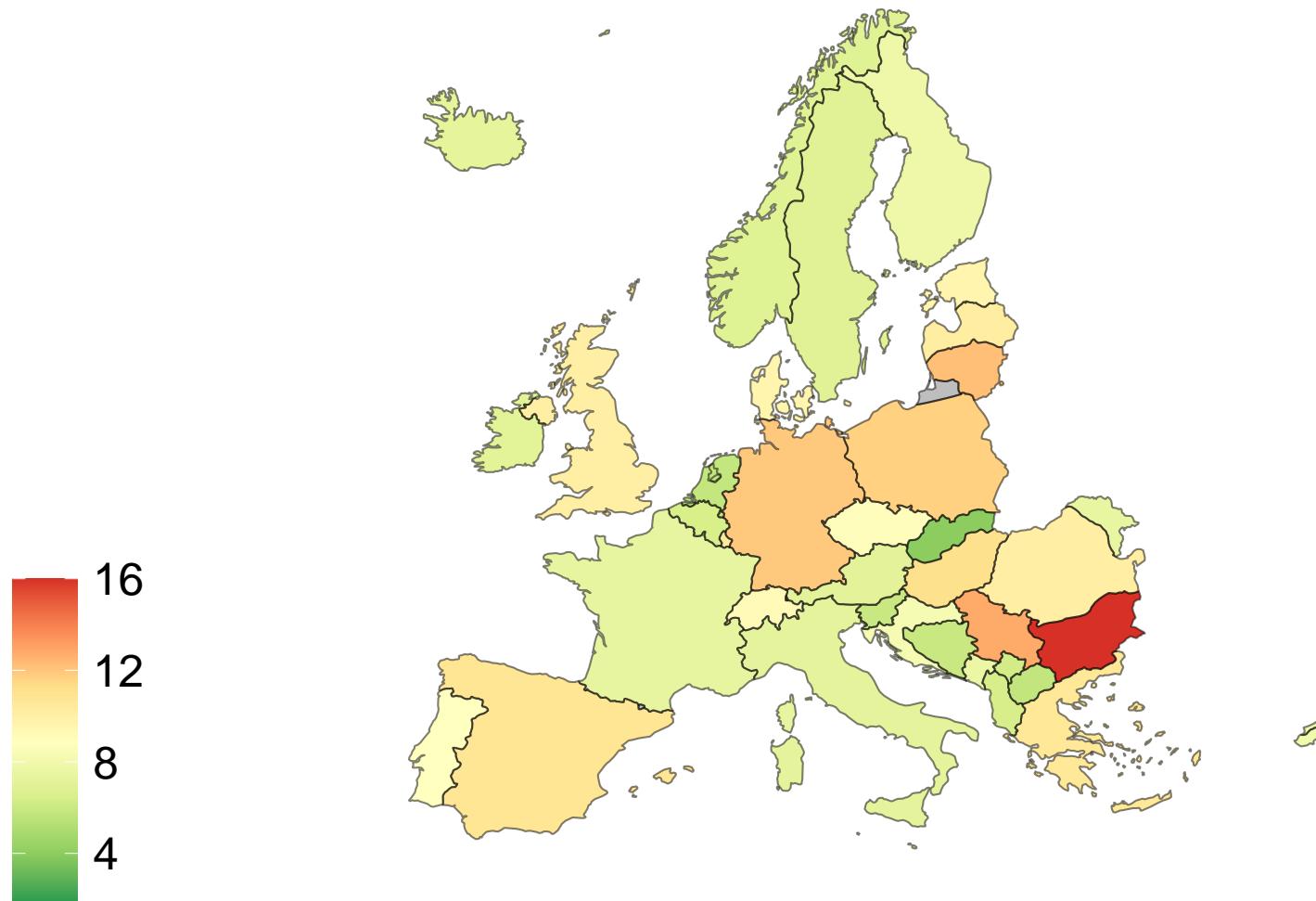
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.40**  
Map of top 1% posttax income share in Europe, 2007



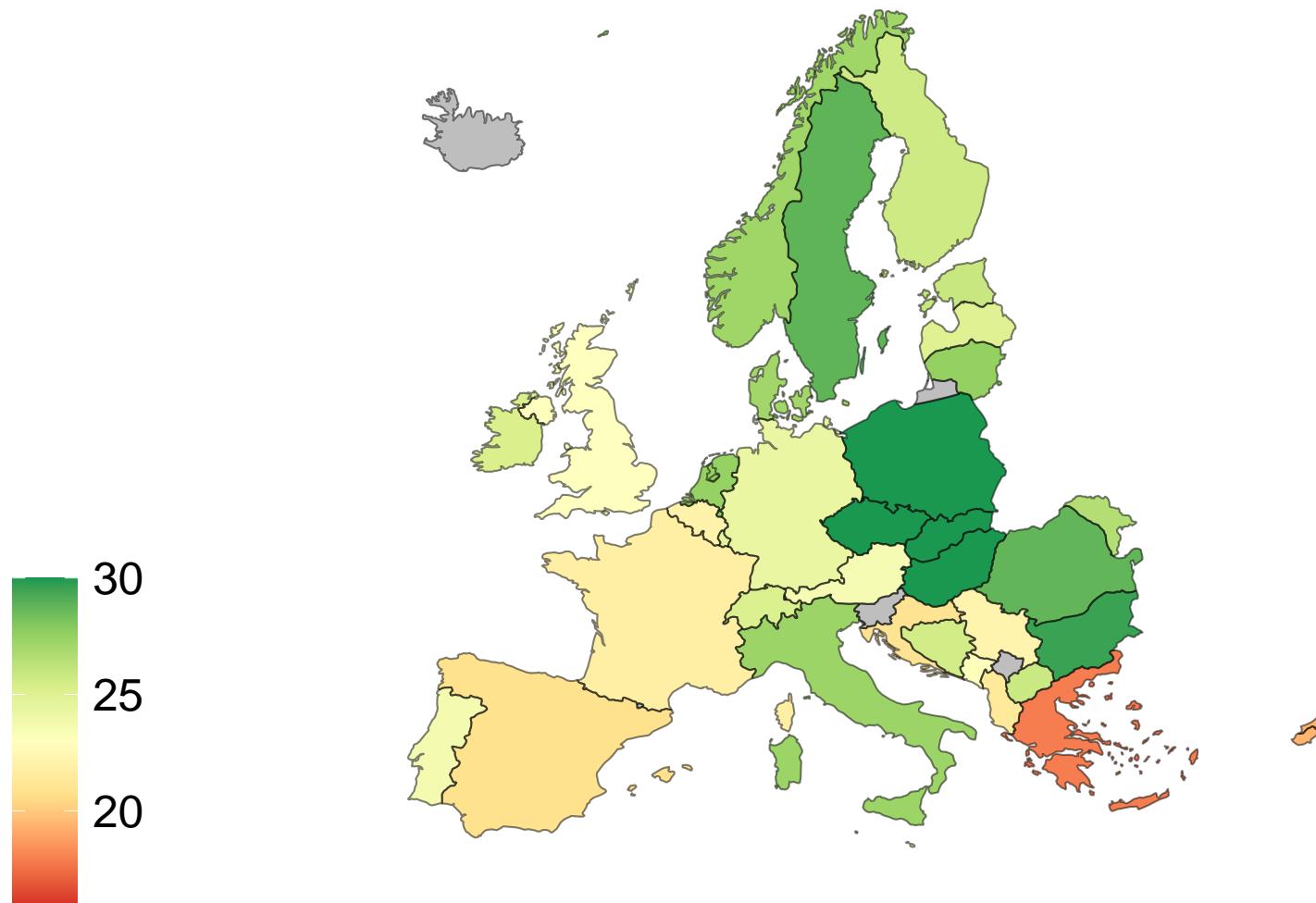
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.41**  
Map of top 1% posttax income share in Europe, 2017



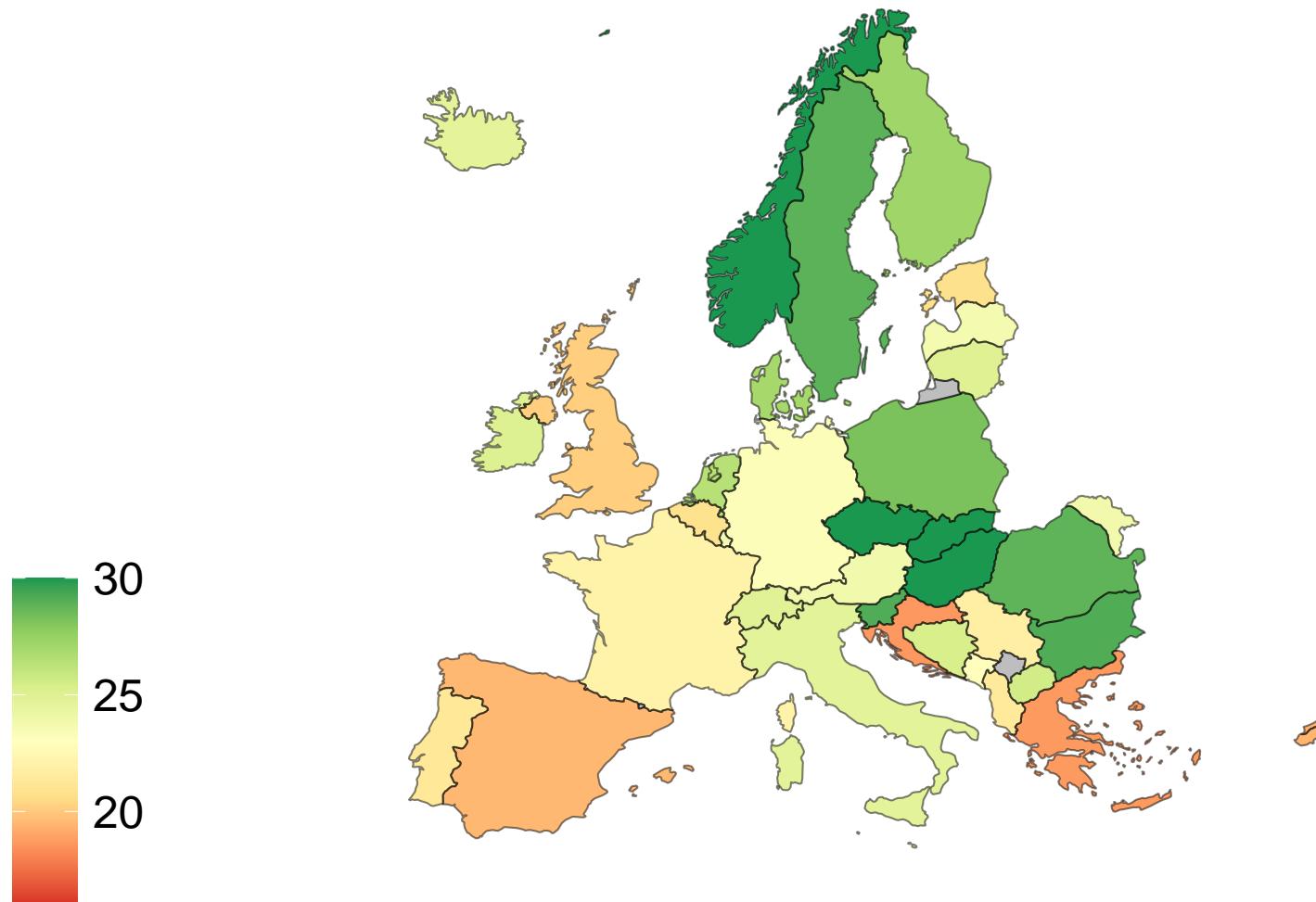
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.42**  
Map of bottom 50% pretax income share in Europe, 1980



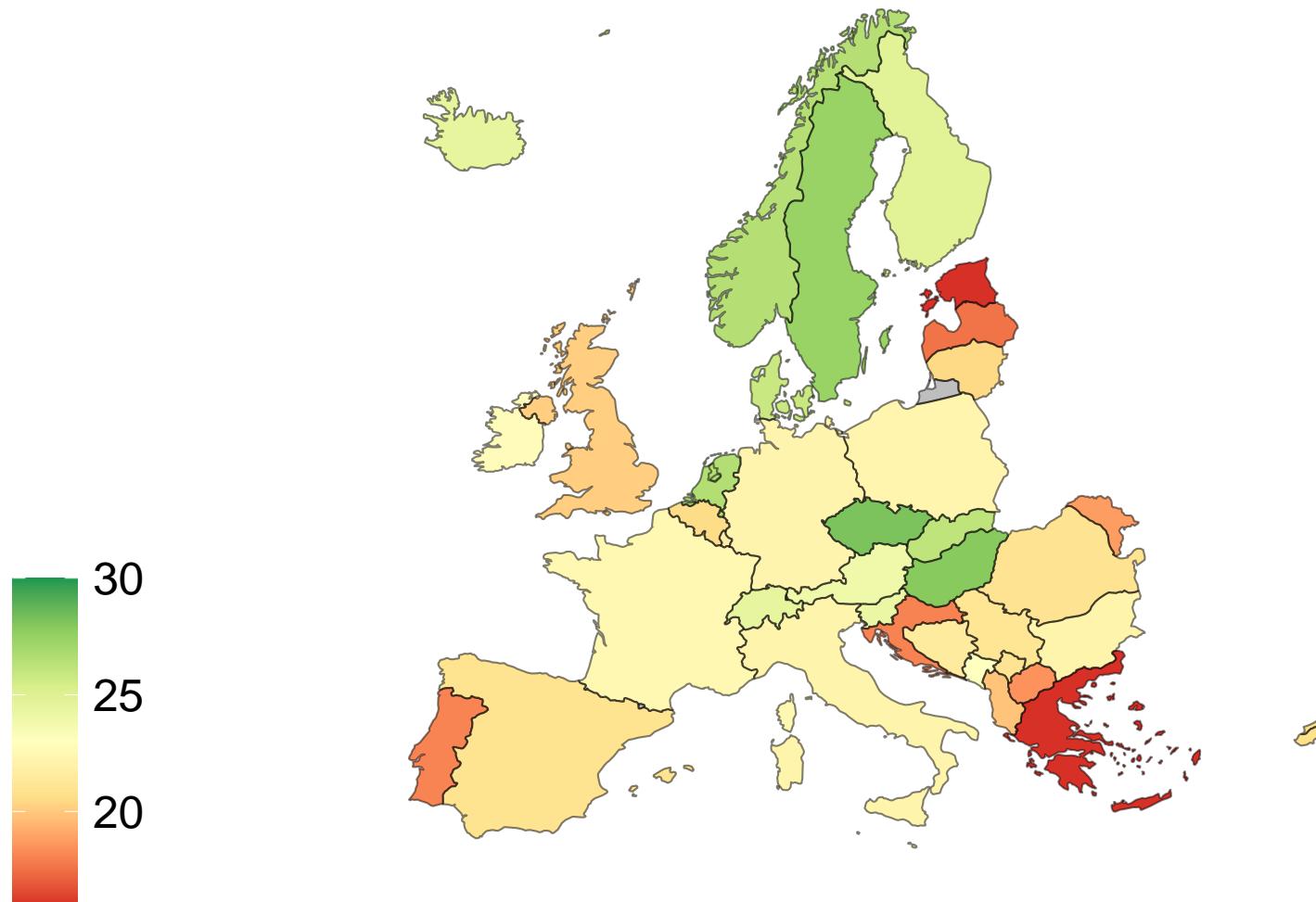
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.43**  
Map of bottom 50% pretax income share in Europe, 1990



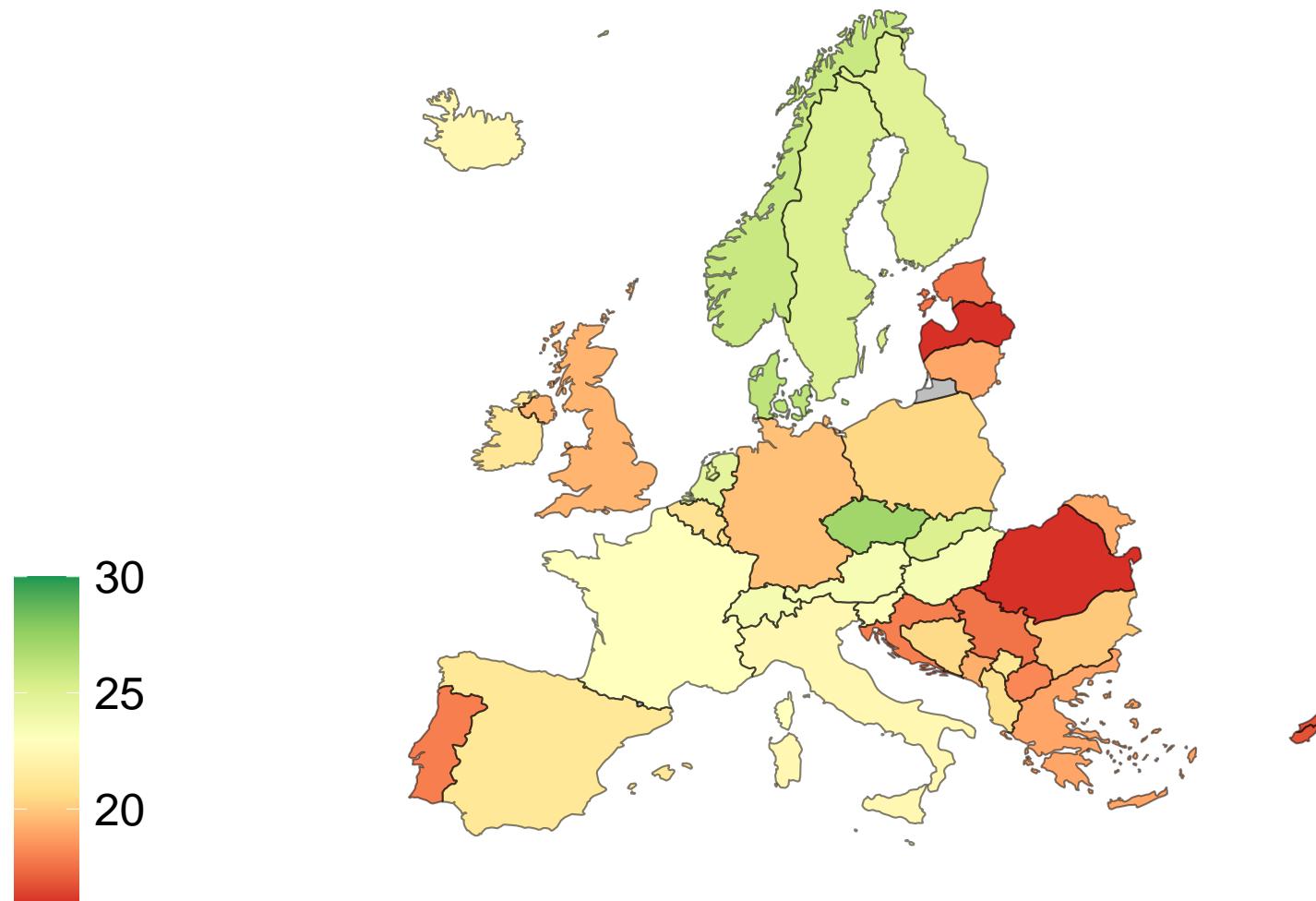
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.44**  
Map of bottom 50% pretax income share in Europe, 2000



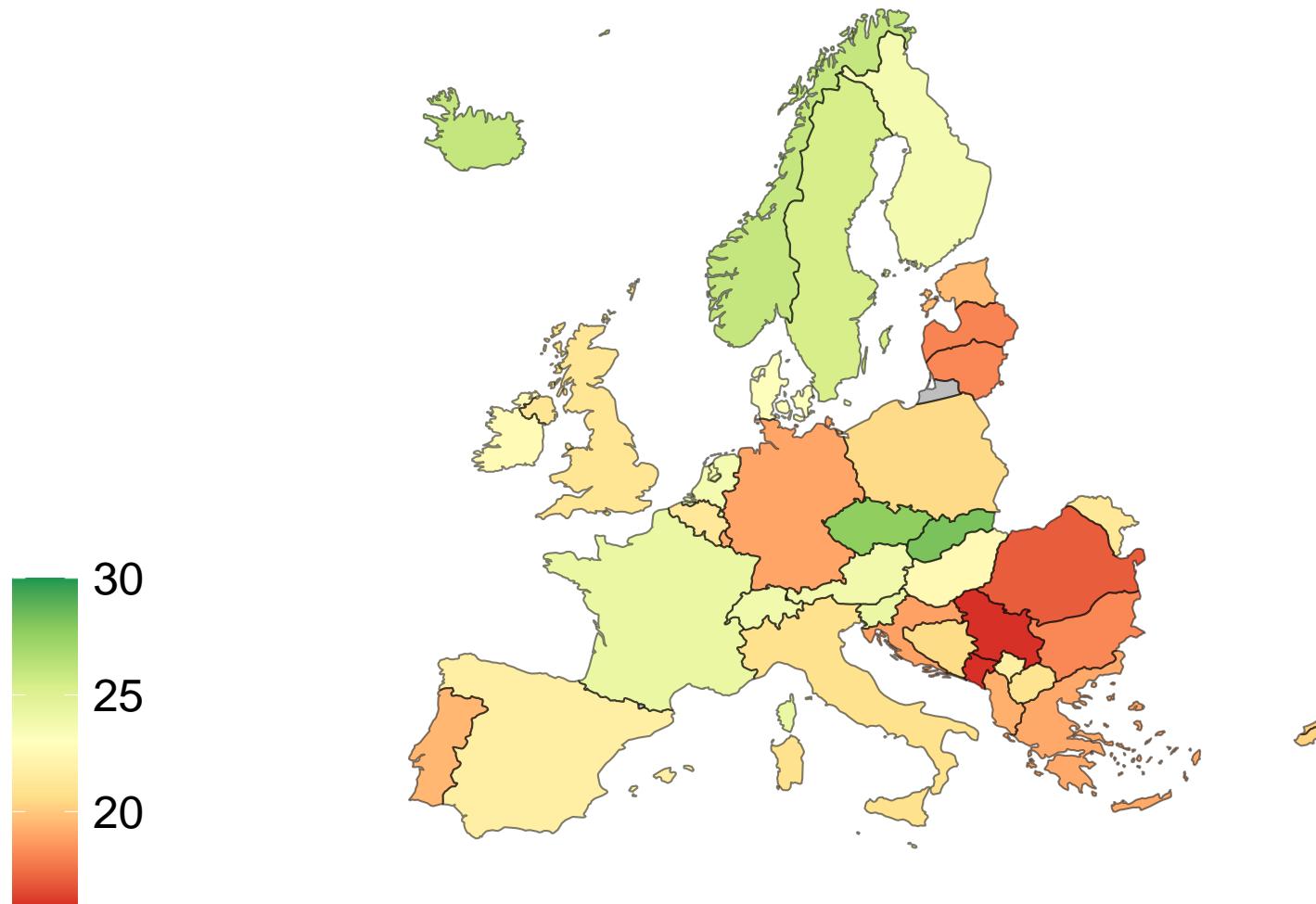
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.45**  
Map of bottom 50% pretax income share in Europe, 2007



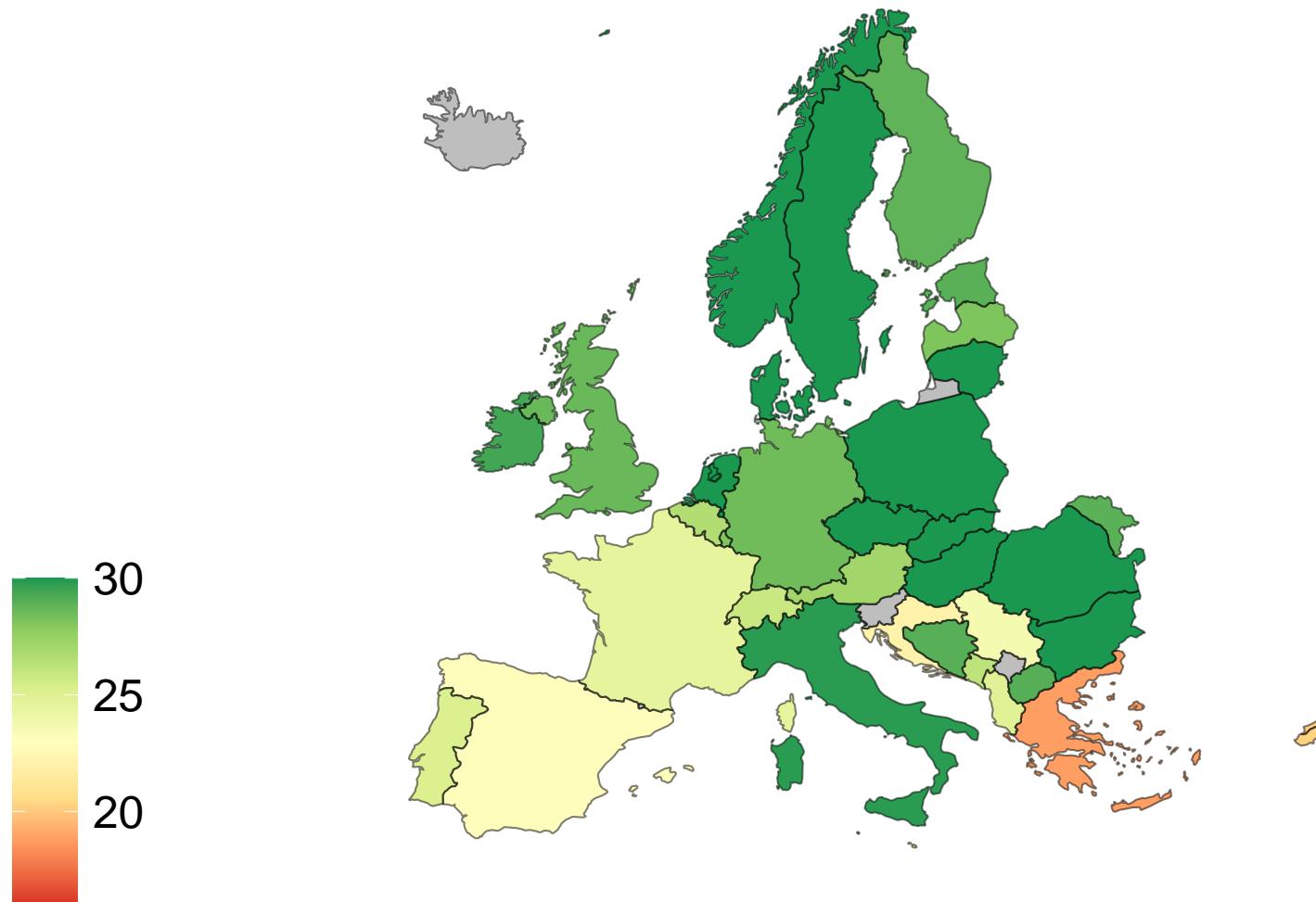
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.46**  
Map of bottom 50% pretax income share in Europe, 2017



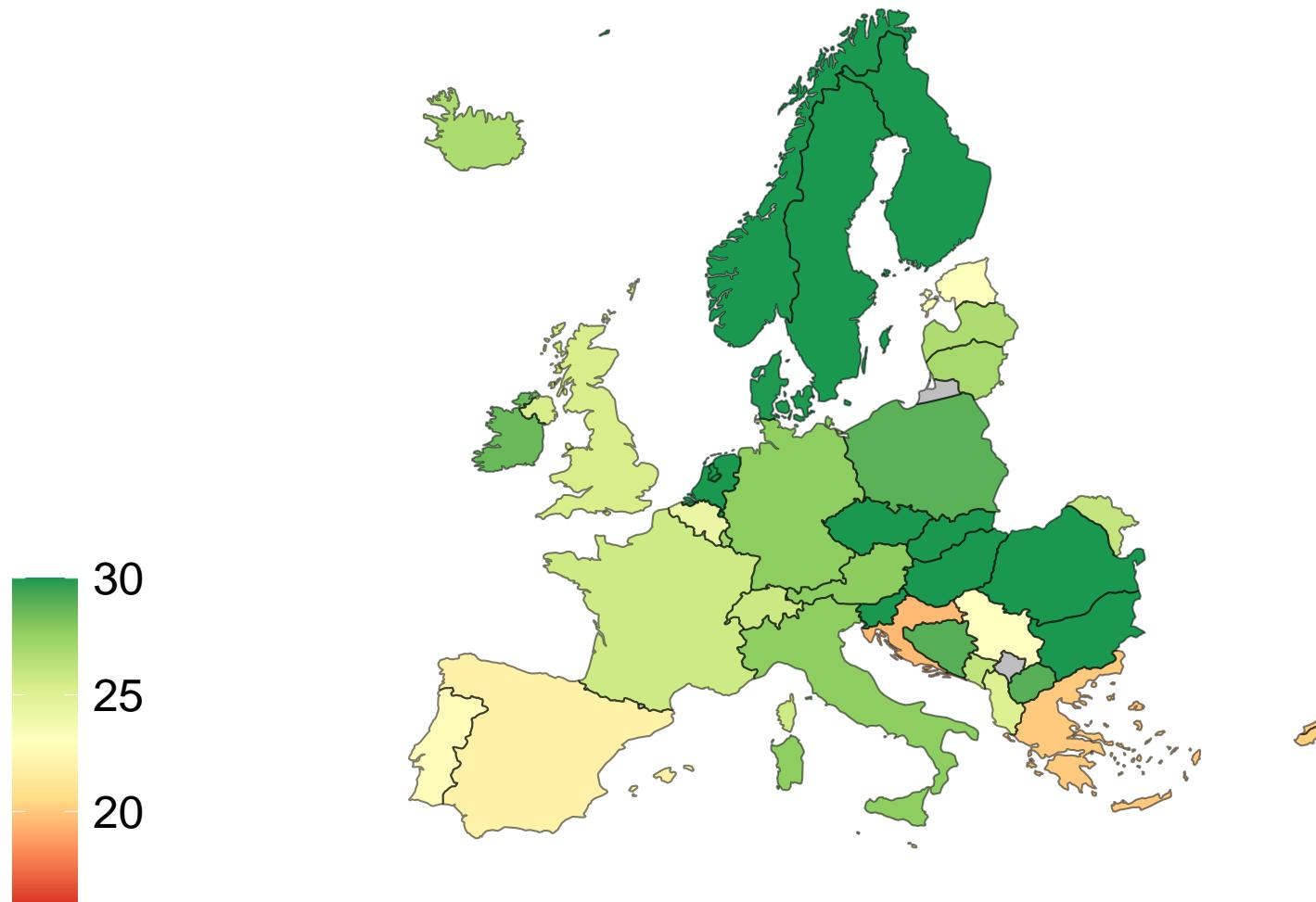
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.47**  
Map of bottom 50% posttax income share in Europe, 1980



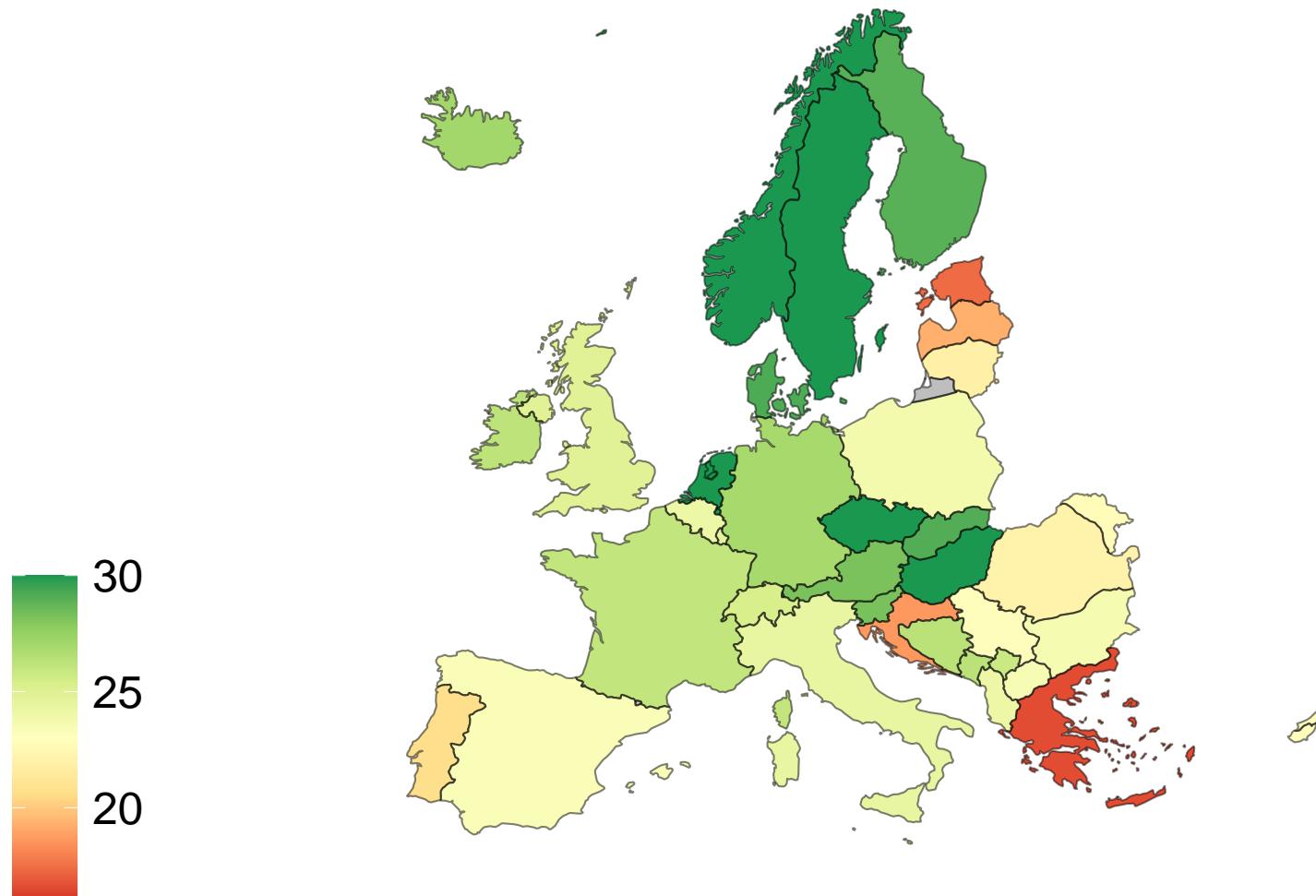
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.48**  
Map of bottom 50% posttax income share in Europe, 1990



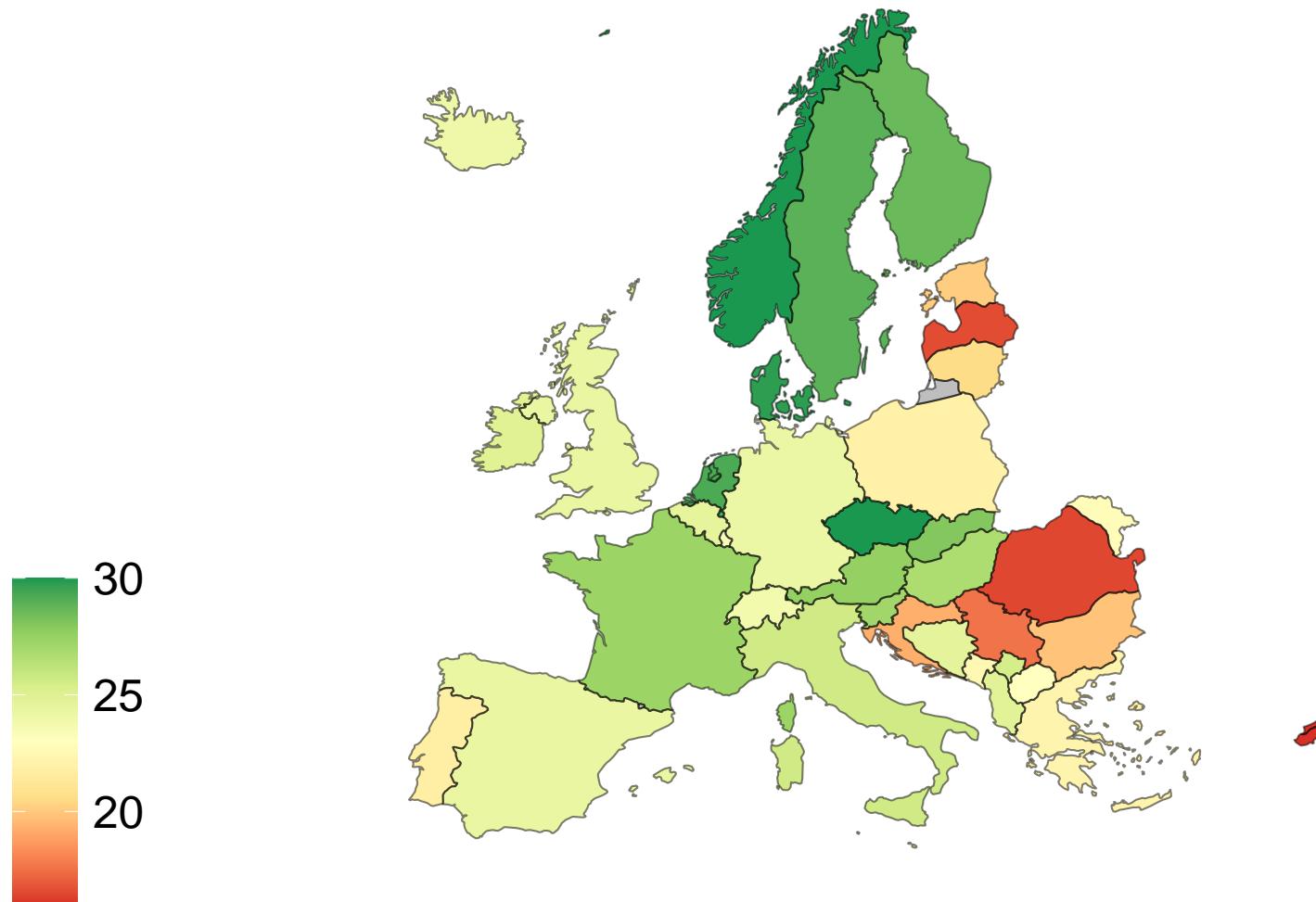
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.49**  
Map of bottom 50% posttax income share in Europe, 2000



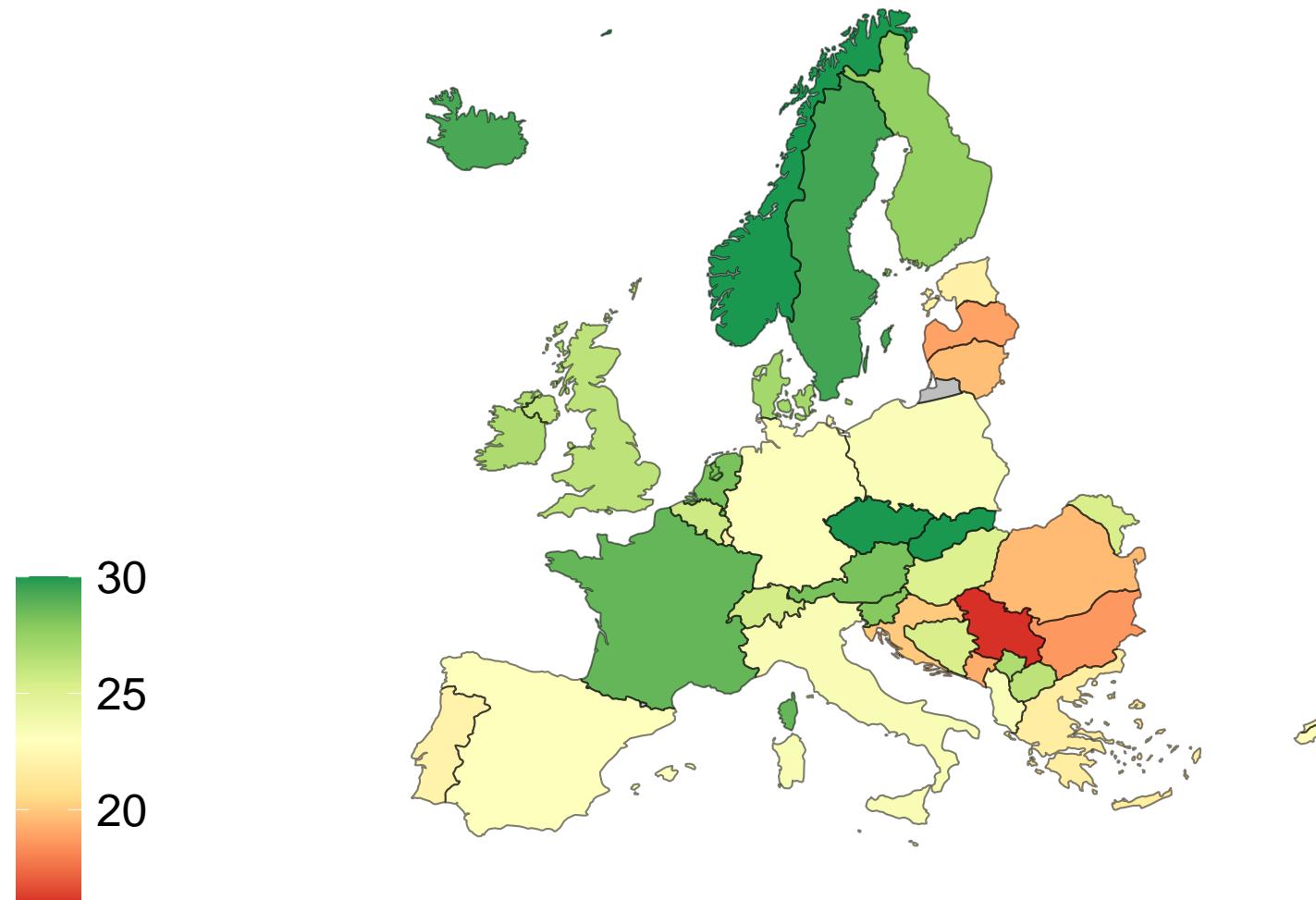
*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.50**  
Map of bottom 50% posttax income share in Europe, 2007



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

**Figure A.2.6.51**  
Map of bottom 50% posttax income share in Europe, 2017



*Source:* Authors' computations combining surveys, tax data and national accounts. *Notes:* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. The map includes countries with no tax data (see appendix table A.2.7.1).

## 2.7 Supplementary tables

Table A.2.7.1  
Coverage of data sources (all European countries)

Country	Surveys	Tax data	Undistrib. prof.	Imp. rents	Tax data source	Quality score
<b>Western Europe</b>						
Austria	1987-2017	1976-2015	1995-2018	1995-2018	<a href="#">Altzinger et al. (2010)</a>	Medium
Belgium	1985-2017	1990-2016	1985-2018	1985-2018	<a href="#">Decoster, Dobbeleer, and Maes (2017)</a>	High
France	1989-2017	1980-2014	1980-2018	1980-2018	<a href="#">Garbinti, Gouille-Lebret, and Piketty (2018)</a>	Very high
Germany	1981-2017	1980-2013	1991-2018	1991-2018	<a href="#">Bartels (2017)</a>	High
Ireland	1980-2018	1980-2015	1995-2018	1995-2018	<a href="#">Jäntti et al. (2007)</a>	High
Italy	1981-2017	1980-2009	1980-2019	1980-2019	<a href="#">Alvaredo and Pisano (2010)</a>	High
Luxembourg	1985-2017	2010-2012		1995-2018	Authors, from <a href="#">Conseil Economique et Social (2015)</a>	High
Netherlands	1983-2017	1981-2012	1980-2018	1980-2019	<a href="#">Salverda and Atkinson (2007)</a>	High
Portugal	1980-2017	1980-2005	1995-2019	1995-2019	<a href="#">Alvaredo (2009)</a>	High
Spain	1980-2017	1981-2012	1995-2018	1995-2018	<a href="#">Alvaredo and Saez (2010)</a>	High
Switzerland	1982-2017	1981-2014	1990-2018	1990-2018	<a href="#">Foellmi and Martínez (2017)</a>	High
United Kingdom	1986-2018	1981-2014	1987-2018	1990-2018	<a href="#">Atkinson and Piketty (2007)</a>	High
<b>Northern Europe</b>						
Denmark	1981-2017	1980-2010	1981-2018	1990-2018	<a href="#">Atkinson and Søgaard (2013)</a>	High
Finland	1981-2017	1980-2009	1980-2019	1980-2019	<a href="#">Jäntti et al. (2010)</a>	High
Iceland	2003-2015	1990-2016	2000-2014	2000-2014	Authors, from <a href="#">Statistics Iceland (2020)</a>	High
Norway	1986-2017	1981-2011	1980-2018	1980-2018	<a href="#">Aaberge and Atkinson (2010)</a>	High
Sweden	1981-2017	1980-2013	1980-2019	1980-2019	<a href="#">Roine and Waldenström (2010)</a>	High
<b>Eastern Europe</b>						
Croatia	1983-2017	1983-2013	1997-2014	2002-2018	<a href="#">Kump and Novokmet (2018)</a>	High
Czech Republic	1980-2017	1980-2015	1995-2018	1995-2018	<a href="#">Novokmet (2018)</a>	High
Estonia	1988-2017	2002-2017	1994-2018	1994-2018	Authors, from <a href="#">Tax and Customs Board (2020)</a>	High
Greece	1981-2017	2004-2011	1995-2018	1995-2018	<a href="#">Chrissis and Koutentakis (2017)</a>	High
Hungary	1982-2017	1980-2008	1995-2018	1995-2018	<a href="#">Mavridis and Mosberger (2017)</a>	High
Poland	1983-2017	1983-2015	1996-2018	1996-2018	<a href="#">Bukowski and Novokmet (2017b)</a>	High
Romania	1989-2017	2013	1995-2017	1995-2019	<a href="#">Oancea, Andrei, and Pirjol (2017)</a>	Medium
Serbia	1983-2017	2017	2000-2011	1997-2011	Authors, data provided by Statistical Office	Medium
Slovenia	1987-2017	1991-2012	1995-2018	1995-2018	<a href="#">Kump and Novokmet (2018)</a>	High
<b>Other Eastern</b>						
Albania	1996-2017					Low
Bosn. & Herz.	1983-2015					Medium Low
Bulgaria	1980-2017		1999-2017	1999-2017		Medium
Cyprus	1990-2017		1995-2017	1995-2018		Medium Low
Kosovo	2003-2017					Medium Low
Latvia	1988-2017		2001-2018	1995-2018		Medium
Lithuania	1988-2017		1995-2018	1995-2018		Medium
Malta	2006-2017			2000-2018		Medium Low
Moldova	1988-2018					Low
Montenegro	1983-2015					Medium Low
Macedonia	1983-2017					Medium Low
Slovakia	1980-2017		1995-2019	1995-2019		Medium

Notes: The table shows the time coverage of the main data sources used to estimate distributional national accounts by country. Other Eastern correspond to countries not included in the main paper (countries for which no tax data was available at the time of writing).

**Table A.2.7.2**  
**Total taxes and transfers in Europe and the United States, 2007-2017**  
 $(\% \text{ of national income})$

	Western Europe	Northern Europe	Eastern Europe	All Europe	United States
<b>All taxes &amp; social contributions</b>	<b>47.8%</b>	<b>51.6%</b>	<b>40.5%</b>	<b>46.5%</b>	<b>28.2%</b>
Social contributions	20.2%	11.7%	16.1%	18.9%	7.6%
<i>Inc. contributory contributions</i>	17.6%	11.2%	14.6%	16.7%	5.3%
<i>Inc. non-contributory contributions</i>	2.5%	0.5%	1.5%	2.2%	2.2%
Taxes	27.6%	39.9%	24.4%	27.6%	20.7%
<i>Inc. Income &amp; wealth taxes</i>	11.3%	17.7%	5.6%	10.4%	11.2%
<i>Inc. Corporate tax</i>	2.9%	4.1%	2.9%	3.0%	3.0%
<i>Inc. Indirect &amp; consumption taxes</i>	13.4%	18.0%	16.0%	14.1%	6.5%
<b>All non-contributory taxes &amp; contributions</b>	<b>30.2%</b>	<b>40.4%</b>	<b>25.9%</b>	<b>29.8%</b>	<b>22.9%</b>
 All transfers	 <b>48.3%</b>	 <b>51.4%</b>	 <b>41.6%</b>	 <b>47.1%</b>	 <b>34.5%</b>
Cash transfers	23.6%	22.1%	18.7%	22.5%	8.8%
<i>Inc. Pensions</i>	16.6%	15.8%	14.5%	16.1%	4.7%
<i>Inc. Unemployment &amp; disability</i>	1.9%	1.0%	0.7%	1.6%	1.4%
<i>Inc. Other cash transfers</i>	5.1%	5.2%	3.5%	4.8%	2.7%
In-kind transfers	24.7%	29.4%	22.9%	24.6%	25.7%
<i>Inc. Health</i>	7.8%	7.8%	5.6%	7.4%	7.3%
<i>Inc. Other in-kind transfers</i>	16.9%	21.5%	17.3%	17.2%	18.3%

*Source:* Authors' computations based on national accounts data. *Notes:* The table shows the structure of taxes and transfers in the United States and Europe, expressed as a share of national income. Values are population-weighted and averaged over the 2007-2017 period. See Appendix Table A.2.7.1 for the composition of European regions.

**Table A.2.7.3**  
**Summary measures of inequality in Europe and the US, 1980-2017**

	Region	Gini		Theil		Atkinson	
		Pretax	Posttax	Pretax	Posttax	Pretax	Posttax
1980	United States	.452	.373	.441	.307	.332	.232
	Eastern Europe	.316	.291	.182	.154	.194	.161
	Northern Europe	.339	.286	.212	.151	.249	.154
	Western Europe	.403	.356	.317	.238	.295	.222
1981	United States	.459	.384	.461	.336	.346	.248
	Eastern Europe	.329	.305	.194	.167	.205	.173
	Northern Europe	.328	.278	.195	.14	.19	.139
	Western Europe	.395	.346	.306	.224	.286	.213
1982	United States	.46	.388	.468	.341	.342	.237
	Eastern Europe	.331	.307	.198	.169	.207	.175
	Northern Europe	.332	.287	.204	.154	.2	.162
	Western Europe	.395	.346	.302	.223	.287	.214
1983	United States	.47	.4	.484	.358	.363	.251
	Eastern Europe	.322	.298	.189	.16	.201	.168
	Northern Europe	.333	.283	.21	.152	.199	.147
	Western Europe	.396	.347	.306	.225	.293	.211
1984	United States	.48	.417	.525	.404	.368	.267
	Eastern Europe	.319	.296	.186	.16	.193	.169
	Northern Europe	.336	.289	.226	.172	.194	.154
	Western Europe	.398	.349	.308	.228	.289	.216
1985	United States	.48	.415	.523	.397	.369	.267
	Eastern Europe	.316	.293	.181	.156	.188	.164

**Table A.2.7.3**  
**Summary measures of inequality in Europe and the US, 1980-2017**

	Region	Gini		Theil		Atkinson	
		Pretax	Posttax	Pretax	Posttax	Pretax	Posttax
1986	Northern Europe	.337	.292	.229	.172	.196	.149
	Western Europe	.402	.351	.317	.23	.297	.218
	United States	.482	.412	.515	.372	.378	.264
	Eastern Europe	.318	.296	.184	.159	.193	.174
	Northern Europe	.326	.284	.205	.156	.183	.149
	Western Europe	.407	.359	.332	.245	.302	.233
1987	United States	.492	.417	.554	.403	.388	.271
	Eastern Europe	.31	.293	.174	.156	.165	.164
	Northern Europe	.34	.287	.224	.162	.232	.141
	Western Europe	.408	.354	.338	.24	.303	.22
1988	United States	.502	.43	.619	.461	.398	.285
	Eastern Europe	.312	.288	.176	.15	.206	.165
	Northern Europe	.33	.29	.214	.167	.19	.148
	Western Europe	.413	.359	.35	.249	.305	.221
1989	United States	.501	.425	.599	.441	.397	.278
	Eastern Europe	.322	.306	.189	.172	.184	.185
	Northern Europe	.333	.289	.217	.165	.22	.158
	Western Europe	.415	.362	.356	.256	.32	.226
1990	United States	.502	.424	.603	.44	.402	.278
	Eastern Europe	.35	.33	.225	.197	.228	.204
	Northern Europe	.324	.276	.196	.142	.193	.139
	Western Europe	.419	.363	.354	.252	.311	.224
1991	United States	.503	.423	.588	.425	.416	.277

**Table A.2.7.3**  
**Summary measures of inequality in Europe and the US, 1980-2017**

	Region	Gini		Theil		Atkinson	
		Pretax	Posttax	Pretax	Posttax	Pretax	Posttax
	Eastern Europe	.354	.335	.237	.21	.218	.224
	Northern Europe	.322	.275	.192	.139	.182	.129
	Western Europe	.418	.364	.349	.253	.311	.228
1992	United States	.512	.432	.631	.459	.412	.287
	Eastern Europe	.364	.342	.263	.224	.237	.232
	Northern Europe	.326	.278	.199	.146	.189	.132
	Western Europe	.414	.368	.334	.257	.3	.249
1993	United States	.511	.427	.621	.44	.411	.282
	Eastern Europe	.38	.357	.29	.244	.261	.248
	Northern Europe	.332	.292	.213	.166	.187	.159
	Western Europe	.417	.368	.341	.255	.311	.268
1994	United States	.513	.428	.624	.438	.41	.283
	Eastern Europe	.393	.373	.322	.273	.282	.265
	Northern Europe	.358	.31	.266	.199	.244	.164
	Western Europe	.421	.374	.35	.261	.318	.248
1995	United States	.521	.435	.652	.456	.419	.291
	Eastern Europe	.408	.386	.361	.301	.298	.279
	Northern Europe	.354	.312	.269	.211	.209	.171
	Western Europe	.419	.373	.349	.266	.312	.245
1996	United States	.534	.441	.696	.475	.457	.296
	Eastern Europe	.412	.389	.352	.3	.305	.262
	Northern Europe	.361	.313	.278	.21	.253	.172
	Western Europe	.425	.375	.365	.268	.322	.249

**Table A.2.7.3**  
**Summary measures of inequality in Europe and the US, 1980-2017**

	Region	Gini		Theil		Atkinson	
		Pretax	Posttax	Pretax	Posttax	Pretax	Posttax
1997	United States	.54	.446	.725	.498	.456	.303
	Eastern Europe	.418	.396	.37	.325	.309	.282
	Northern Europe	.371	.32	.306	.233	.24	.177
	Western Europe	.428	.375	.378	.278	.319	.254
1998	United States	.541	.448	.734	.5	.456	.306
	Eastern Europe	.425	.395	.391	.314	.322	.271
	Northern Europe	.361	.318	.292	.228	.216	.173
	Western Europe	.431	.38	.388	.287	.317	.258
1999	United States	.547	.452	.77	.525	.456	.313
	Eastern Europe	.43	.405	.393	.341	.324	.288
	Northern Europe	.368	.325	.315	.252	.225	.183
	Western Europe	.434	.382	.395	.289	.337	.254
2000	United States	.551	.456	.797	.542	.466	.32
	Eastern Europe	.435	.412	.394	.339	.345	.302
	Northern Europe	.367	.315	.317	.239	.222	.168
	Western Europe	.433	.382	.392	.291	.33	.26
2001	United States	.542	.453	.752	.53	.456	.316
	Eastern Europe	.434	.412	.388	.337	.34	.313
	Northern Europe	.361	.308	.284	.211	.236	.165
	Western Europe	.433	.379	.388	.282	.327	.257
2002	United States	.543	.457	.745	.54	.465	.322
	Eastern Europe	.444	.425	.415	.358	.363	.309
	Northern Europe	.361	.307	.29	.217	.231	.162

**Table A.2.7.3**  
**Summary measures of inequality in Europe and the US, 1980-2017**

	Region	Gini		Theil		Atkinson	
		Pretax	Posttax	Pretax	Posttax	Pretax	Posttax
2003	Western Europe	.432	.379	.383	.283	.321	.249
	United States	.542	.461	.749	.552	.444	.329
	Eastern Europe	.454	.437	.433	.377	.38	.328
	Northern Europe	.363	.305	.298	.226	.268	.163
2004	Western Europe	.432	.379	.389	.292	.325	.248
	United States	.551	.466	.8	.581	.456	.334
	Eastern Europe	.461	.432	.471	.385	.4	.327
	Northern Europe	.374	.314	.332	.267	.285	.169
2005	Western Europe	.434	.379	.401	.296	.32	.246
	United States	.56	.469	.853	.604	.467	.335
	Eastern Europe	.472	.437	.512	.4	.438	.329
	Northern Europe	.384	.338	.367	.334	.256	.2
2006	Western Europe	.44	.385	.418	.303	.33	.252
	United States	.569	.475	.888	.625	.482	.344
	Eastern Europe	.477	.441	.52	.42	.428	.33
	Northern Europe	.386	.327	.356	.255	.249	.183
2007	Western Europe	.444	.384	.432	.31	.332	.252
	United States	.57	.469	.891	.606	.482	.332
	Eastern Europe	.484	.447	.565	.447	.437	.337
	Northern Europe	.382	.326	.347	.257	.248	.181
2008	Western Europe	.448	.388	.449	.328	.339	.251
	United States	.563	.463	.871	.608	.473	.332
	Eastern Europe	.479	.449	.55	.461	.424	.331

**Table A.2.7.3**  
**Summary measures of inequality in Europe and the US, 1980-2017**

	Region	Gini		Theil		Atkinson	
		Pretax	Posttax	Pretax	Posttax	Pretax	Posttax
2009	Northern Europe	.389	.333	.349	.253	.262	.191
	Western Europe	.441	.384	.431	.319	.336	.249
	United States	.554	.469	.835	.621	.456	.347
	Eastern Europe	.47	.44	.511	.425	.418	.326
2010	Northern Europe	.375	.317	.294	.205	.259	.17
	Western Europe	.444	.38	.424	.299	.348	.241
	United States	.567	.473	.902	.658	.469	.35
	Eastern Europe	.461	.436	.471	.399	.402	.326
2011	Northern Europe	.397	.331	.347	.235	.317	.182
	Western Europe	.441	.382	.417	.305	.346	.246
	United States	.571	.477	.886	.646	.481	.356
	Eastern Europe	.468	.437	.49	.402	.418	.327
2012	Northern Europe	.393	.334	.335	.234	.272	.189
	Western Europe	.444	.384	.428	.31	.354	.25
	United States	.581	.489	.946	.689	.494	.369
	Eastern Europe	.471	.444	.504	.414	.423	.342
2013	Northern Europe	.39	.326	.333	.222	.312	.179
	Western Europe	.444	.385	.419	.305	.357	.252
	United States	.573	.479	.888	.628	.477	.356
	Eastern Europe	.469	.424	.494	.382	.42	.306
2014	Northern Europe	.395	.33	.337	.23	.318	.183
	Western Europe	.451	.39	.431	.312	.38	.259
	United States	.579	.482	.918	.64	.49	.359

**Table A.2.7.3**  
**Summary measures of inequality in Europe and the US, 1980-2017**

	Region	Gini		Theil		Atkinson	
		Pretax	Posttax	Pretax	Posttax	Pretax	Posttax
	Eastern Europe	.475	.45	.519	.44	.441	.347
	Northern Europe	.398	.335	.342	.233	.317	.19
	Western Europe	.452	.394	.438	.327	.377	.27
2015	United States	.596	.5	.942	.655	.517	.388
	Eastern Europe	.475	.433	.538	.416	.44	.318
	Northern Europe	.399	.334	.339	.235	.314	.187
	Western Europe	.451	.392	.44	.323	.373	.267
2016	United States	.594	.501	.933	.661	.523	.397
	Eastern Europe	.461	.429	.49	.398	.408	.317
	Northern Europe	.394	.331	.328	.228	.311	.184
	Western Europe	.451	.392	.442	.33	.368	.267
2017	United States	.593	.499	.963	.66	.523	.408
	Eastern Europe	.461	.424	.492	.388	.407	.305
	Northern Europe	.397	.333	.336	.233	.319	.186
	Western Europe	.448	.394	.441	.334	.364	.271

*Sources.* Authors' computations combining surveys, tax data and national accounts for European countries and [Piketty, Saez, and Zucman, 2018](#) for the US. *Notes.* The table presents summary pretax and posttax income inequality statistics in Eastern Europe, Northern Europe, Western Europe, and the United States. See Table A.2.7.1 for the composition of European regions. The Atkinson parameter is set to 1.

**Table A.2.7.4**  
**Performance of European countries and the United States in reaching SDG 10.1, 1980-2017**

	1980-2017			2007-2017		
	Bottom 40%	Average	Difference	Bottom 40%	Average	Difference
Austria	1.2 %	1.1 %	0.1 p.p.	-0.1 %	-0.2 %	0.1 p.p.
Belgium	1.1 %	1.2 %	-0.1 p.p.	0.2 %	0.2 %	0.0 p.p.
Switzerland	0.5 %	0.6 %	-0.2 p.p.	0.4 %	0.3 %	0.0 p.p.
Czech Republic	0.3 %	1.0 %	-0.7 p.p.	1.4 %	1.2 %	0.2 p.p.
Germany	0.0 %	0.8 %	-0.8 p.p.	0.2 %	0.7 %	-0.6 p.p.
Denmark	1.0 %	1.5 %	-0.5 p.p.	-1.0 %	0.4 %	-1.4 p.p.
Estonia	1.2 %	2.0 %	-0.8 p.p.	2.1 %	1.0 %	1.2 p.p.
Spain	1.4 %	1.2 %	0.2 p.p.	0.7 %	0.4 %	0.3 p.p.
Finland	1.3 %	1.5 %	-0.2 p.p.	-0.9 %	-0.5 %	-0.4 p.p.
France	1.3 %	0.9 %	0.4 p.p.	0.4 %	-0.2 %	0.6 p.p.
United Kingdom	1.8 %	2.0 %	-0.2 p.p.	1.0 %	0.0 %	0.9 p.p.
Greece	0.0 %	-0.1 %	0.1 p.p.	-3.6 %	-3.4 %	-0.2 p.p.
Croatia	-0.2 %	0.1 %	-0.4 p.p.	0.5 %	0.1 %	0.4 p.p.
Hungary	-0.8 %	0.9 %	-1.7 p.p.	0.7 %	1.5 %	-0.8 p.p.
Ireland	1.6 %	1.9 %	-0.3 p.p.	0.5 %	-0.5 %	0.9 p.p.
Iceland	1.8 %	1.6 %	0.2 p.p.	2.3 %	0.6 %	1.7 p.p.
Italy	-0.5 %	0.4 %	-0.9 p.p.	-2.2 %	-1.3 %	-0.9 p.p.
Luxembourg	1.8 %	2.6 %	-0.8 p.p.	-4.0 %	-2.9 %	-1.2 p.p.
Netherlands	0.4 %	0.9 %	-0.5 p.p.	-0.3 %	0.2 %	-0.5 p.p.
Norway	2.3 %	2.4 %	-0.1 p.p.	0.9 %	0.9 %	-0.0 p.p.
Poland	0.7 %	2.0 %	-1.3 p.p.	3.0 %	3.0 %	-0.1 p.p.
Portugal	0.7 %	1.3 %	-0.6 p.p.	0.8 %	-0.1 %	0.9 p.p.

**Table A.2.7.4**  
**Performance of European countries and the United States in reaching SDG 10.1, 1980-2017**

	1980-2017			2007-2017		
	Bottom 40%	Average	Difference	Bottom 40%	Average	Difference
Romania	-0.4 %	1.3 %	-1.7 p.p.	4.1 %	2.8 %	1.3 p.p.
Serbia	-2.3 %	-1.0 %	-1.3 p.p.	-1.0 %	0.9 %	-1.9 p.p.
Sweden	1.4 %	1.8 %	-0.4 p.p.	1.1 %	1.1 %	0.0 p.p.
Slovenia	-0.1 %	0.5 %	-0.5 p.p.	0.8 %	0.2 %	0.6 p.p.
United States	-0.3 %	1.4 %	-1.6 p.p.	-1.4 %	0.4 %	-1.9 p.p.

*Source.* Authors' computations combining surveys, tax data and national accounts. *Notes.* The table shows the average annual real growth of the pretax income of the bottom 40%, the average annual real growth of the average national income per adult, and the percentage points difference between the two growth rates over the 1980-2017 and 2007-2017 periods. Negative differences imply that the income of the bottom 40% grew slower than the average national income. The unit of observation is the adult individual aged 20 or above.

**Table A.2.7.5**  
**Average national incomes in Europe, 1980-2017**

	Average income (2017 PPP €)					% of European average income				
	1980	1990	2000	2007	2017	1980	1990	2000	2007	2017
<b>European regions</b>										
Europe	21380	24320	27640	31170	32250	90	88	83	84	82
EU-15 (West)	24230	28150	32260	35380	35260	102	102	97	95	90
EU-13 (East)	12960	13030	13100	17770	22170	55	47	39	48	57
Other West	32310	34970	42550	47990	50850	136	127	127	129	130
Other East	10980	9710	6630	9170	10600	46	35	20	25	27
<b>Eastern Europe</b>										
Albania	6690	5520	6530	9180	11080	28	20	20	25	28
Bosnia and Herzegovina	2030	1650	7480	9540	11400	9	6	22	26	29
Bulgaria	7040	8780	8330	11890	15630	30	32	25	32	40
Croatia	19330	17040	14640	20030	20200	82	62	44	54	52
Czech Republic	18000	20670	18130	23310	26140	76	75	54	63	67
Estonia	12400	14280	14200	23470	25900	52	52	43	63	66
Hungary	14360	15390	13380	17070	19840	61	56	40	46	51
Latvia	13730	15910	9050	18050	20220	58	58	27	49	52
Lithuania	13930	14690	11890	21040	25930	59	53	36	57	66
Moldova	7040	7650	2750	4130	5390	30	28	8	11	14
Montenegro	21540	16570	11590	14820	17430	91	60	35	40	45
North Macedonia	12940	11160	9210	9840	11850	55	40	28	26	30
Poland	11300	10090	14170	17180	23160	48	37	42	46	59
Romania	12510	12260	9780	15360	20210	53	44	29	41	52
Serbia	17870	16220	6540	10470	11600	75	59	20	28	30

**Table A.2.7.5**  
**Average national incomes in Europe, 1980-2017**

	Average income (2017 PPP €)					% of European average income				
	1980	1990	2000	2007	2017	1980	1990	2000	2007	2017
Slovakia	12550	13510	11720	18740	23180	53	49	35	50	59
Slovenia	22360	18190	20340	25980	26500	94	66	61	70	68
<b>Southern Europe</b>										
Cyprus	15860	24110	29300	36810	31580	67	87	88	99	81
Greece	23690	23910	26680	31970	22590	100	87	80	86	58
Italy	25910	29440	32620	33780	29610	109	107	98	91	76
Malta	14130	18160	23030	25030	32290	60	66	69	67	83
Portugal	15240	20200	24280	24800	24550	64	73	73	67	63
Spain	19630	23630	27050	29170	30360	83	86	81	78	78
<b>Western Europe</b>										
Austria	26790	30790	37000	41800	40800	113	112	111	112	104
Belgium	25760	29980	36320	39410	40110	109	109	109	106	103
France	26580	30410	35010	37260	36620	112	110	105	100	94
Germany	28030	31350	33030	36480	39210	118	114	99	98	100
Ireland	20170	24280	35450	42060	40130	85	88	106	113	103
Luxembourg	39060	47710	76720	135870	101690	165	173	230	365	260
Netherlands	32090	31690	40260	44070	45170	135	115	121	119	115
Switzerland	38330	42400	46080	46820	48430	162	154	138	126	124
United Kingdom	16730	22140	29890	34220	34300	71	80	90	92	88
<b>Northern Europe</b>										
Denmark	26450	29870	37880	43920	45680	112	108	113	118	117
Finland	21060	25560	31520	38400	36660	89	93	94	103	94

**Table A.2.7.5**  
**Average national incomes in Europe, 1980-2017**

	Average income (2017 PPP €)					% of European average income				
	1980	1990	2000	2007	2017	1980	1990	2000	2007	2017
Iceland	27210	30480	37450	46710	49540	115	110	112	126	127
Norway	23050	23130	37050	50020	54980	97	84	111	135	141
Sweden	22240	25860	30670	38530	43000	94	94	92	104	110

*Notes.* The table shows the average national income per adult of European countries in 2017 PPP euros (five first columns) and relative to the European average income per adult (five last columns). Serbia includes Kosovo.

**Table A.2.7.6**  
**Average state incomes in the United States, 1980-2017**

	Average income (2017 PPP €)					% of US average income				
	1980	1990	2000	2007	2017	1980	1990	2000	2007	2017
Alabama	25350	29540	34630	38170	38420	80	79	73	76	73
Alaska	107310	81880	59480	79110	65000	337	218	126	157	123
Arizona	30360	32490	42450	45730	40800	95	87	90	91	77
Arkansas	23980	27480	33370	36060	37500	75	73	71	72	71
California	36080	43330	53420	57930	62130	113	115	113	115	118
Colorado	35090	38290	54530	54050	54020	110	102	116	107	103
Connecticut	33920	48350	63240	69700	63780	107	129	134	138	121
Delaware	35470	48760	73480	68090	66970	112	130	156	135	127
District of Columbia	77000	99640	127890	158180	159120	242	265	271	314	302
Florida	24890	31220	38600	42520	39420	78	83	82	84	75
Georgia	28170	36490	49120	48250	48390	89	97	104	96	92
Hawaii	37260	47850	43500	50780	53580	117	127	92	101	102
Idaho	29800	31880	40210	39910	38970	94	85	85	79	74
Illinois	33950	40370	51800	53970	57190	107	108	110	107	109
Indiana	29170	33270	44170	45140	48770	92	89	94	90	93
Iowa	31760	33540	41960	48180	54460	100	89	89	96	103
Kansas	31560	35090	42660	47110	49610	99	93	90	94	94
Kentucky	27540	30760	36310	38060	40520	87	82	77	76	77
Louisiana	42730	39080	39890	50930	47270	134	104	85	101	90
Maine	24390	30990	36630	37660	38990	77	83	78	75	74
Maryland	29720	38230	46920	53150	57740	93	102	100	105	110
Massachusetts	31350	42080	57510	60440	66680	99	112	122	120	127

**Table A.2.7.6**  
**Average state incomes in the United States, 1980-2017**

	Average income (2017 PPP €)					% of US average income				
	1980	1990	2000	2007	2017	1980	1990	2000	2007	2017
Michigan	30720	34780	46270	42440	44820	97	93	98	84	85
Minnesota	33110	39300	50850	52480	56640	104	105	108	104	108
Mississippi	24130	26170	31030	33680	33950	76	70	66	67	64
Missouri	28210	33430	43750	42950	44390	89	89	93	85	84
Montana	30750	28210	31600	38520	40090	97	75	67	76	76
Nebraska	31190	36060	44020	49010	58230	98	96	93	97	111
Nevada	37430	41880	49310	53690	46280	118	112	105	107	88
New Hampshire	26680	35050	47310	48240	51240	84	93	100	96	97
New Jersey	31220	44160	54980	57770	58190	98	118	117	115	110
New Mexico	34090	30720	40890	43520	41890	107	82	87	86	80
New York	34900	44130	56180	60180	68250	110	118	119	119	130
North Carolina	26660	34260	43800	45750	46630	84	91	93	91	89
North Dakota	31830	30420	36430	45750	66070	100	81	77	91	125
Ohio	30090	34660	45100	44980	49510	95	92	96	89	94
Oklahoma	33030	30900	34670	42490	43820	104	82	74	84	83
Oregon	29830	32740	44010	47400	49260	94	87	93	94	94
Pennsylvania	27750	33120	42140	45820	51190	87	88	89	91	97
Rhode Island	26140	34330	41950	46730	48500	82	91	89	93	92
South Carolina	24330	31300	37310	37760	38440	76	83	79	75	73
South Dakota	26820	31610	40280	47300	52320	84	84	85	94	99
Tennessee	26100	31590	40700	41090	45580	82	84	86	82	87
Texas	39030	38570	47950	54480	55970	123	103	102	108	106
Utah	32040	35420	45640	52370	52740	101	94	97	104	100

**Table A.2.7.6**  
**Average state incomes in the United States, 1980-2017**

	Average income (2017 PPP €)					% of US average income				
	1980	1990	2000	2007	2017	1980	1990	2000	2007	2017
Vermont	25500	34280	38590	40650	44110	80	91	82	81	84
Virginia	28900	38050	48320	52730	53190	91	101	102	105	101
Washington	33440	40420	52270	55920	60200	105	108	111	111	114
West Virginia	25240	25290	29340	32300	36340	79	67	62	64	69
Wisconsin	30310	34250	44180	45470	49510	95	91	94	90	94
Wyoming	61270	49350	46230	71160	62160	193	131	98	141	118

*Notes.* The table shows the average income per adult of US states in 2017 PPP euros (five first columns) and relative to the US average national income per adult (five last columns). *Sources.* Bureau of Economic Analysis (GDP) and Census Bureau (adult population estimates).

**Table A.2.7.7**  
**Predistribution versus redistribution in Europe and the United States: estimates of the top 1% share and of Gini and Theil indices using different concepts and data sources**

	Top 1%			Gini			Theil		
	United States	Europe	Difference	United States	Europe	Difference	United States	Europe	Difference
<b>Surveys</b>									
Factor income	9.6%	7.2%	+2.4 pp.	52.1%	56.1%	-4.1 pp.	51.3%	54.2%	-2.9 pp.
Pretax income	8.5%	6.1%	+2.4 pp.	44.9%	36.7%	+8.2 pp.	38.1%	24.7%	+13.4 pp.
Posttax income	6.5%	5.3%	+1.3 pp.	39.2%	32.4%	+6.8 pp.	28.2%	18.6%	+9.7 pp.
<b>Surveys + Tax data</b>									
Factor income	15.8%	10.1%	+5.7 pp.	59.7%	57.5%	+2.3 pp.	81.7%	68.1%	+13.6 pp.
Pretax income	16.5%	9.4%	+7.1 pp.	54.7%	43.1%	+11.6 pp.	74.8%	41.2%	+33.6 pp.
Posttax income	13.1%	7.8%	+5.3 pp.	48.6%	38.4%	+10.2 pp.	54.9%	31.6%	+23.4 pp.
<b>DINA</b>									
Factor income	18.9%	11.8%	+7.1 pp.	61.0%	52.1%	+8.8 pp.	95.4%	60.8%	+34.5 pp.
Pretax income	19.5%	11.5%	+8.0 pp.	59.0%	44.5%	+14.4 pp.	92.6%	47.2%	+45.4 pp.
Posttax income	14.3%	9.4%	+4.9 pp.	47.3%	38.8%	+8.6 pp.	59.3%	35.5%	+23.8 pp.

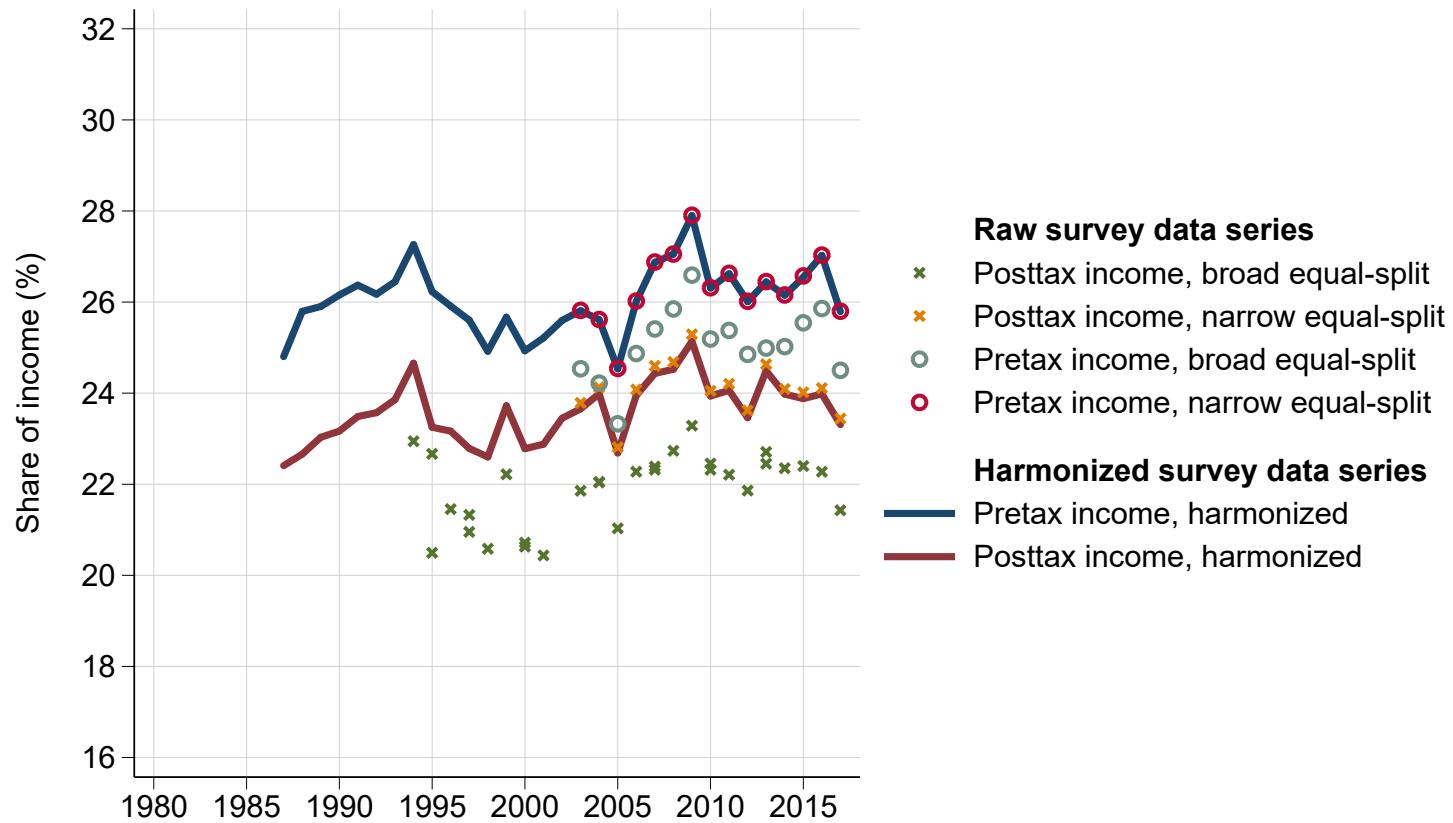
*Source:* Authors' computations combining surveys, tax data and national accounts for Europe (population-weighted average). Survey-based estimates for the United States come from the Luxembourg Income Study. Surveys + Tax data and DINA estimates for the United States come from [Piketty, Saez, and Zucman \(2018\)](#).

*Notes:* The table shows how estimates of top 1% factor income, pretax income, and posttax income shares in Europe and the United States in 2017, as well as Gini and Theil indices, vary depending on whether they are observed in household surveys, computed by combining surveys and tax data, or estimated using the distributional national accounts methodology.

### 3 Results by country – Countries covered in main paper

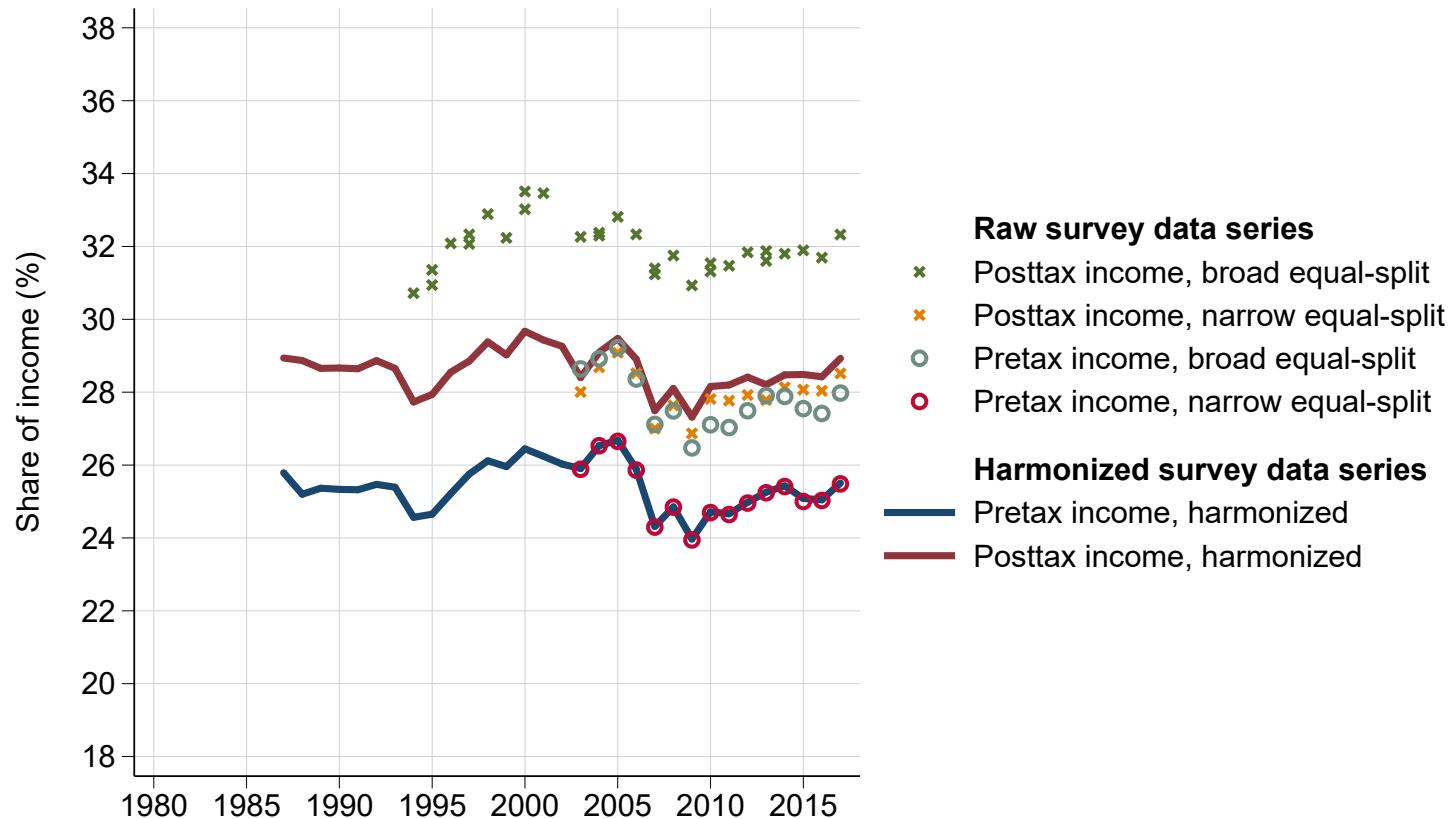
#### 3.1 Austria

Figure A.3.1.1  
Austria: harmonization of survey data  
Top 10% pretax income share



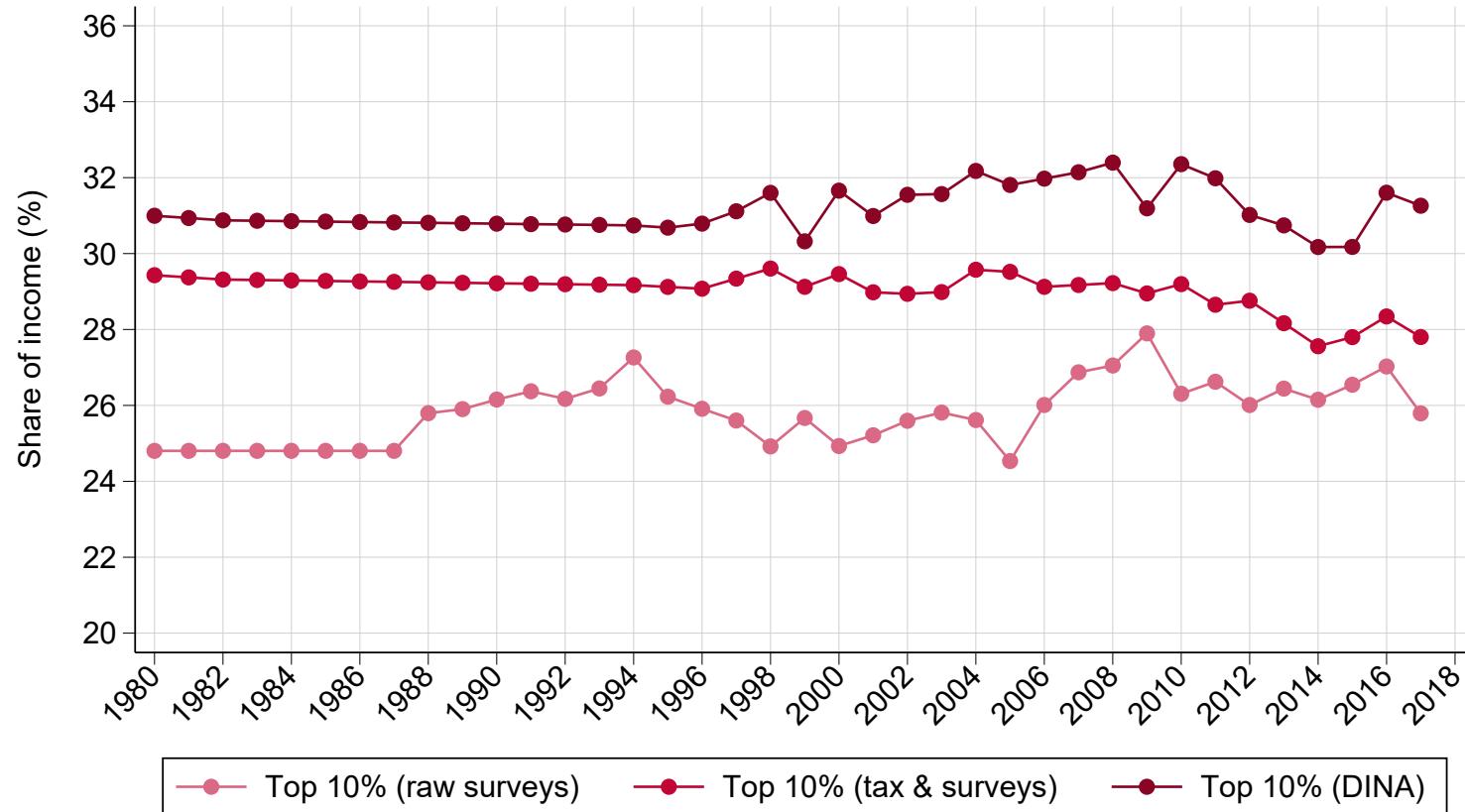
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.1.2**  
**Austria: harmonization of survey data**  
**Bottom 50% pretax income share**



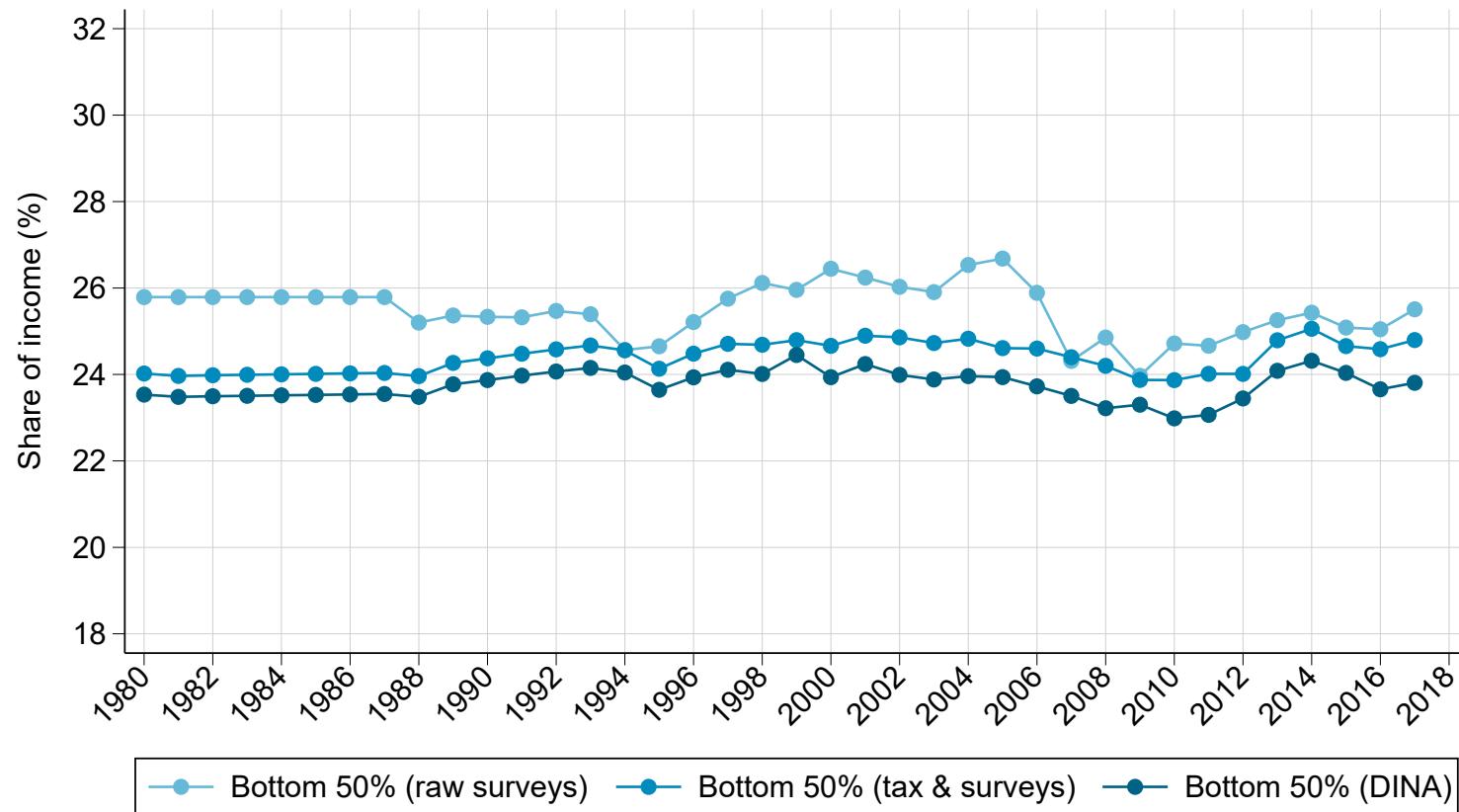
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.1.3**  
Austria: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



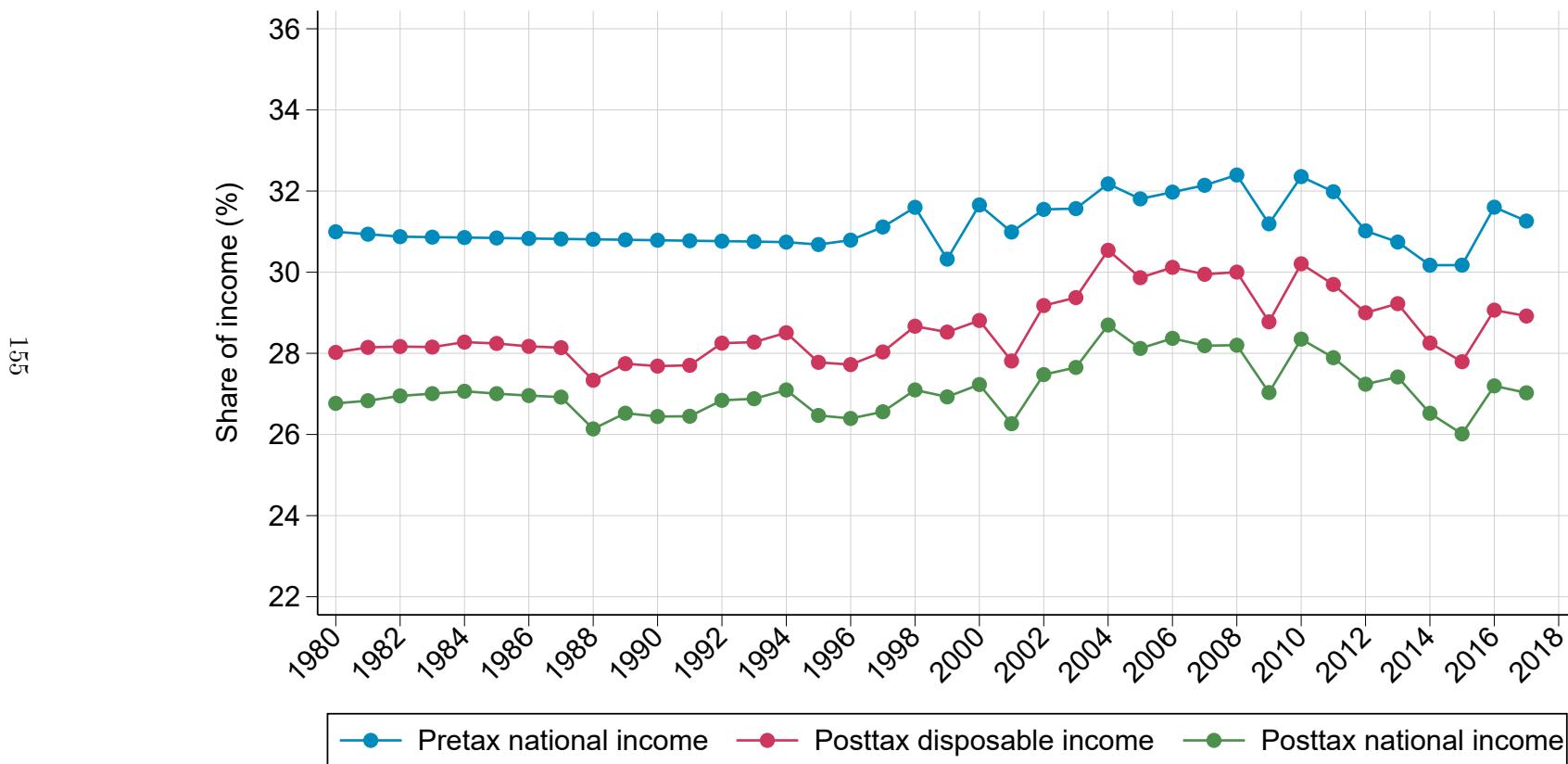
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.1.4**  
**Austria: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

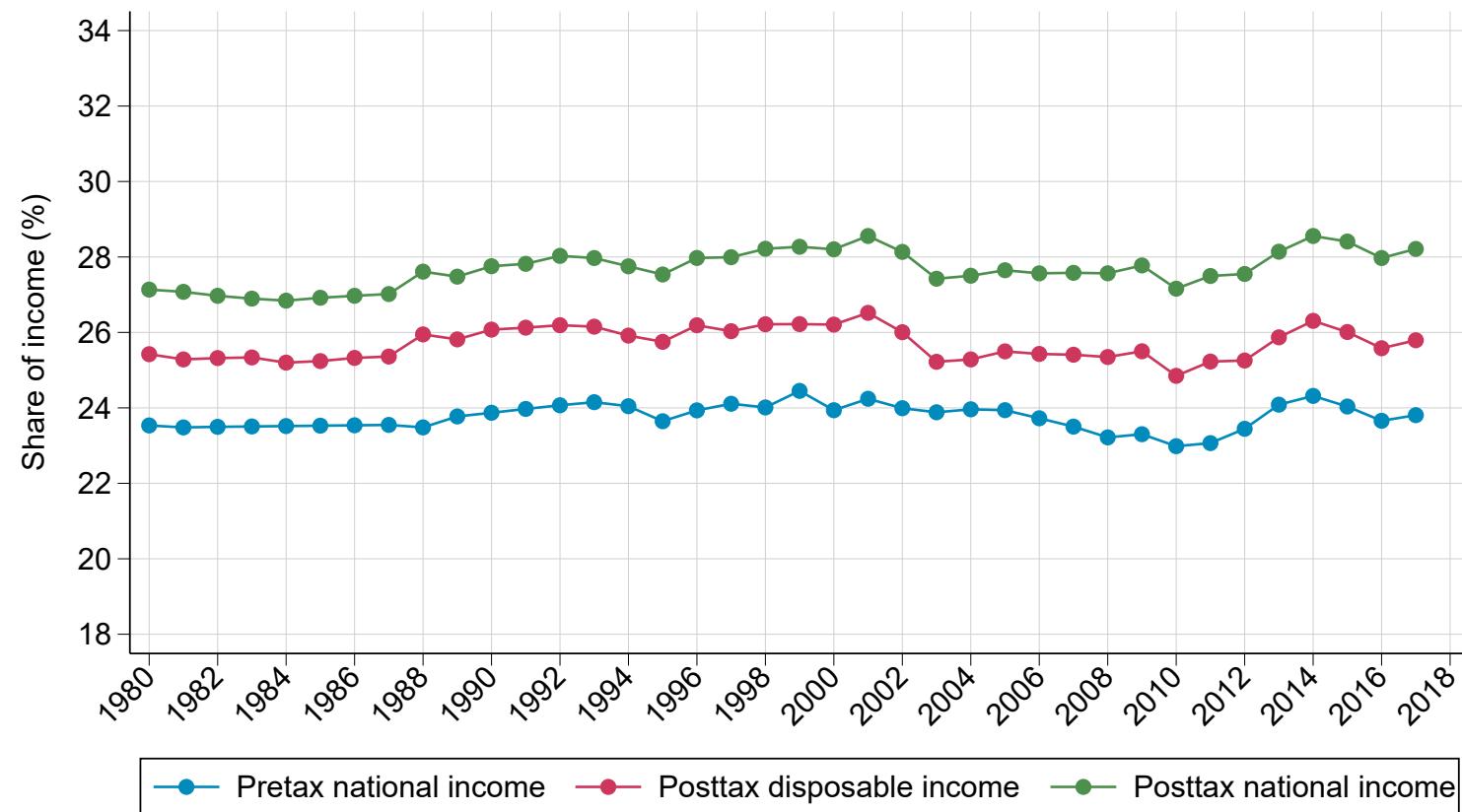
**Figure A.3.1.5**  
**Austria: from pretax national income to posttax national income**  
**Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

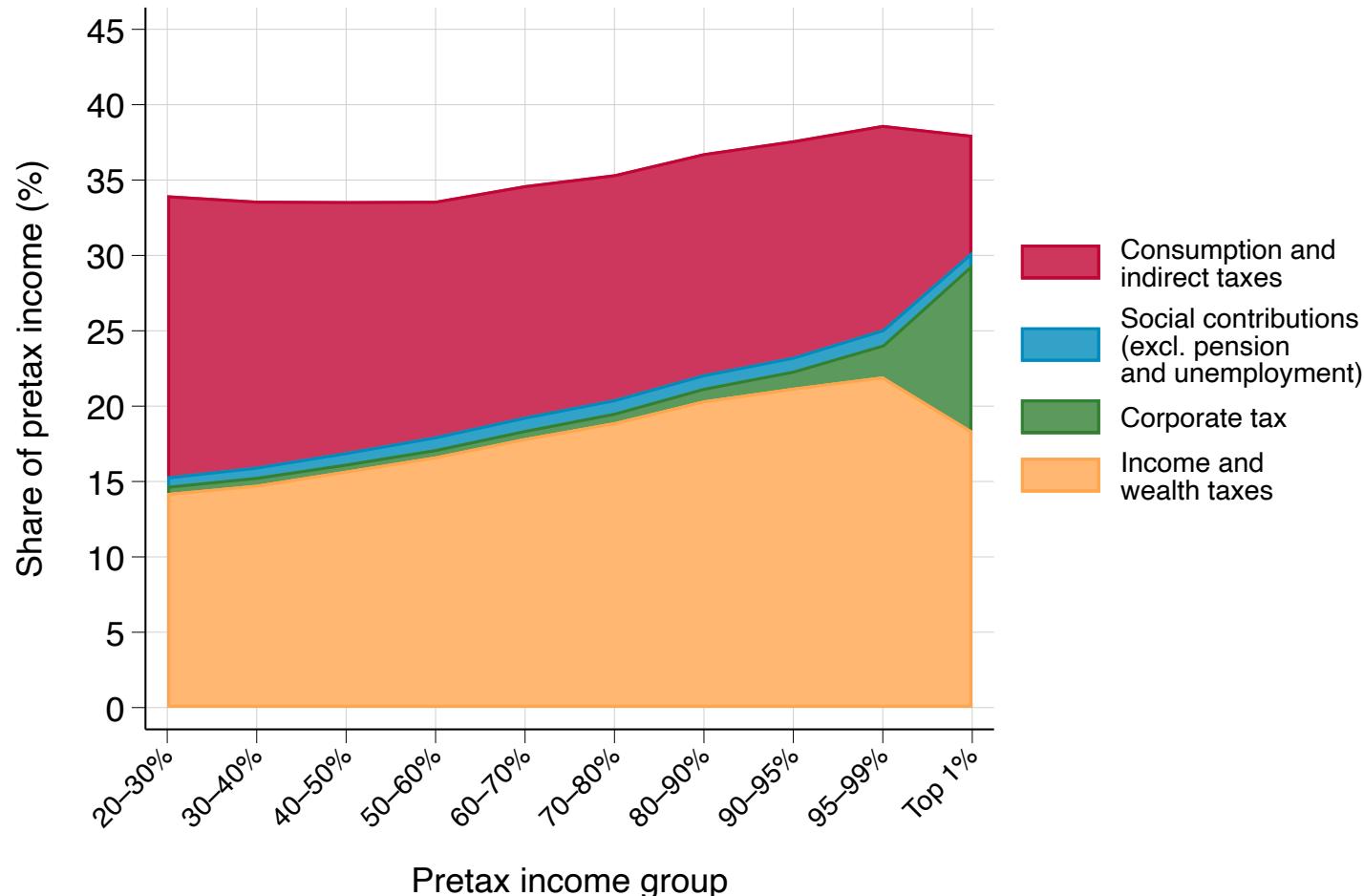
**Figure A.3.1.6**  
**Austria: from pretax national income to posttax national income**  
**Bottom 50% income share**

951



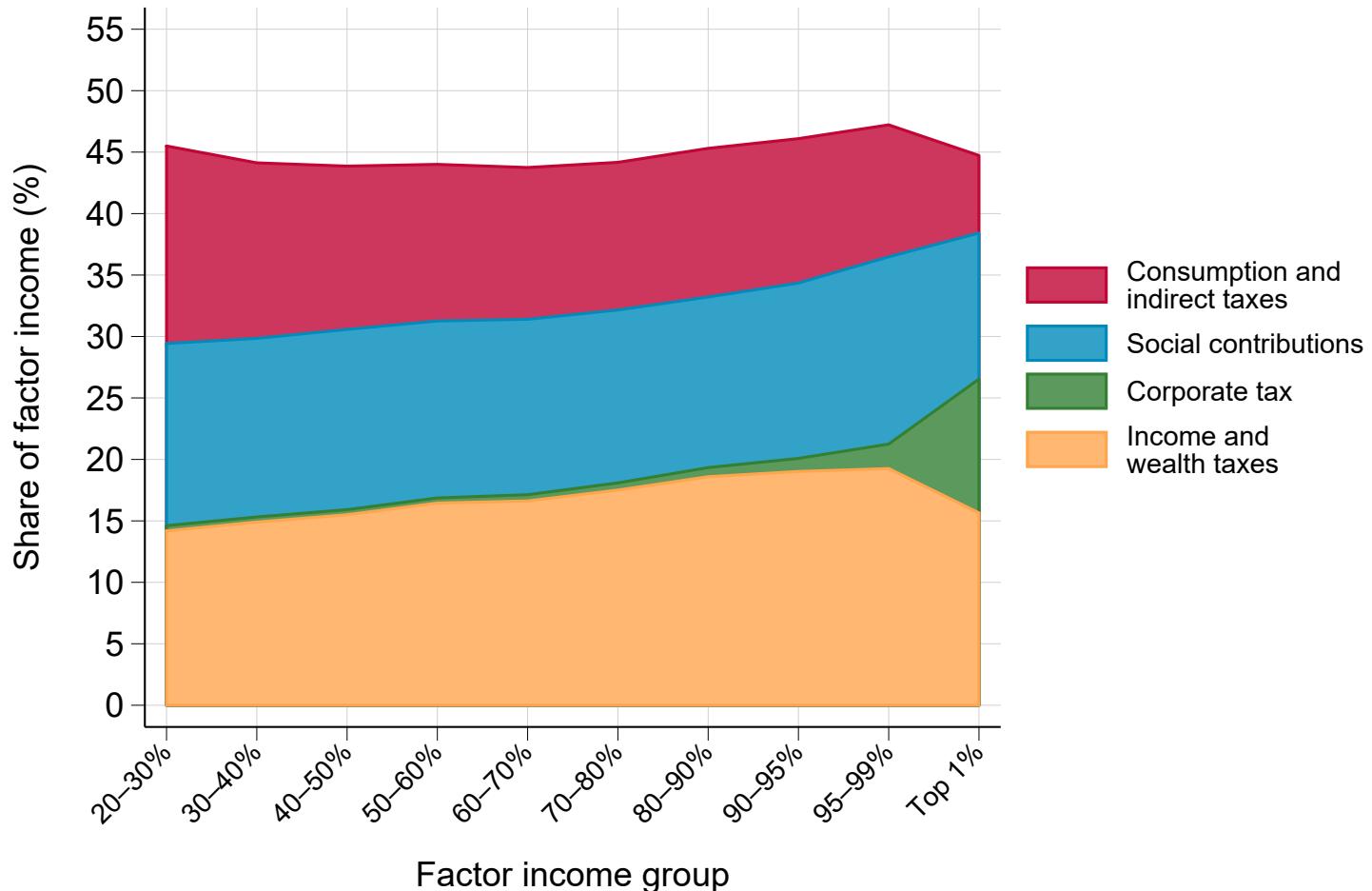
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.1.7  
Austria: distribution of taxes  
Non-contributory taxes paid as a share of pretax income



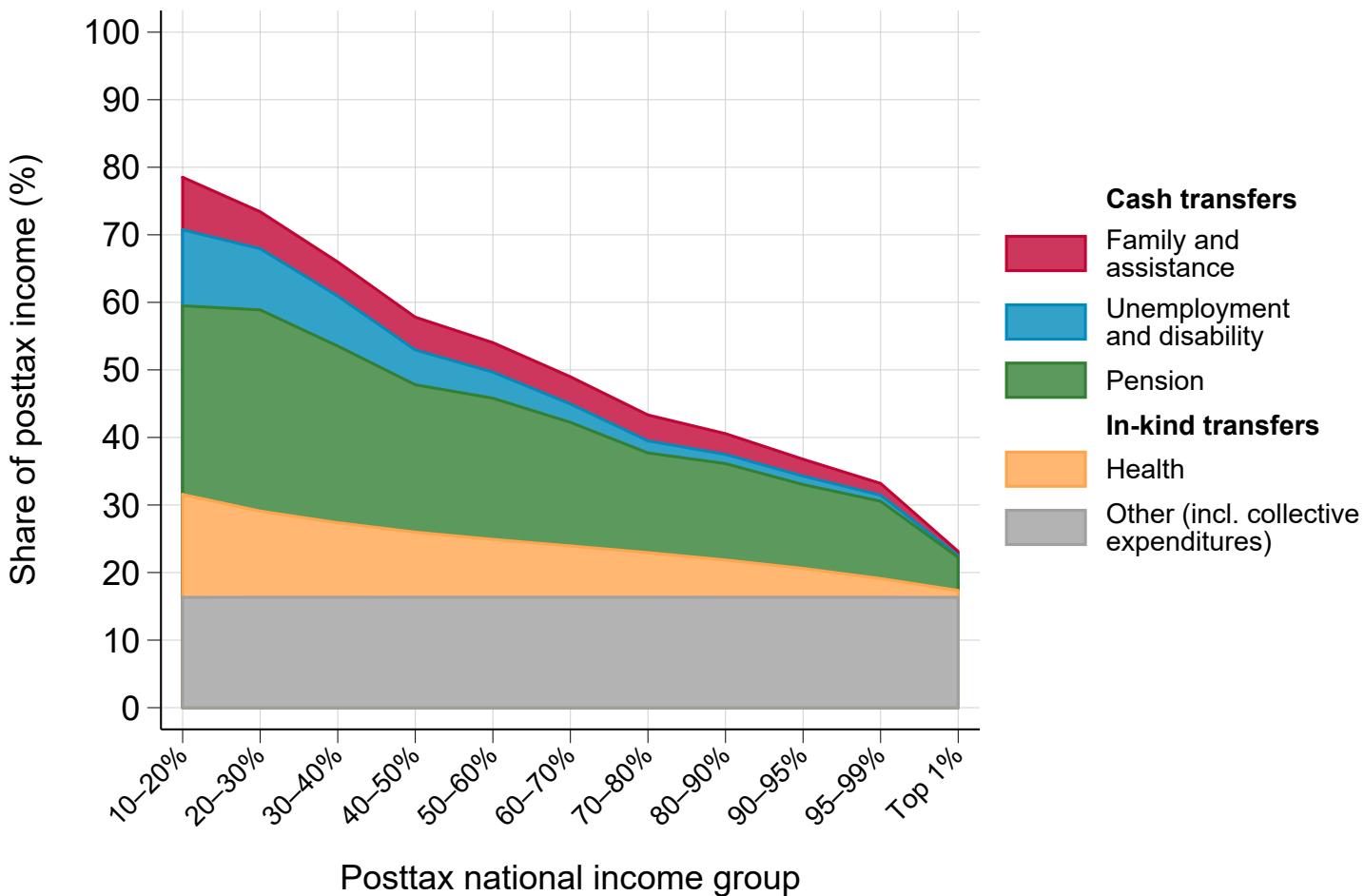
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.1.8**  
**Austria: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



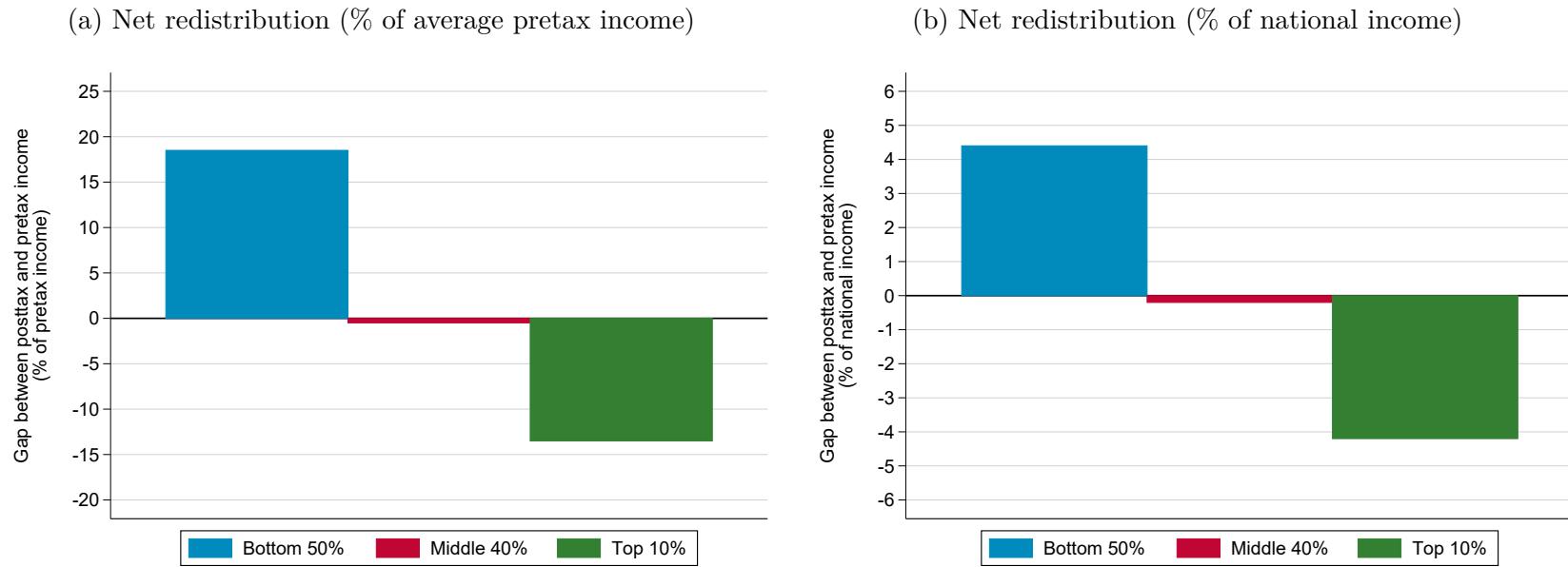
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.1.9**  
**Austria: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.1.10**  
**Austria: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.1.1**  
**Austria: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									x
1981									x
1982			x						x
1983									x
1984									x
1985									x
1986									x
1987	x	x							x
1988									x
1989									x
1990									x
1991									x
1992									x
1993									x
1994	x	x	x						x
1995	x	x		x	x	x	x	x	x
1996	x	x	x	x	x	x	x	x	x
1997	x	x		x	x	x	x	x	x
1998	x	x	x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001	x	x	x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x		x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.1.2**  
**Austria: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			77.6%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	75.7%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	1.9%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	8.3%
(+)	Government primary income	National accounts	Proportional to pretax income	14%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	19.2%
(+)	Pension benefits	Survey + tax data	Observed	17.9%
(+)	Unemployment benefits	Survey + tax data	Observed	1.3%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			30.7%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-0.4%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	12.8%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	15.6%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.6%
(+)	Transfers			29.8%
	<i>Cash transfers</i>	Survey + tax data	Observed	5.5%
	<i>Public health expenditures</i>	National accounts	Lump sum	7.9%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	16.4%
(+)	Budget balance	National accounts	Proportional to posttax income	.9%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.1.3**  
**Austria: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 98.5% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.6 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (ECHP, 1995–2001; LIS, 1994–2013; SILC, 2003–2017; LIS, 1987–2013); pretax income (SILC, 2003–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.7 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	1976–2015 (Authors)	See section 1.4.2.	Using the same income concept as the tax data, we find that the top 1% share is 2.5 pp. higher in the tax data than the survey data.
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 2.6 pp. higher than in the raw survey. The top 1% share of posttax income is 1.8 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCS, 2010, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents)	Due to lack of data, we use the average European distribution for imputed rents.	We estimate that the top 10% of pretax income earners own, on average, 31.5% of stocks, capture 15.8% of imputed rents, and account for 18.7% of consumption.
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 1.3 pp. on average; Imputed rents decrease the top 10% share of income by 0.2 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.8 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.5 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.5 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.1.4**  
**The distribution of national income in Austria, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€40,800	100%	€40,800	100%	€40,800	100%
Bottom 50%	€19,400	23.8%	€21,000	25.8%	€23,000	28.2%
Bottom 20%	€10,500	5.1%	€11,300	5.5%	€14,300	7.0%
Next 30%	€25,400	18.7%	€27,500	20.2%	€28,900	21.2%
Middle 40%	€45,800	44.9%	€46,200	45.3%	€45,700	44.8%
Top 10%	€128,000	31.3%	€118,000	28.9%	€110,000	27.0%
Top 1%	€372,000	9.1%	€324,000	7.9%	€291,000	7.1%
Top 0.1%	€1,080,000	2.7%	€888,000	2.2%	€770,000	1.9%
Top 0.01%	€3,160,000	0.8%	€2,440,000	0.6%	€2,030,000	0.5%
Top 0.001%	€9,200,000	0.2%	€6,680,000	0.2%	€5,380,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

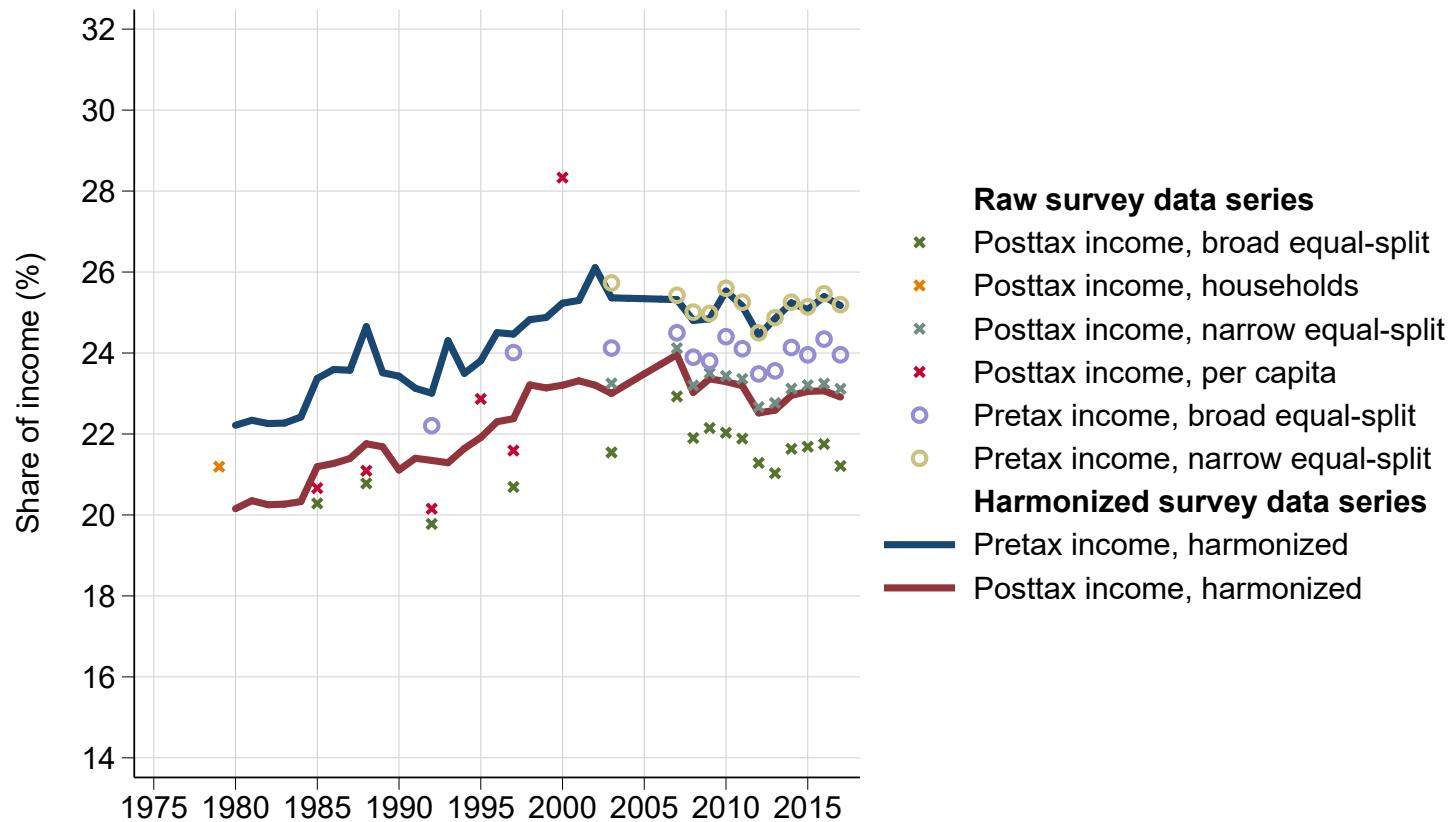
**Table A.3.1.5**  
**The distribution of national income growth in Austria, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.1%	-0.2%	1.1%	-0.2%	1.1%	-0.2%
Bottom 50%	1.2%	-0.1%	1.2%	-0.1%	1.2%	0.0%
Bottom 20%	1.2%	-0.1%	1.5%	-0.2%	1.6%	0.0%
Next 30%	1.2%	-0.1%	1.1%	-0.1%	1.1%	0.0%
Middle 40%	1.1%	-0.1%	1.1%	-0.1%	1.1%	-0.1%
Top 10%	1.2%	-0.5%	1.2%	-0.6%	1.2%	-0.7%
Top 1%	1.1%	-0.8%	1.3%	-0.9%	1.2%	-1.0%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

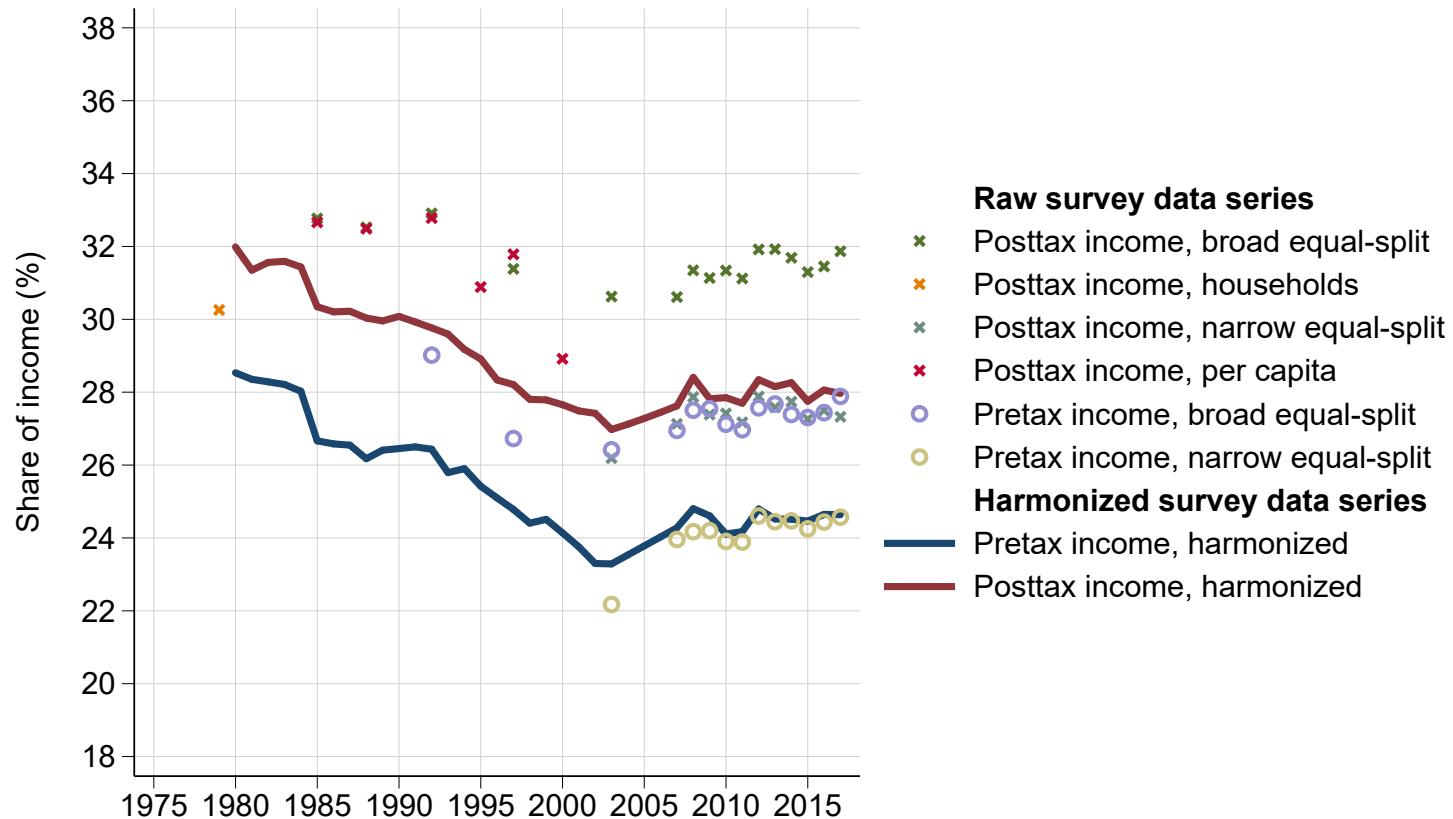
### 3.2 Belgium

Figure A.3.2.1  
Belgium: harmonization of survey data  
Top 10% pretax income share



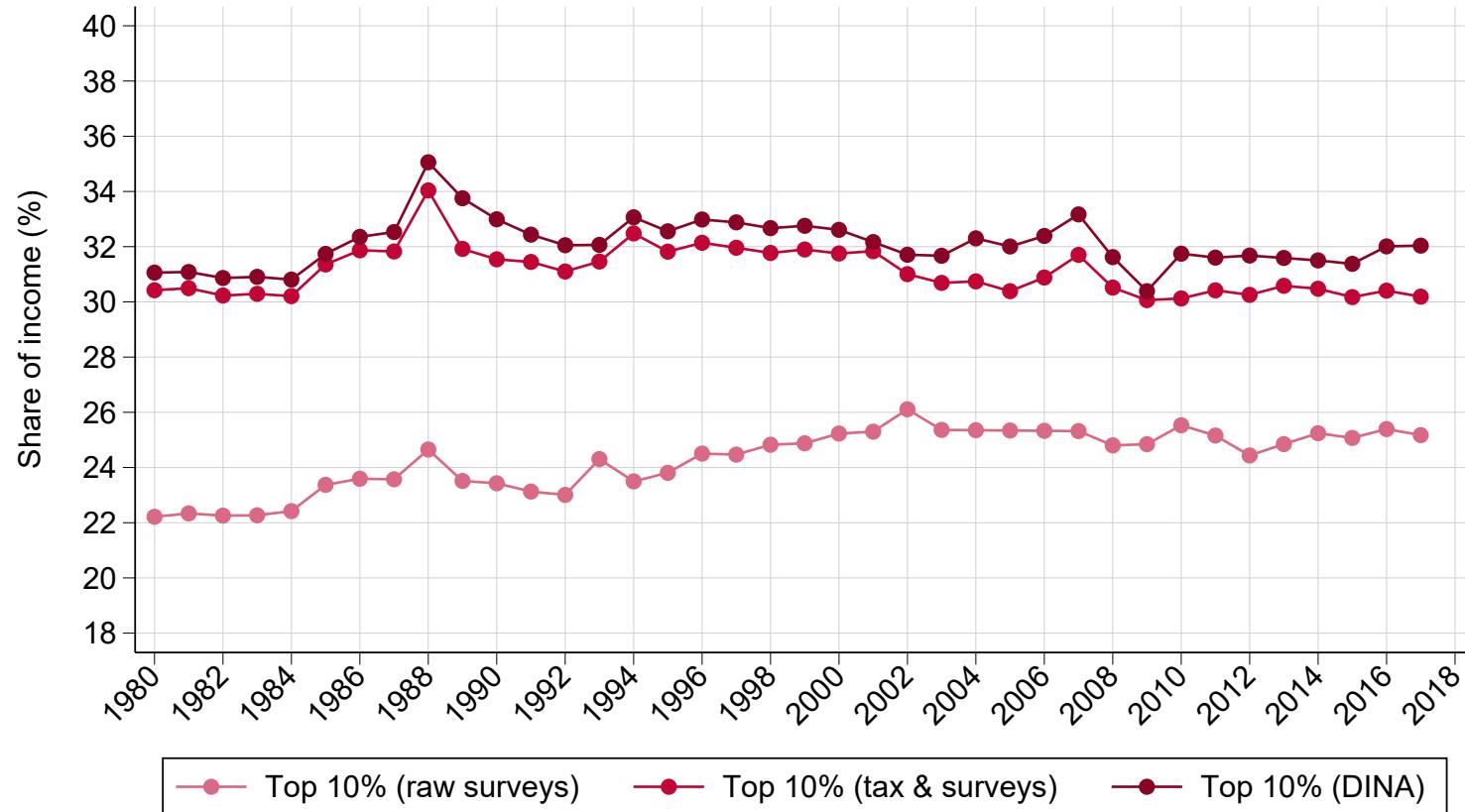
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.2.2**  
**Belgium: harmonization of survey data**  
**Bottom 50% pretax income share**



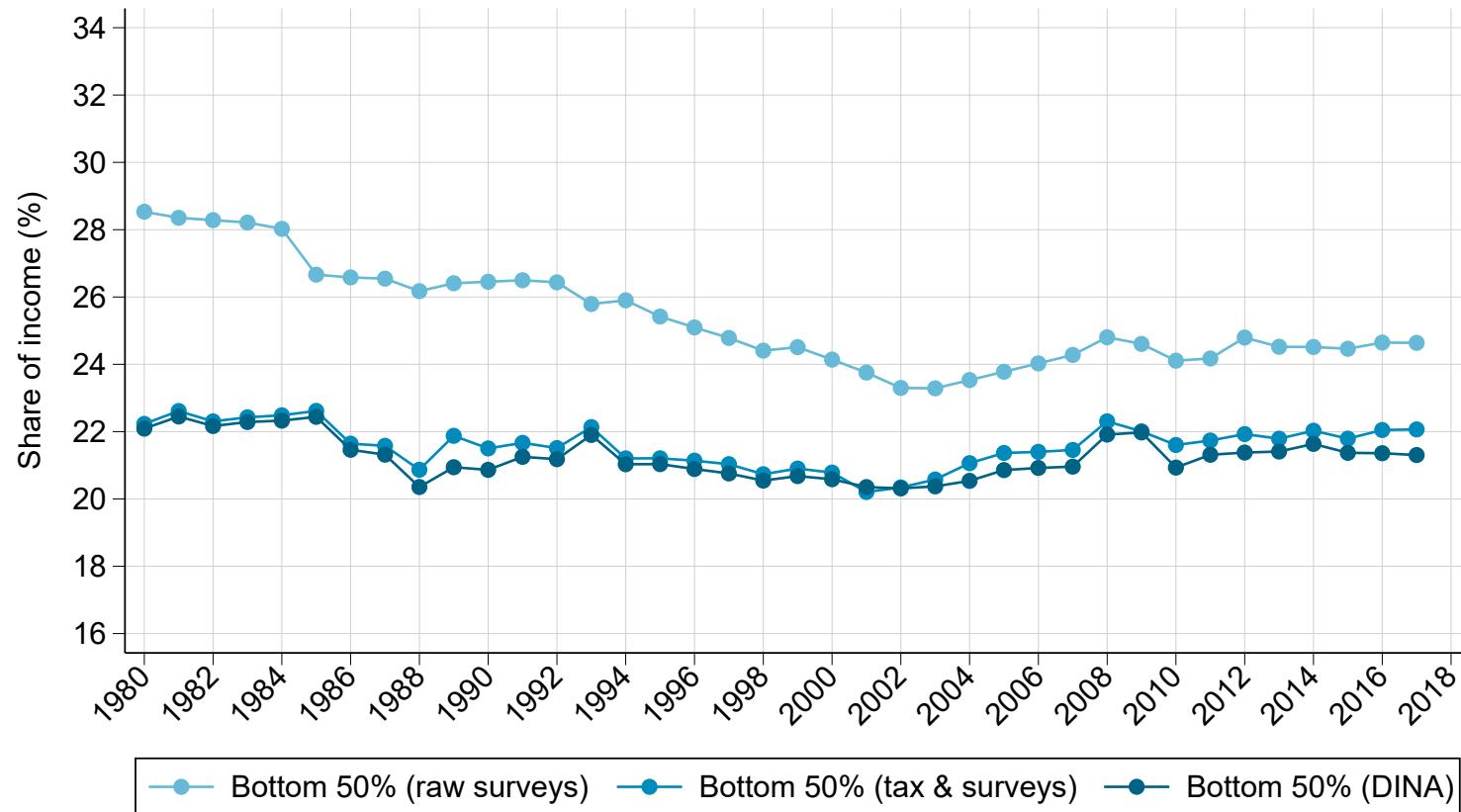
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.2.3**  
Belgium: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



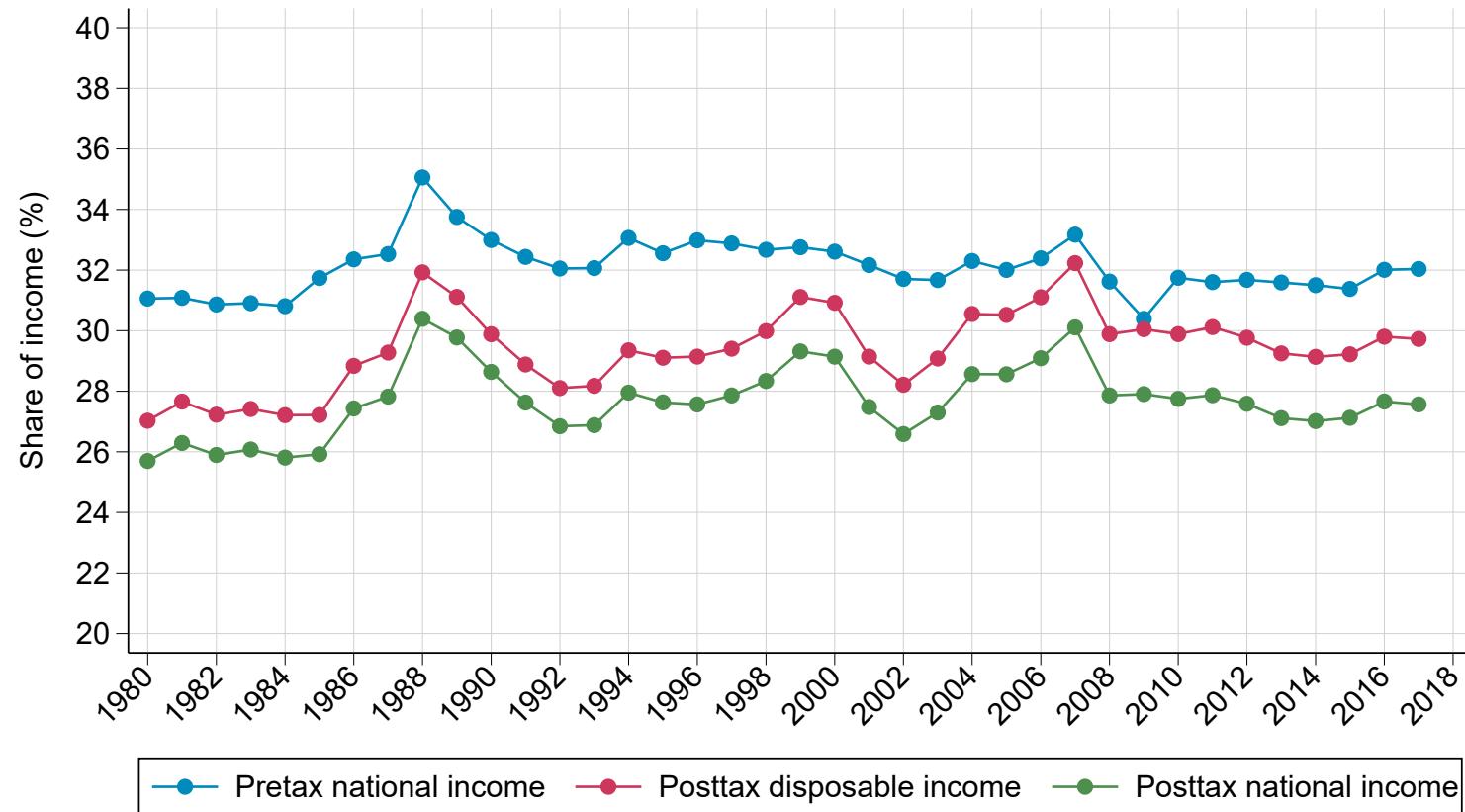
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.2.4**  
Belgium: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



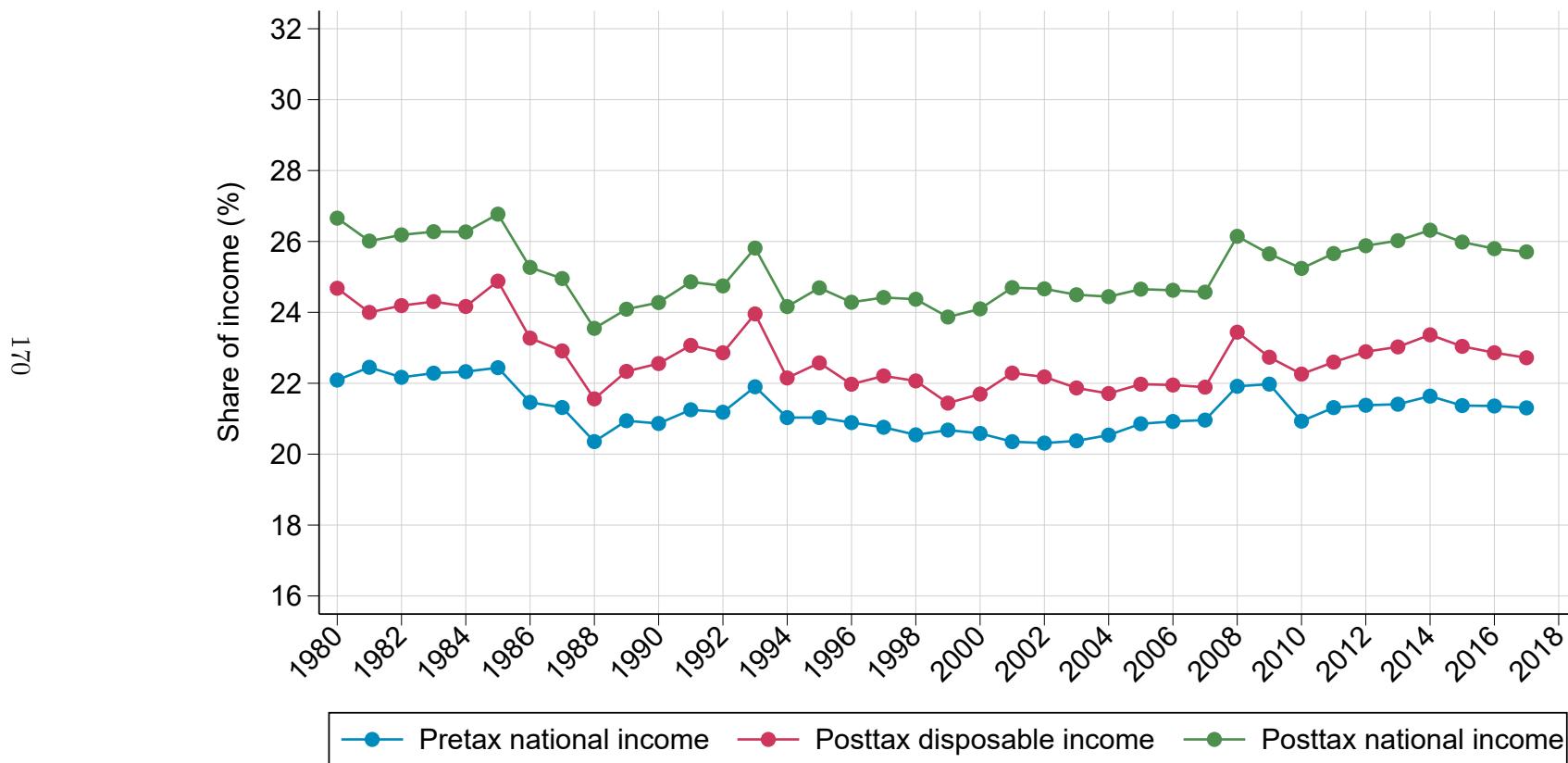
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.2.5**  
**Belgium: from pretax national income to posttax national income**  
**Top 10% income share**



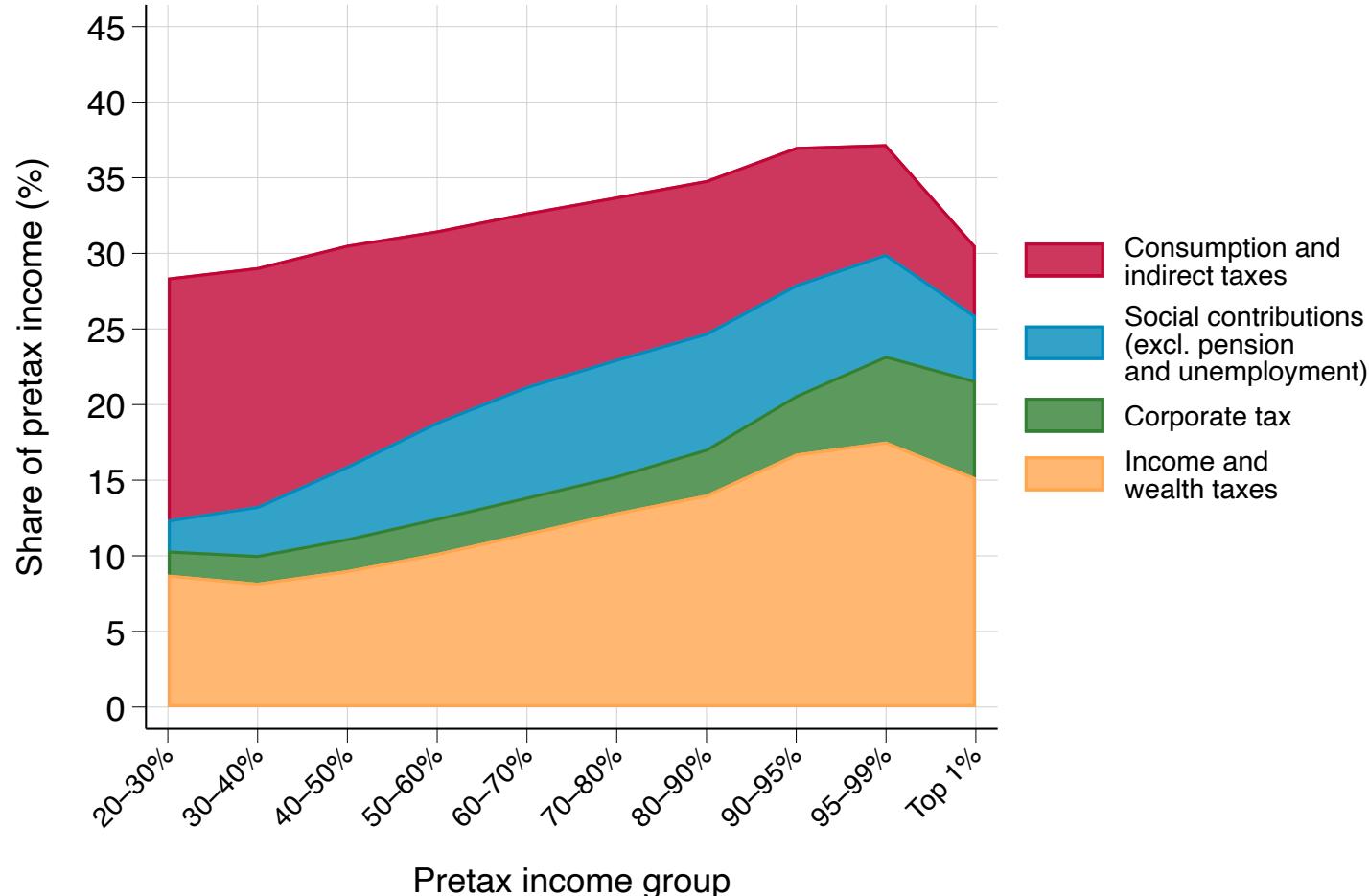
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.2.6**  
**Belgium: from pretax national income to posttax national income**  
**Bottom 50% income share**



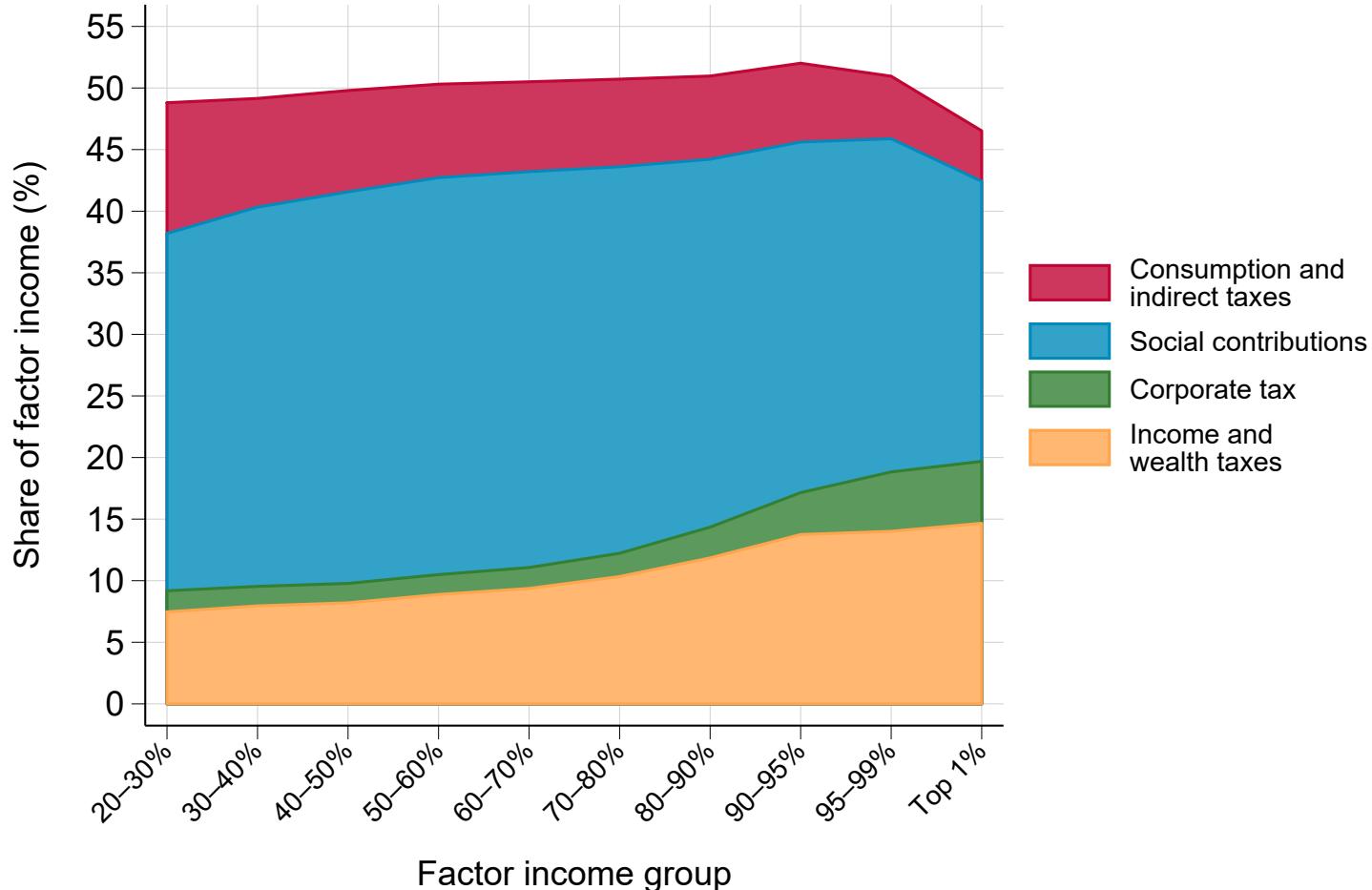
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.2.7**  
**Belgium: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



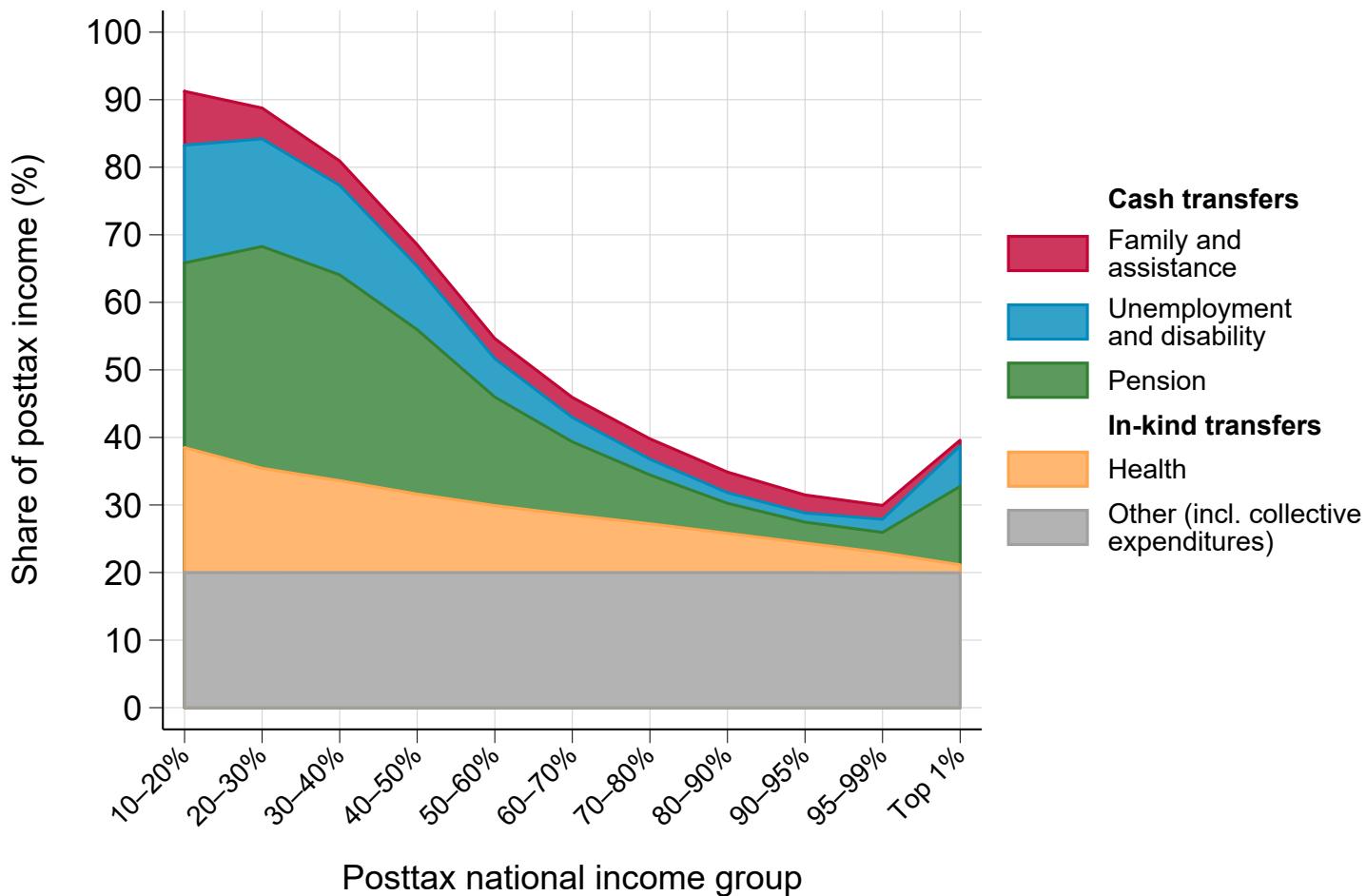
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.2.8**  
**Belgium: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



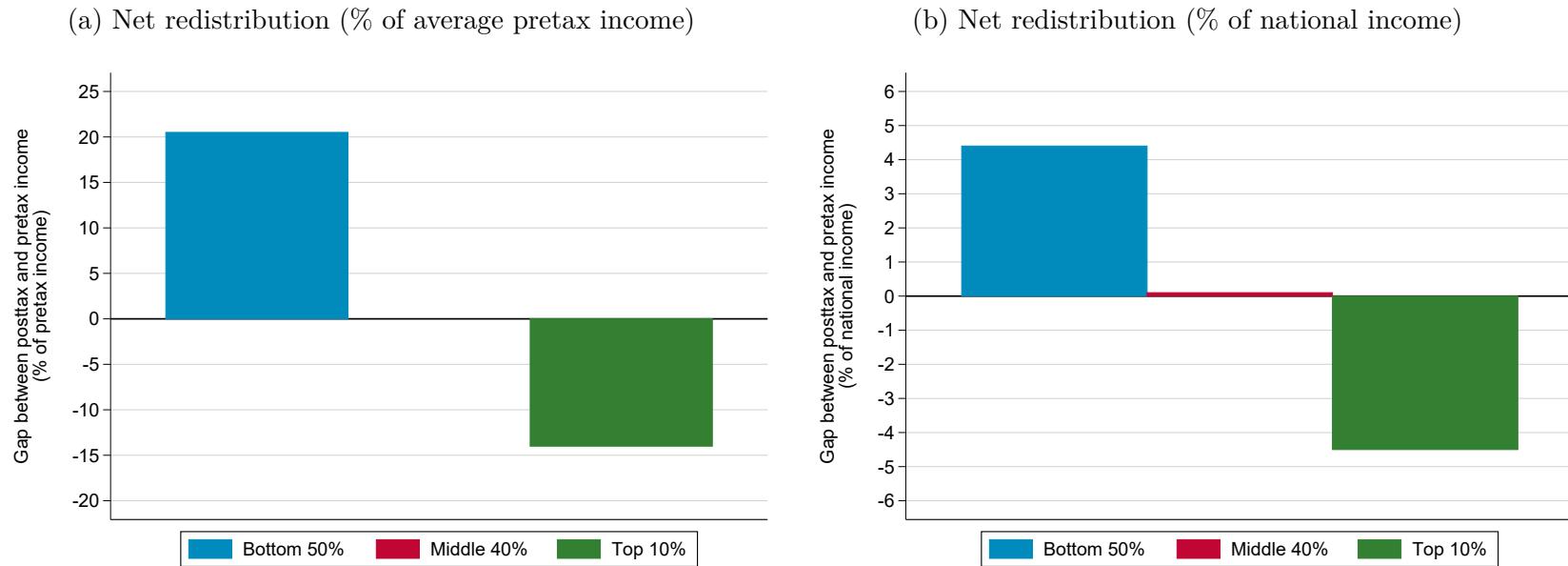
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.2.9**  
**Belgium: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.2.10**  
**Belgium: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.2.1**  
**Belgium: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1979	x								
1980									
1981									
1982								x	
1983								x	
1984								x	
1985	x	x		x		x	x	x	x
1986				x		x	x	x	x
1987				x		x	x	x	
1988	x	x		x		x	x	x	
1989				x		x	x	x	
1990			x	x		x	x	x	x
1991			x	x		x	x	x	x
1992	x	x	x	x		x	x	x	x
1993			x	x		x	x	x	x
1994			x	x	x	x	x	x	x
1995	x		x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997	x	x	x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999			x	x	x	x	x	x	x
2000	x		x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004			x	x	x	x	x	x	x
2005			x	x	x	x	x	x	x
2006			x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

Table A.3.2.2

## Belgium: methodology used to distribute factor income, pretax income, and posttax income

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			81.6%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	80.4%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	1.2%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	9.3%
(+)	Government primary income	National accounts	Proportional to pretax income	9.1%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	20.2%
(+)	Pension benefits	Survey + tax data	Observed	15.8%
(+)	Unemployment benefits	Survey + tax data	Observed	4.4%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			33.8%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	3.2%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	15.1%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	11.6%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	3.8%
(+)	Transfers			33.7%
	<i>Cash transfers</i>	Survey + tax data	Observed	4.5%
	<i>Public health expenditures</i>	National accounts	Lump sum	9%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	20.2%
(+)	Budget balance	National accounts	Proportional to posttax income	.1%

Notes: The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.2.3**  
**Belgium: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 83.9% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.4 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1985–1997; SILC, 2003–2017; PovcalNet, 1985–2000; UN 1985, 1979); pretax income (LIS, 1992–1997; SILC, 2003–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.2 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1990–2016 (Decoster, Dobbeleer, and Maes, 2017)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 2.8 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 3.2 pp. higher than in the raw survey. The top 1% share of posttax income is 2.0 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2010, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 27.0% of stocks, capture 15.1% of imputed rents, and account for 16.1% of consumption.  Undistributed corporate profits increase the top 10% share of income by 1.0 pp. on average; Imputed rents decrease the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.6 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.9 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.7 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.2.4**  
**The distribution of national income in Belgium, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€40,100	100%	€40,100	100%	€40,100	100%
Bottom 50%	€17,100	21.3%	€18,200	22.7%	€20,600	25.7%
Bottom 20%	€7,100	3.5%	€8,400	4.2%	€11,900	5.9%
Next 30%	€23,700	17.8%	€24,800	18.5%	€26,500	19.8%
Middle 40%	€46,800	46.7%	€47,700	47.6%	€46,900	46.7%
Top 10%	€129,000	32.0%	€119,000	29.7%	€111,000	27.6%
Top 1%	€346,000	8.6%	€289,000	7.2%	€259,000	6.4%
Top 0.1%	€930,000	2.3%	€699,000	1.7%	€605,000	1.5%
Top 0.01%	€2,500,000	0.6%	€1,690,000	0.4%	€1,410,000	0.4%
Top 0.001%	€6,730,000	0.2%	€4,100,000	0.1%	€3,310,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

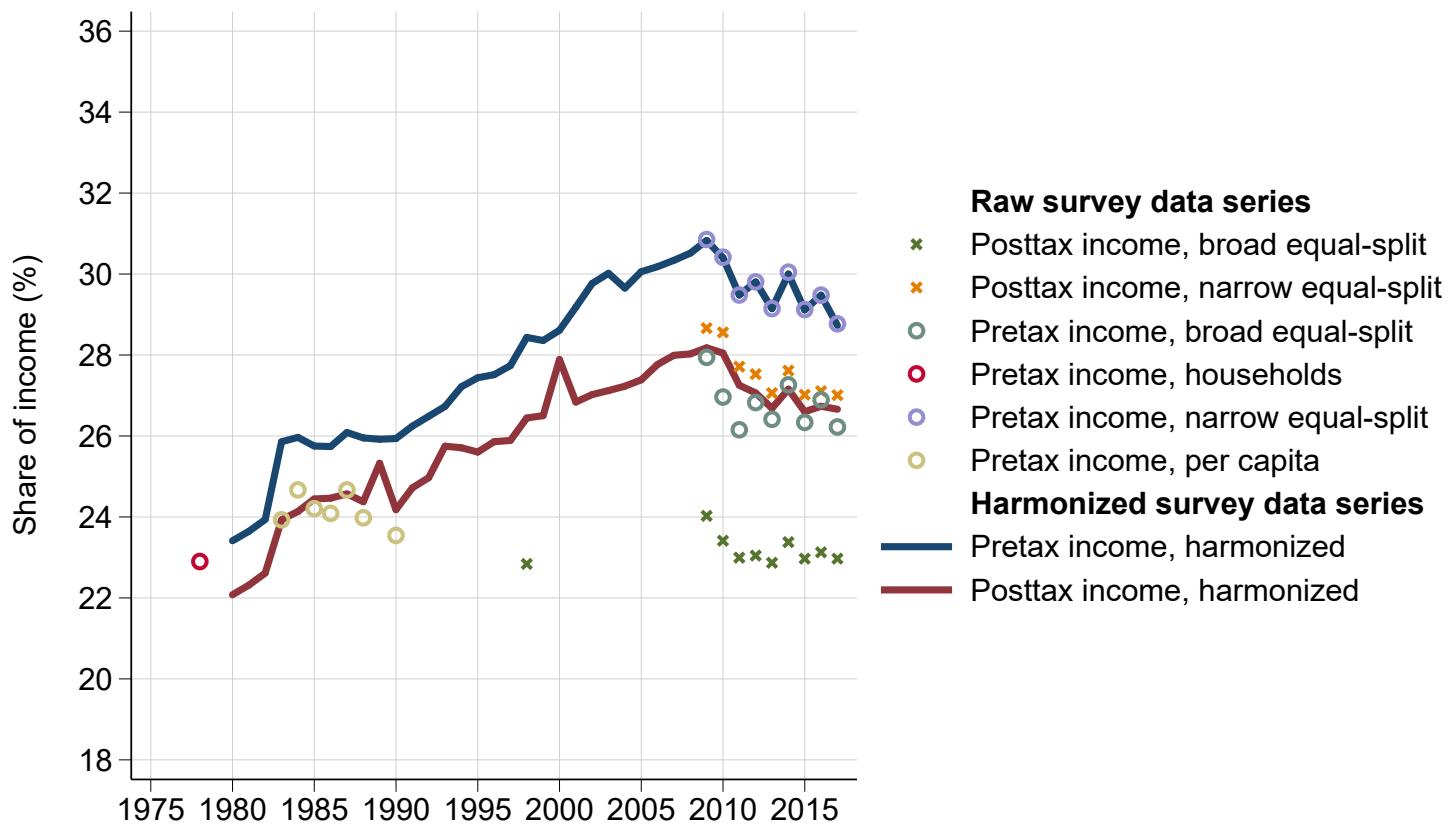
**Table A.3.2.5**  
**The distribution of national income growth in Belgium, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.2%	0.2%	1.2%	0.2%	1.2%	0.2%
Bottom 50%	1.1%	0.3%	1.0%	0.6%	1.1%	0.6%
Bottom 20%	1.8%	-1.8%	1.1%	-0.4%	1.3%	0.2%
Next 30%	1.0%	0.8%	1.0%	0.8%	1.0%	0.8%
Middle 40%	1.2%	0.3%	1.2%	0.5%	1.2%	0.5%
Top 10%	1.3%	-0.2%	1.5%	-0.6%	1.4%	-0.7%
Top 1%	1.4%	-0.8%	1.7%	-2.0%	1.6%	-2.1%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

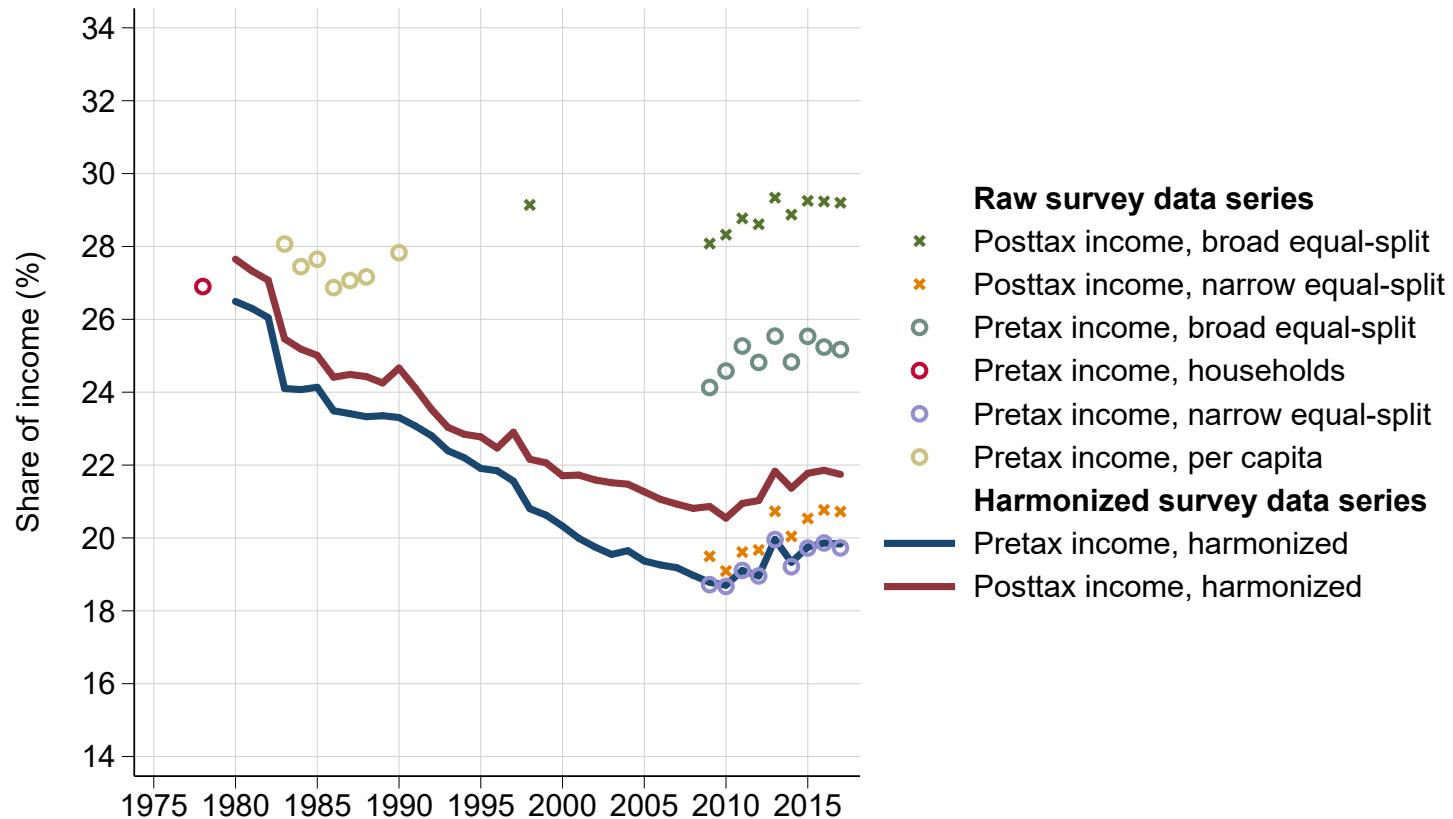
### 3.3 Croatia

Figure A.3.3.1  
Croatia: harmonization of survey data  
Top 10% pretax income share



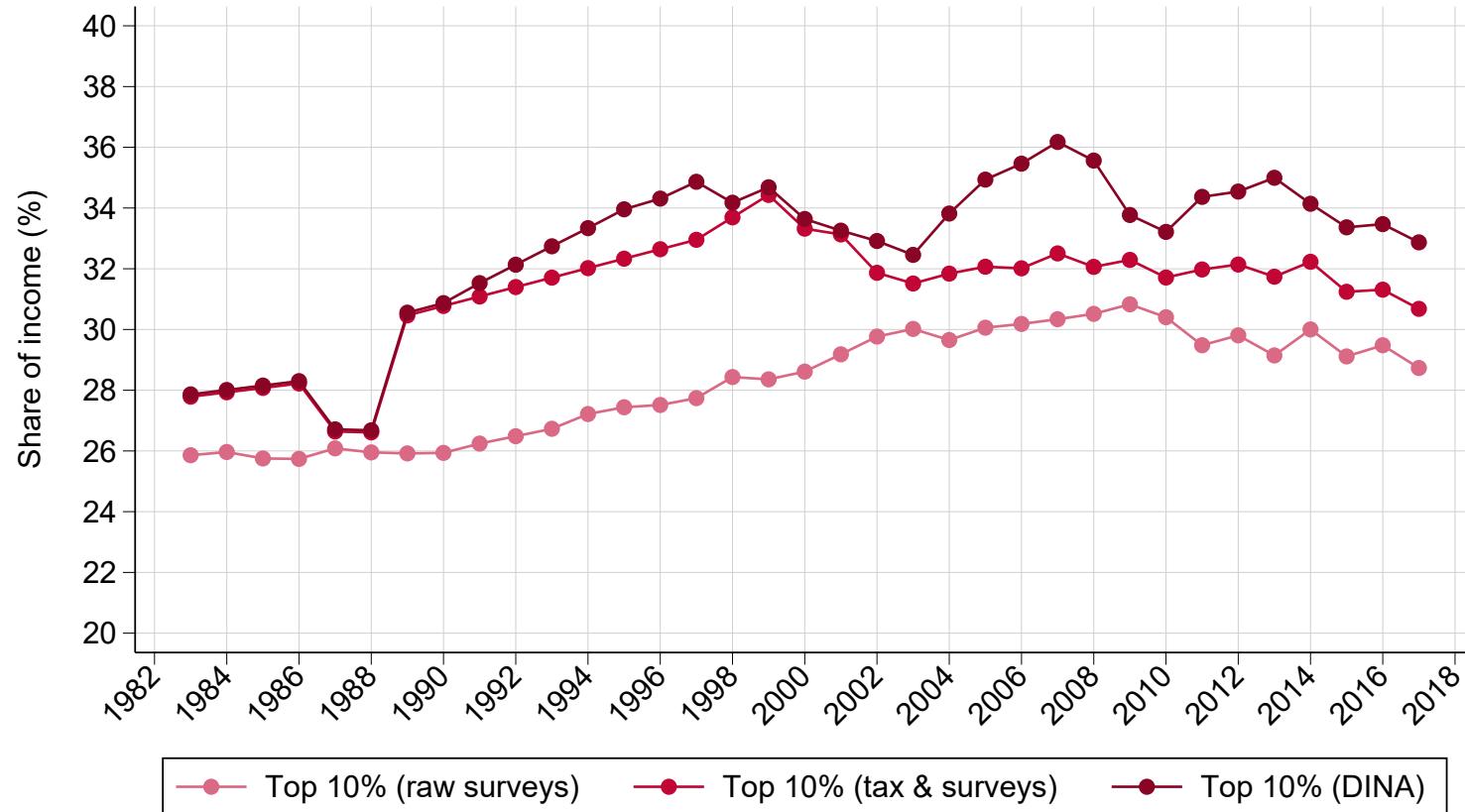
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.3.2**  
**Croatia: harmonization of survey data**  
**Bottom 50% pretax income share**



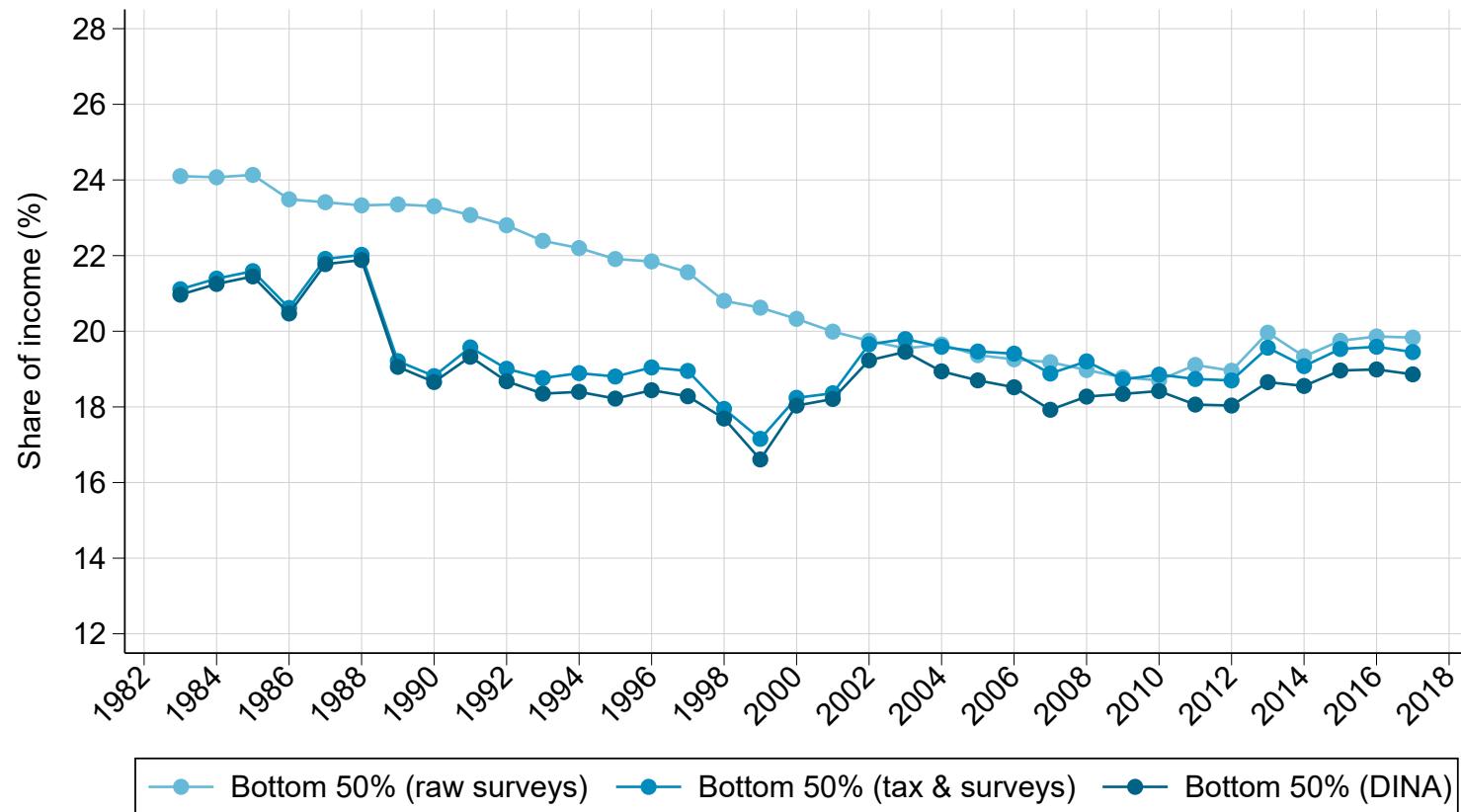
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.3.3**  
Croatia: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



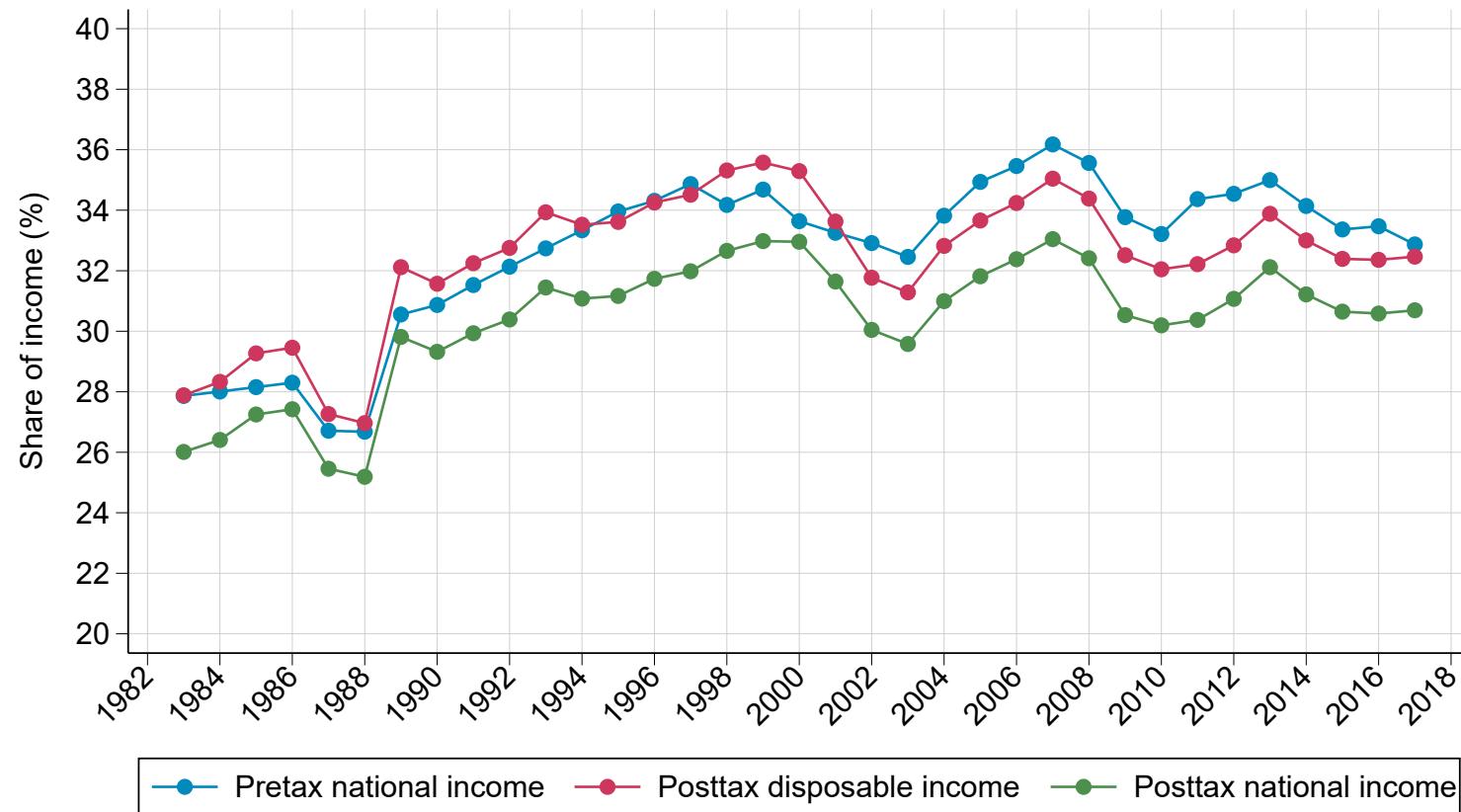
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.3.4**  
**Croatia: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



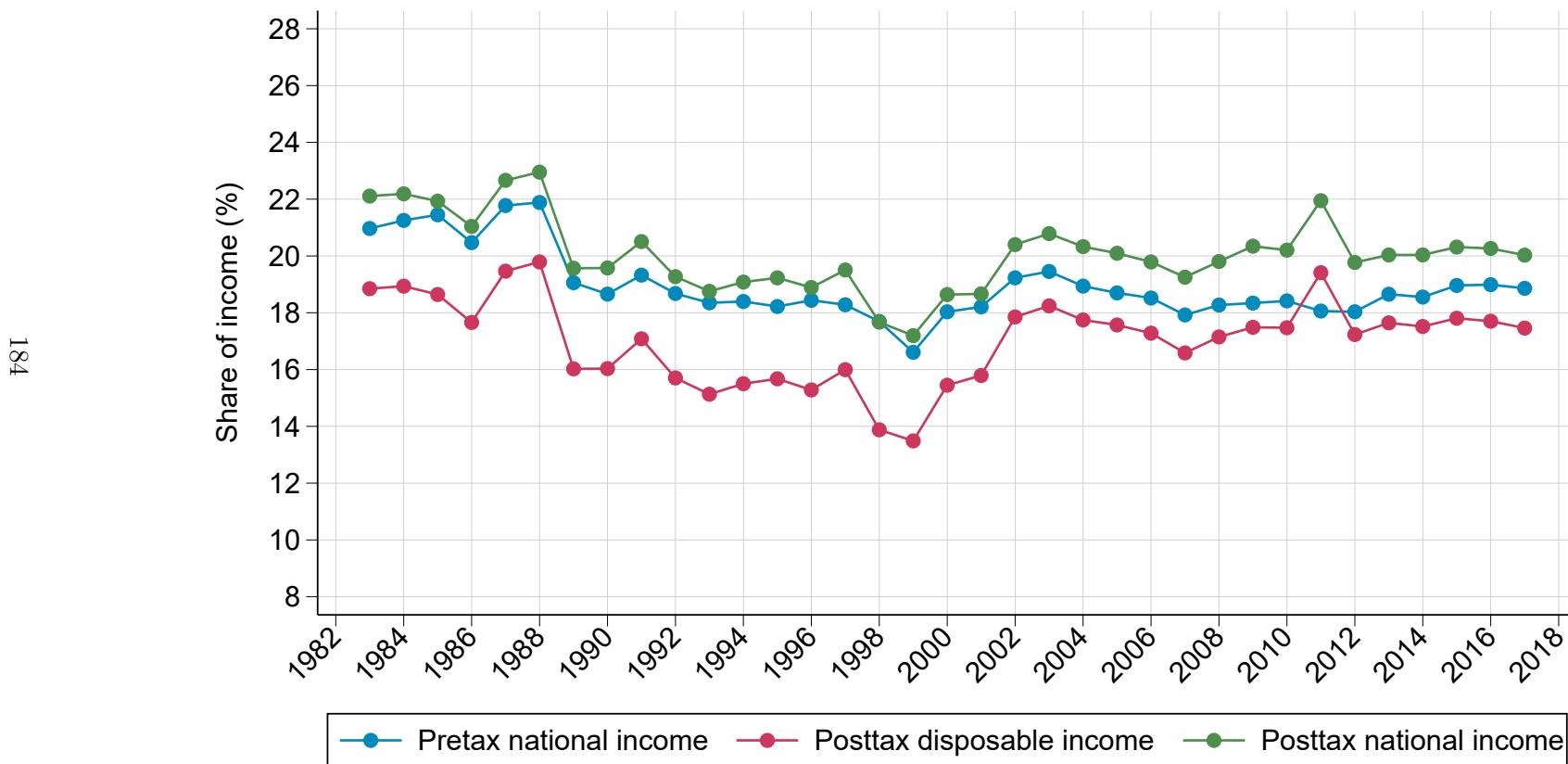
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.3.5**  
**Croatia: from pretax national income to posttax national income**  
**Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.3.6**  
**Croatia: from pretax national income to posttax national income**  
**Bottom 50% income share**



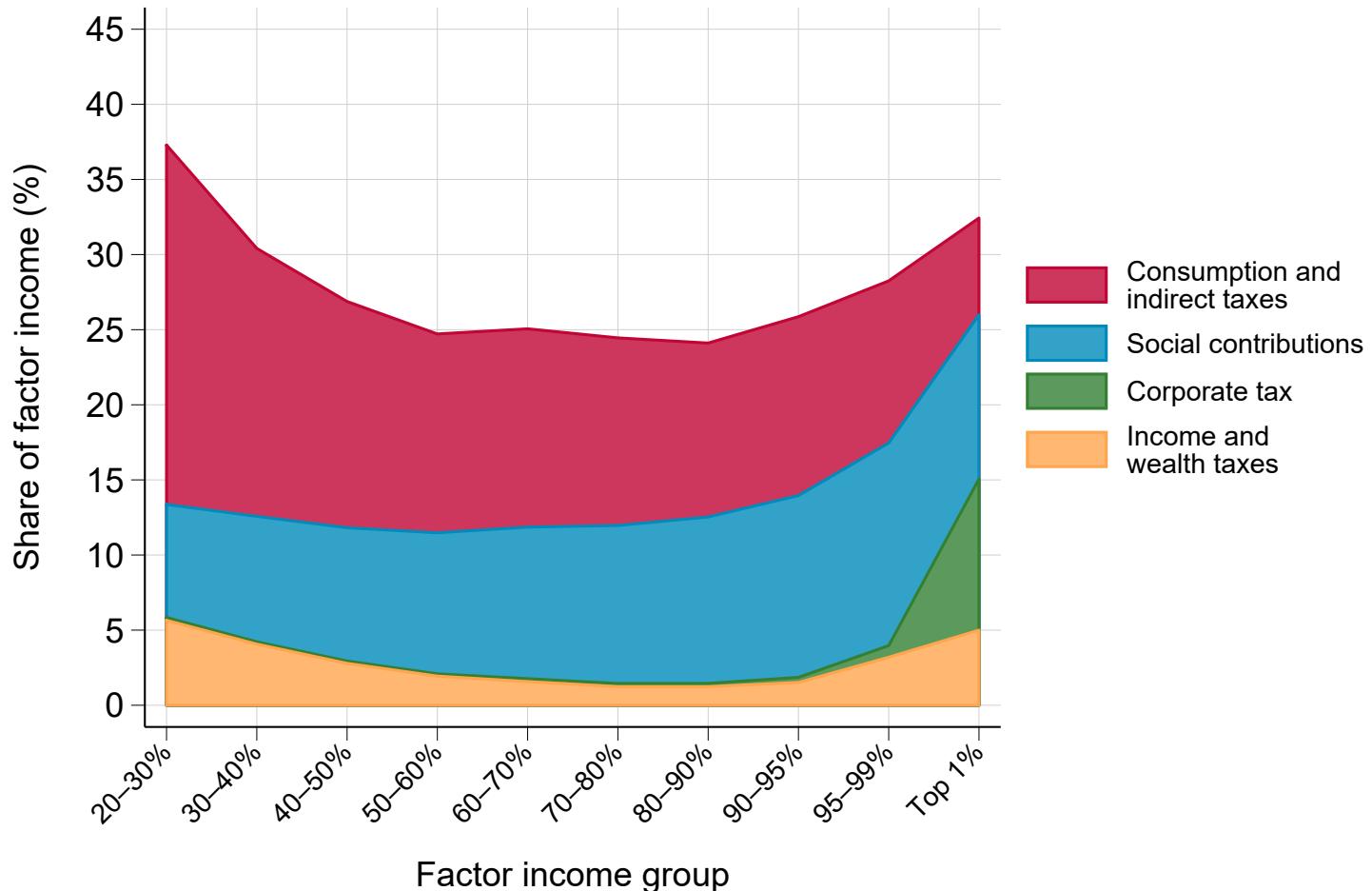
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.3.7**  
**Croatia: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



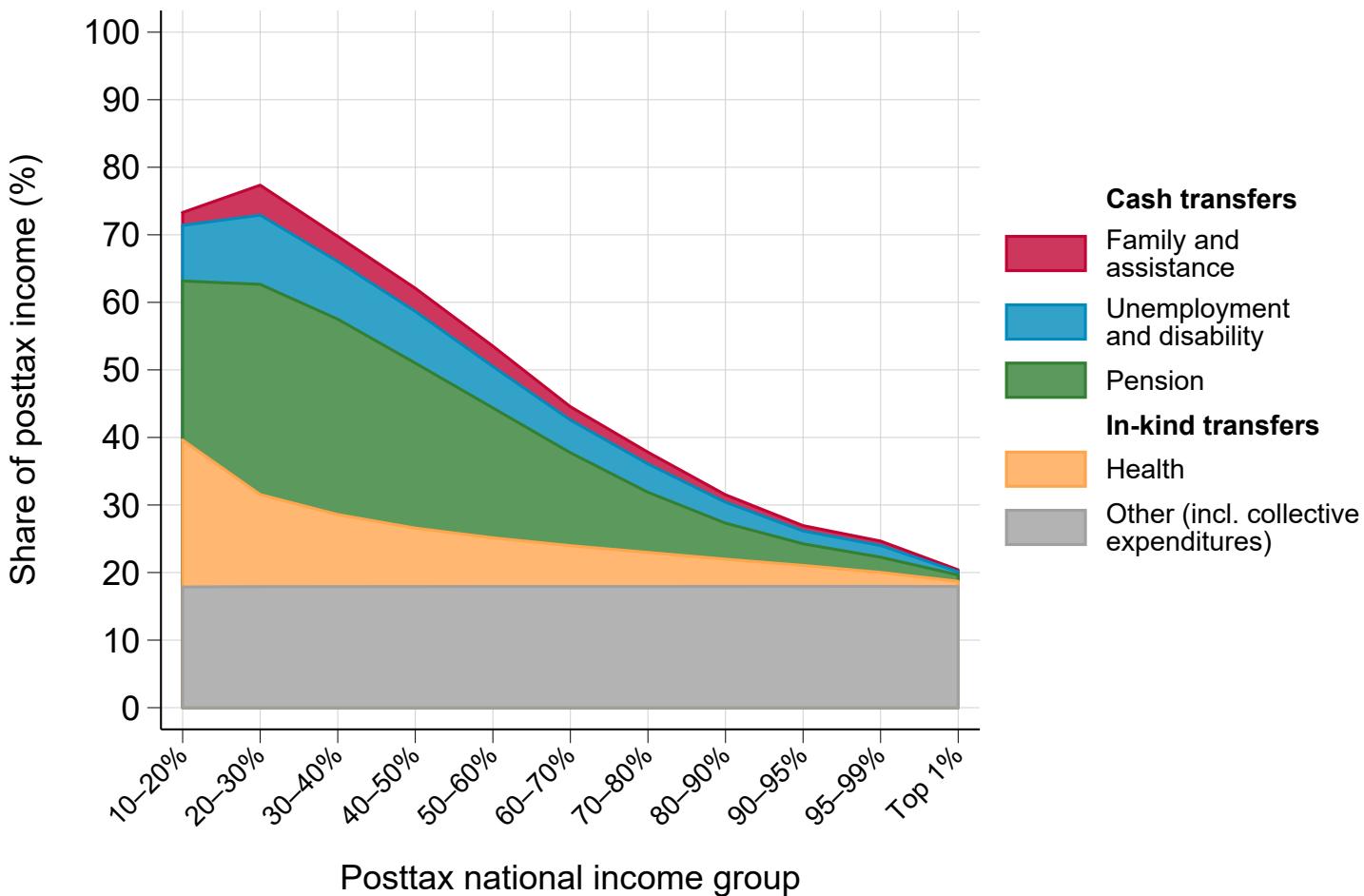
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.3.8**  
**Croatia: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



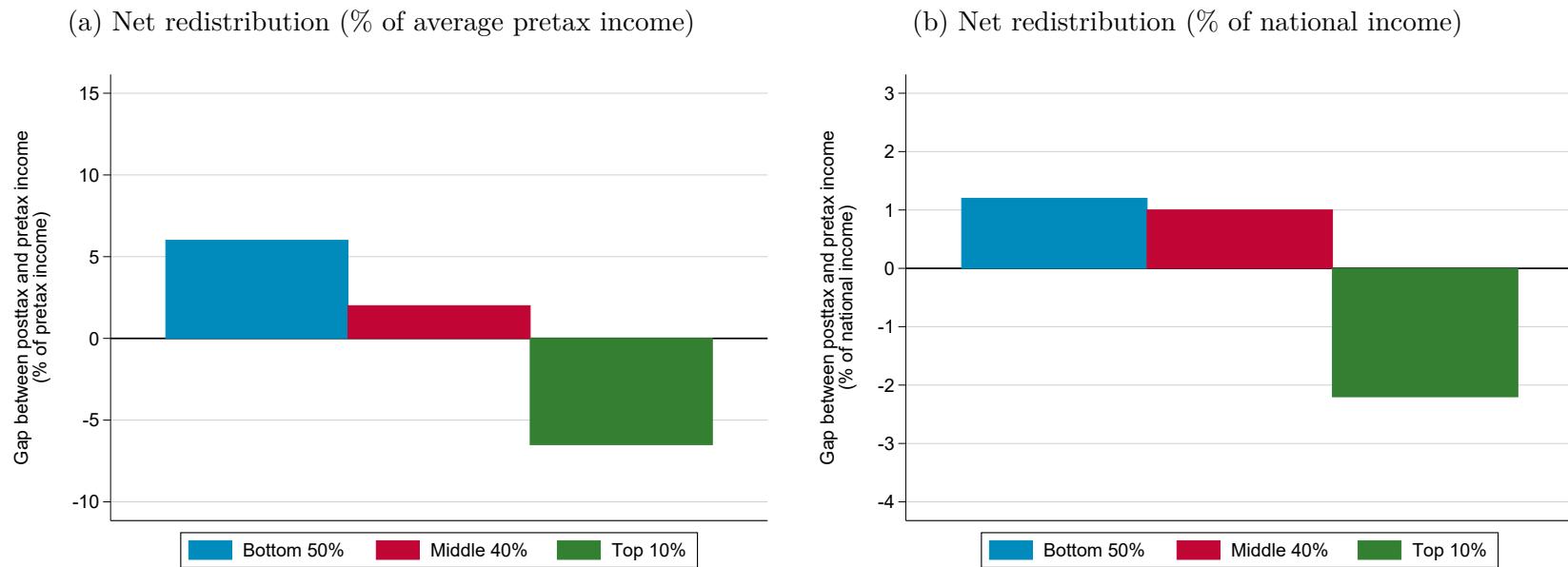
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.3.9**  
**Croatia: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.3.10**  
**Croatia: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.3.1**  
**Croatia: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1978	x								
1980									
1981									
1982									
1983	x			x					
1984	x								
1985	x								
1986	x			x					
1987	x			x					
1988	x			x					
1989				x					
1990	x								
1991									
1992									
1993									
1994									
1995									
1996						x			
1997			x	x			x	x	
1998	x			x			x	x	
1999			x	x			x	x	
2000			x	x			x	x	
2001			x	x			x	x	x
2002			x	x		x	x	x	x
2003			x	x		x	x	x	x
2004			x	x		x	x	x	x
2005			x	x		x	x	x	x
2006			x	x		x	x	x	x
2007			x	x		x	x	x	x
2008			x	x		x	x	x	x
2009	x	x	x	x		x	x	x	x
2010	x	x	x	x		x	x	x	x
2011	x	x	x	x		x	x	x	x
2012	x	x	x	x		x	x	x	x
2013	x	x	x	x		x	x	x	x
2014	x	x		x		x	x	x	x
2015	x	x				x	x		x
2016	x	x				x	x		x
2017	x	x				x	x		x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.3.2**  
**Croatia: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			75.9%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	75.9%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	0%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	5.4%
(+)	Government primary income	National accounts	Proportional to pretax income	18.7%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	15.7%
(+)	Pension benefits	Survey + tax data	Observed	14.3%
(+)	Unemployment benefits	Survey + tax data	Observed	1.4%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			27.8%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-0.3%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	5.3%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	20.9%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	1.9%
(+)	Transfers			27.4%
	<i>Cash transfers</i>	Survey + tax data	Observed	2.8%
	<i>Public health expenditures</i>	National accounts	Lump sum	6.6%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	17.9%
(+)	Budget balance	National accounts	Proportional to posttax income	.4%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.3.3**  
**Croatia: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2009–2017)	See section 1.2.1.	
	Imputation of social contributions.	No data from the OECD, so we assume that social contributions are proportional to factor income.	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 97.5% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.2 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (SILC, 2009–2017; Transmonee 2004, 1998); pretax income (SILC, 2009–2017; Milanovic and Ying 1996, YU, 1983–1990; van Ginneken and Park 1984, YU, 1978)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.4 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1983–2013 (Kump and Novokmet, 2018)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 1.7 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 1.3 pp. higher than in the raw survey. The top 1% share of posttax income is 0.7 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2016 (corporate stocks); EU-SILC, 2009–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 35.2% of stocks, capture 14.8% of imputed rents, and account for 18.0% of consumption.  Undistributed corporate profits increase the top 10% share of income by 0.5 pp. on average; Imputed rents increase the top 10% share of income by 0.03 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.4 pp. on average; Taxes on products increase the top 10% share of posttax income by 3.0 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.9 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.3.4**  
**The distribution of national income in Croatia, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€20,200	100%	€20,200	100%	€20,200	100%
Bottom 50%	€7,600	18.9%	€7,100	17.5%	€8,100	20.0%
Bottom 20%	€2,500	2.5%	€1,500	1.5%	€3,000	2.9%
Next 30%	€11,000	16.4%	€10,800	16.0%	€11,500	17.1%
Middle 40%	€24,400	48.3%	€25,300	50.1%	€24,900	49.3%
Top 10%	€66,400	32.9%	€65,600	32.5%	€62,000	30.7%
Top 1%	€202,000	10.0%	€179,000	8.9%	€167,000	8.3%
Top 0.1%	€677,000	3.4%	€536,000	2.7%	€495,000	2.5%
Top 0.01%	€2,350,000	1.2%	€1,660,000	0.8%	€1,530,000	0.8%
Top 0.001%	€8,220,000	0.4%	€5,180,000	0.3%	€4,770,000	0.2%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

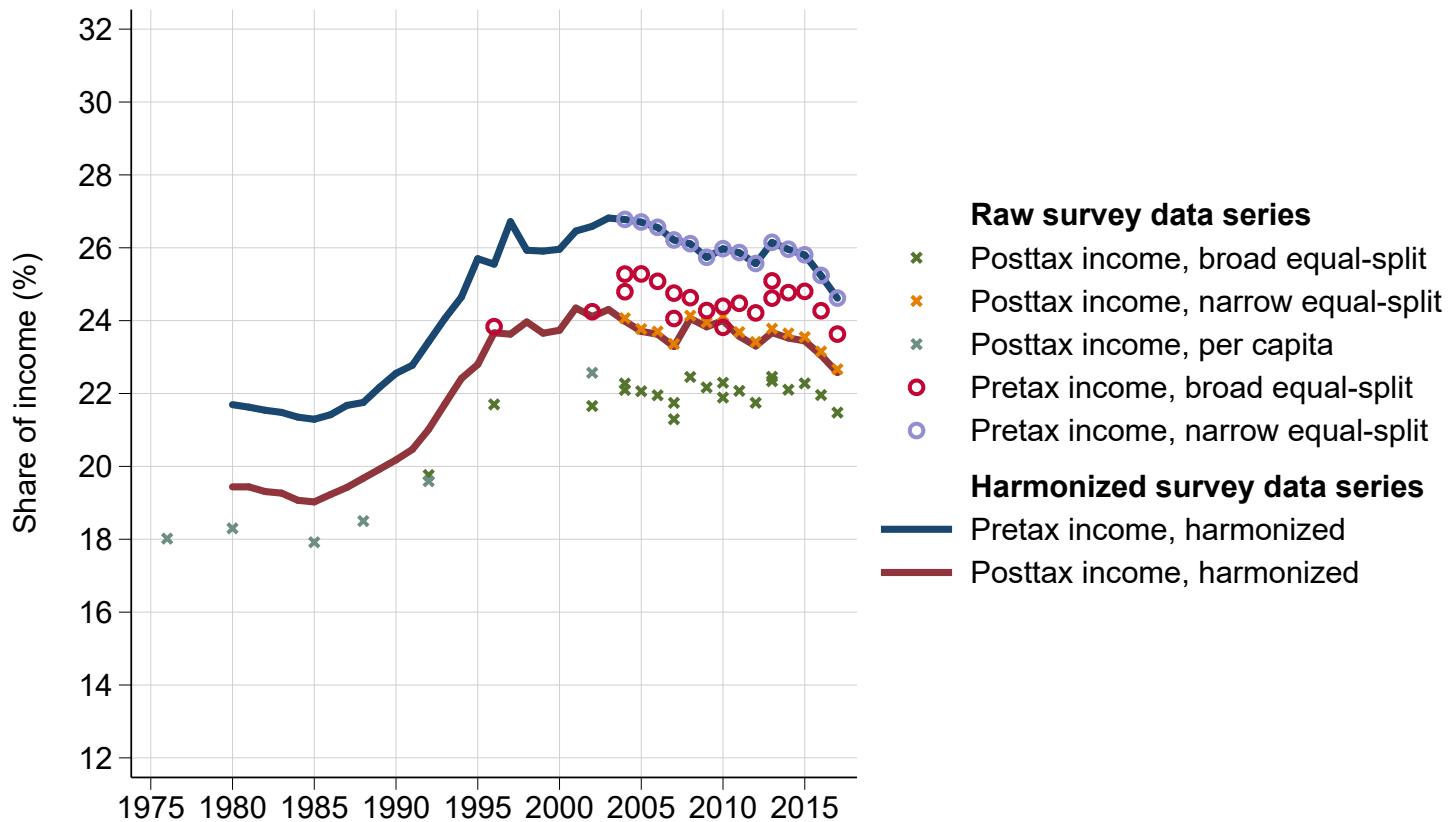
**Table A.3.3.5**  
**The distribution of national income growth in Croatia, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Bottom 50%	-0.2%	0.6%	-0.1%	0.6%	-0.1%	0.5%
Bottom 20%	0.0%	0.3%	0.4%	1.3%	-0.2%	0.5%
Next 30%	-0.2%	0.6%	-0.1%	0.5%	-0.1%	0.5%
Middle 40%	0.0%	0.6%	0.0%	0.4%	0.0%	0.4%
Top 10%	0.6%	-0.9%	0.5%	-0.7%	0.6%	-0.7%
Top 1%	2.4%	-1.8%	2.2%	-1.3%	2.3%	-1.3%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

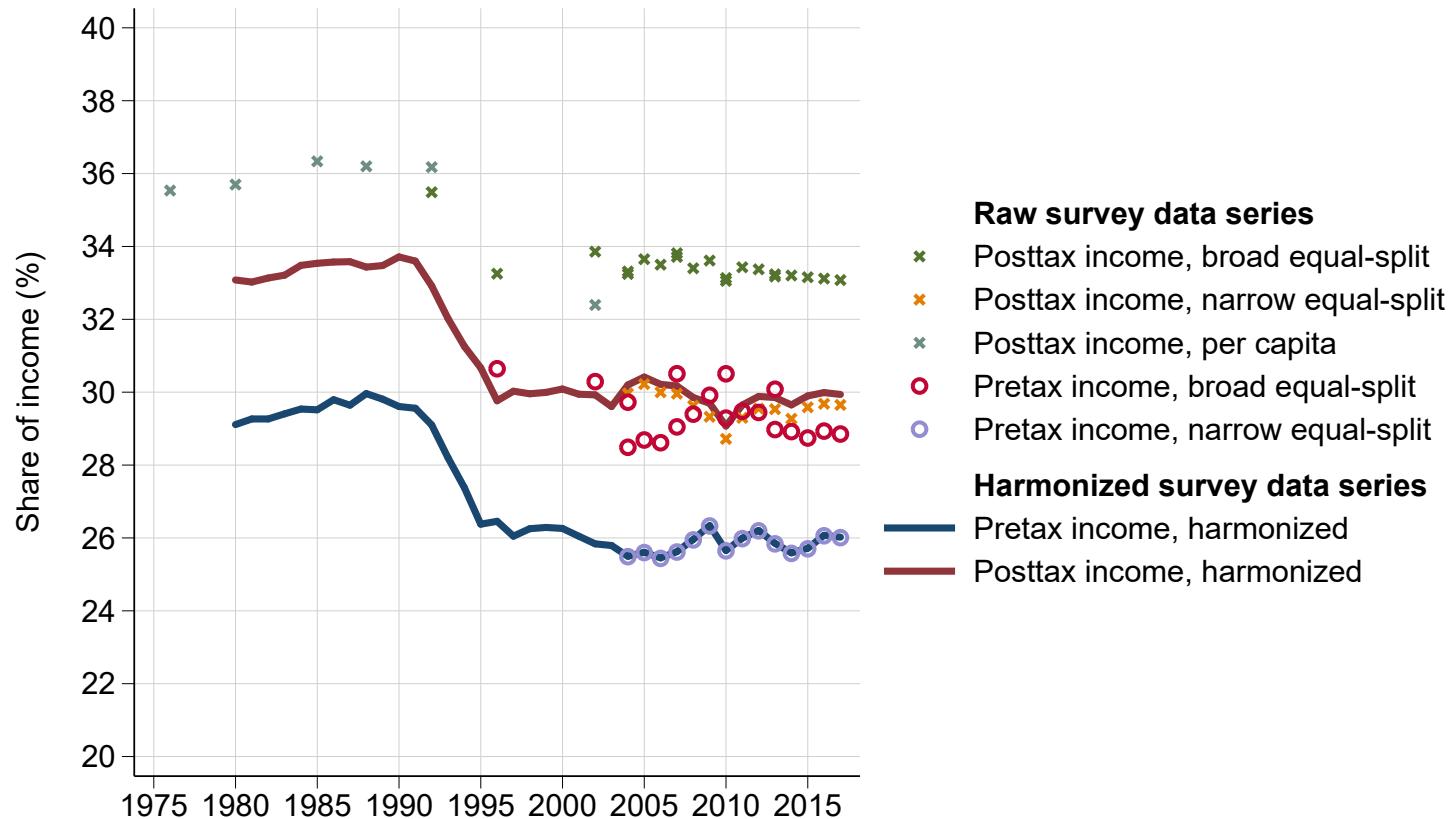
### 3.4 Czech Republic

**Figure A.3.4.1**  
**Czech Republic: harmonization of survey data**  
**Top 10% pretax income share**



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.4.2**  
**Czech Republic: harmonization of survey data**  
**Bottom 50% pretax income share**



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

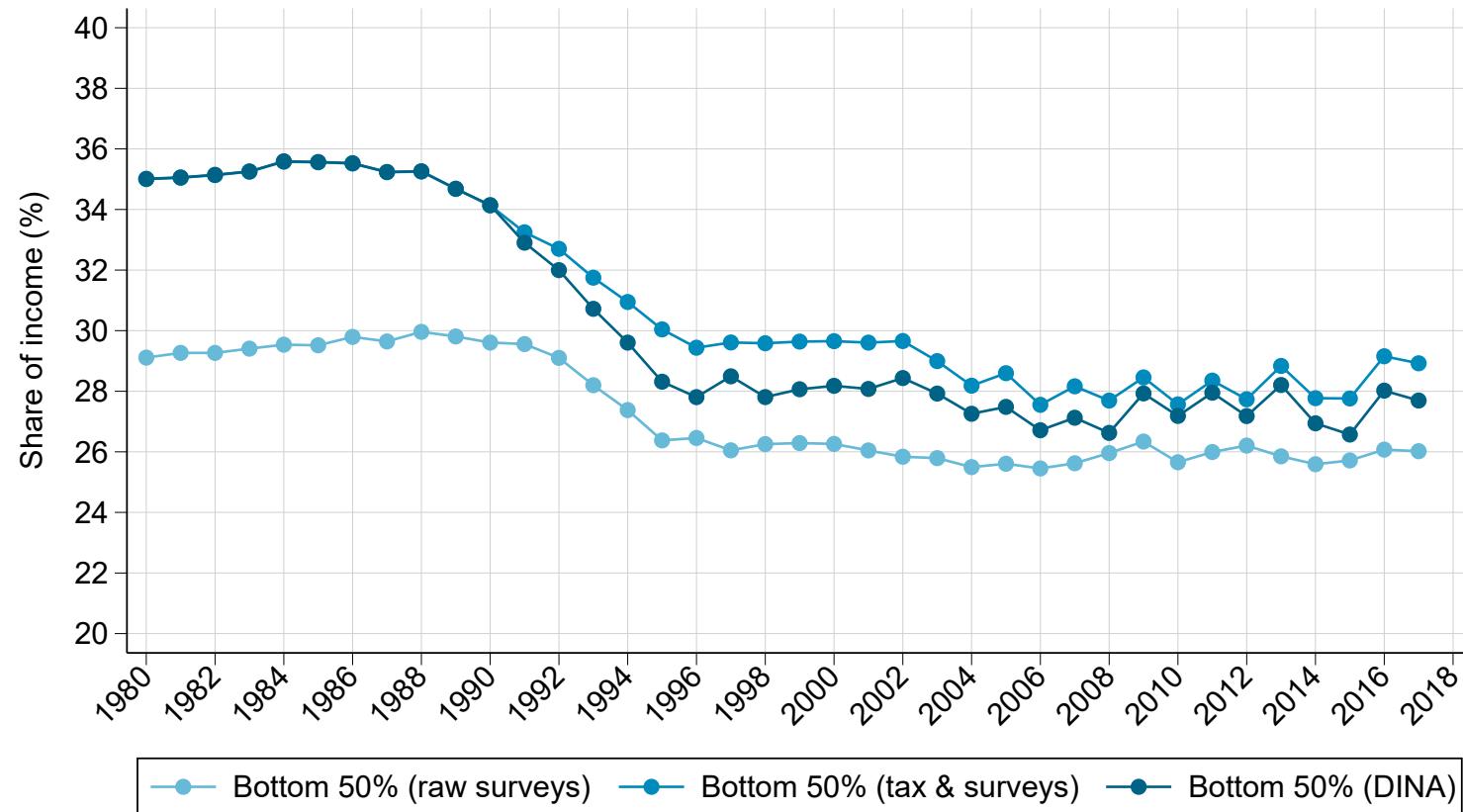
**Figure A.3.4.3**  
**Czech Republic: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

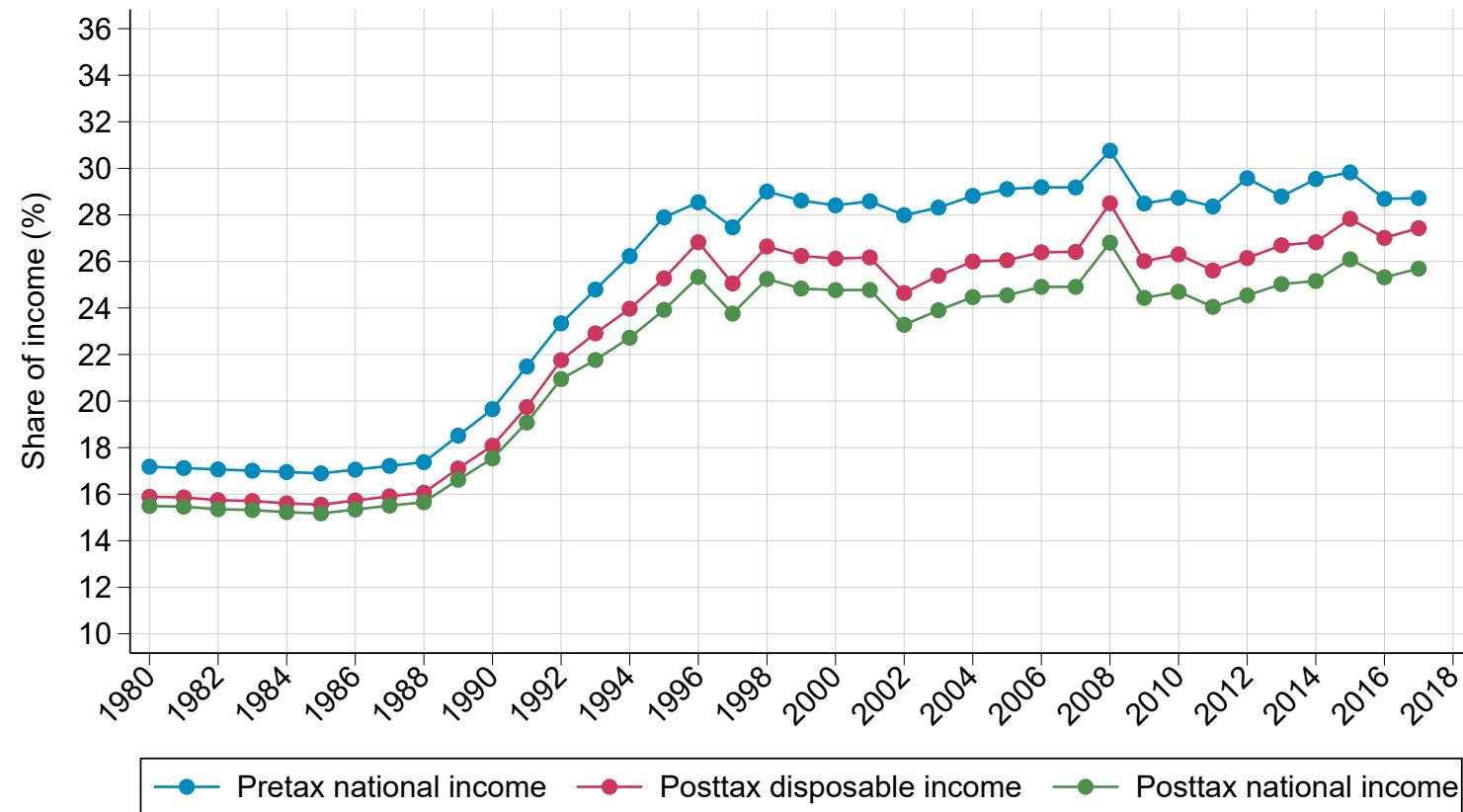
Figure A.3.4.4

Czech Republic: from harmonized surveys to distributional national accounts  
Bottom 50% pretax income share



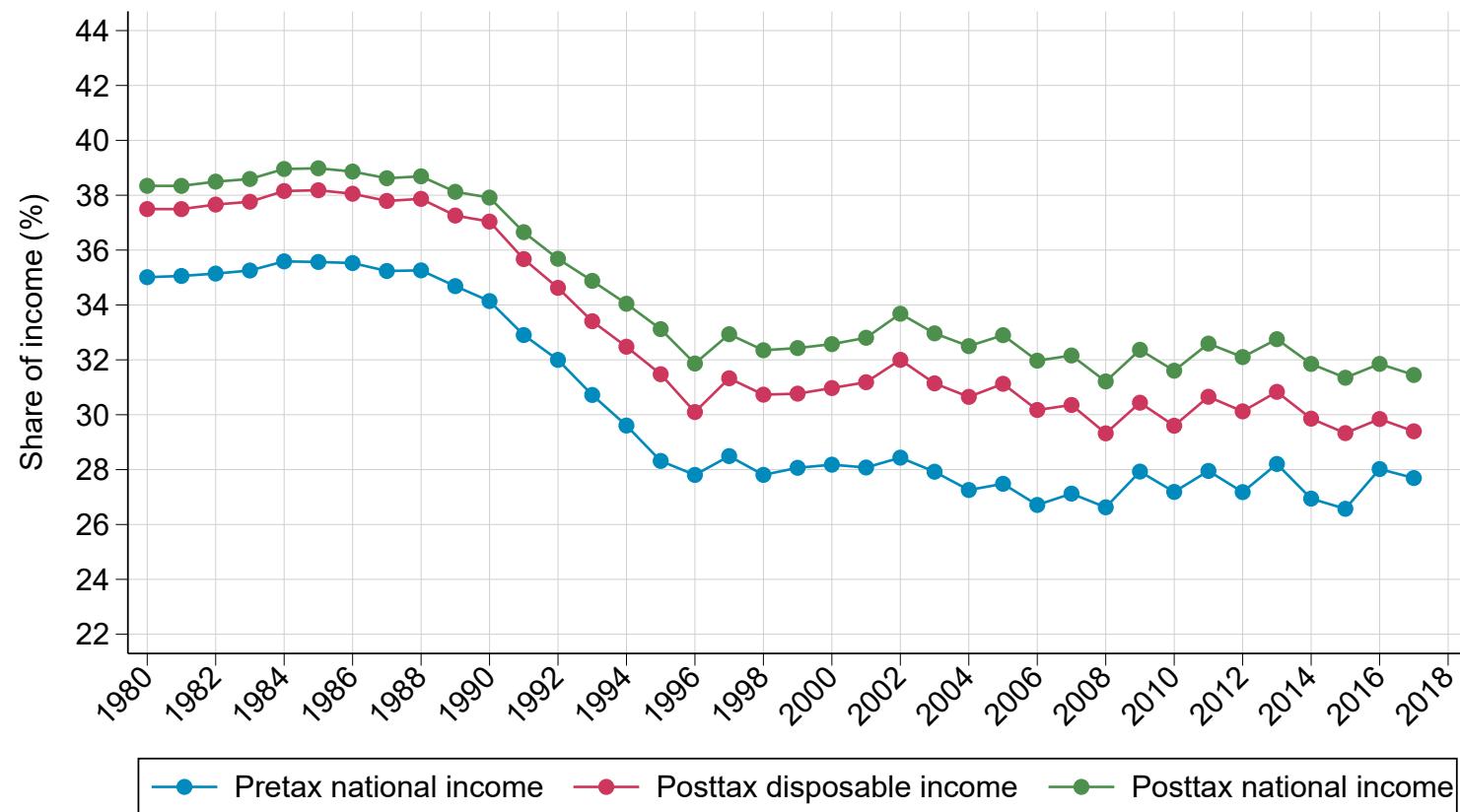
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.4.5**  
**Czech Republic: from pretax national income to posttax national income**  
**Top 10% income share**



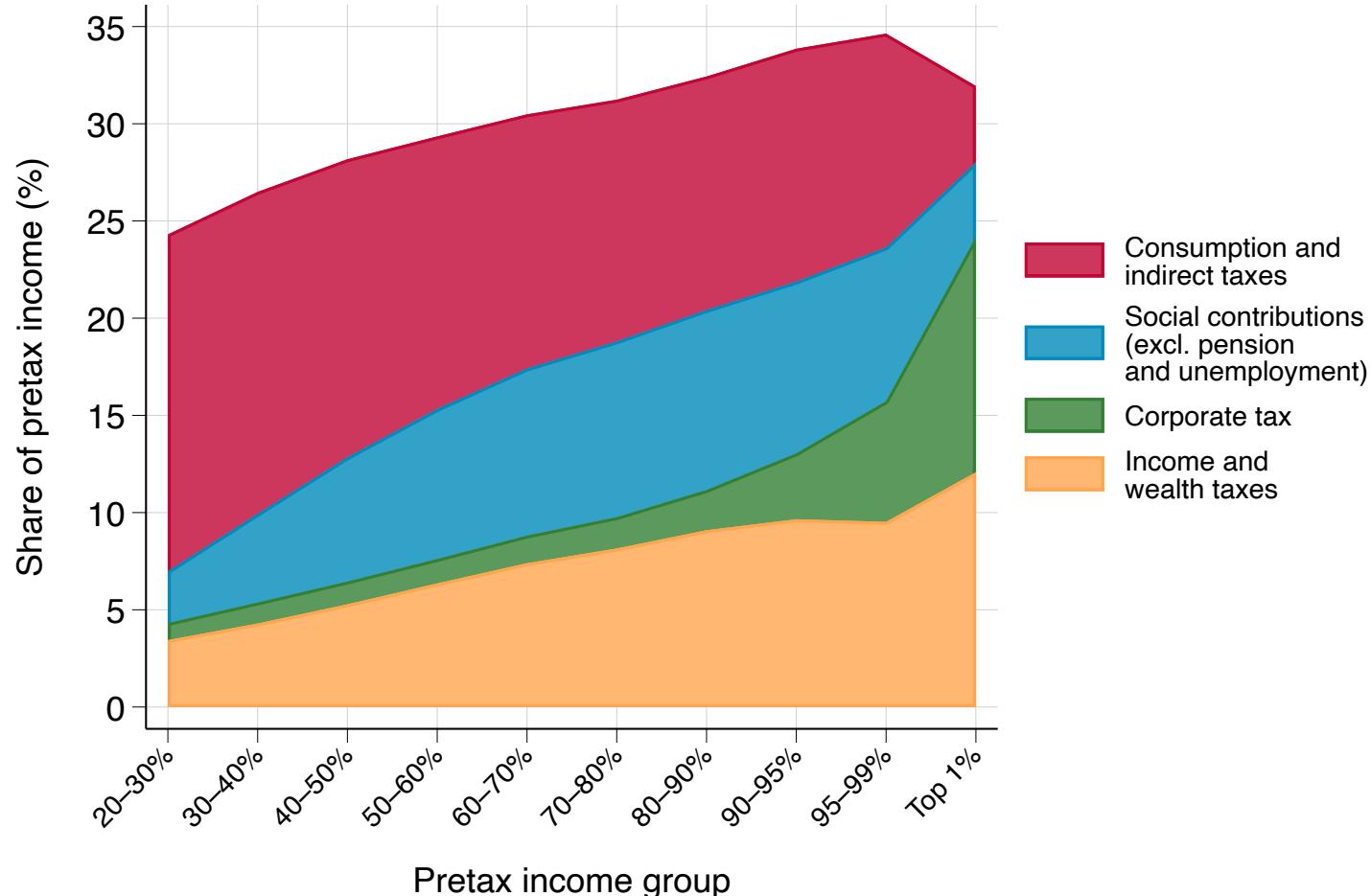
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.4.6**  
Czech Republic: from pretax national income to posttax national income  
**Bottom 50% income share**



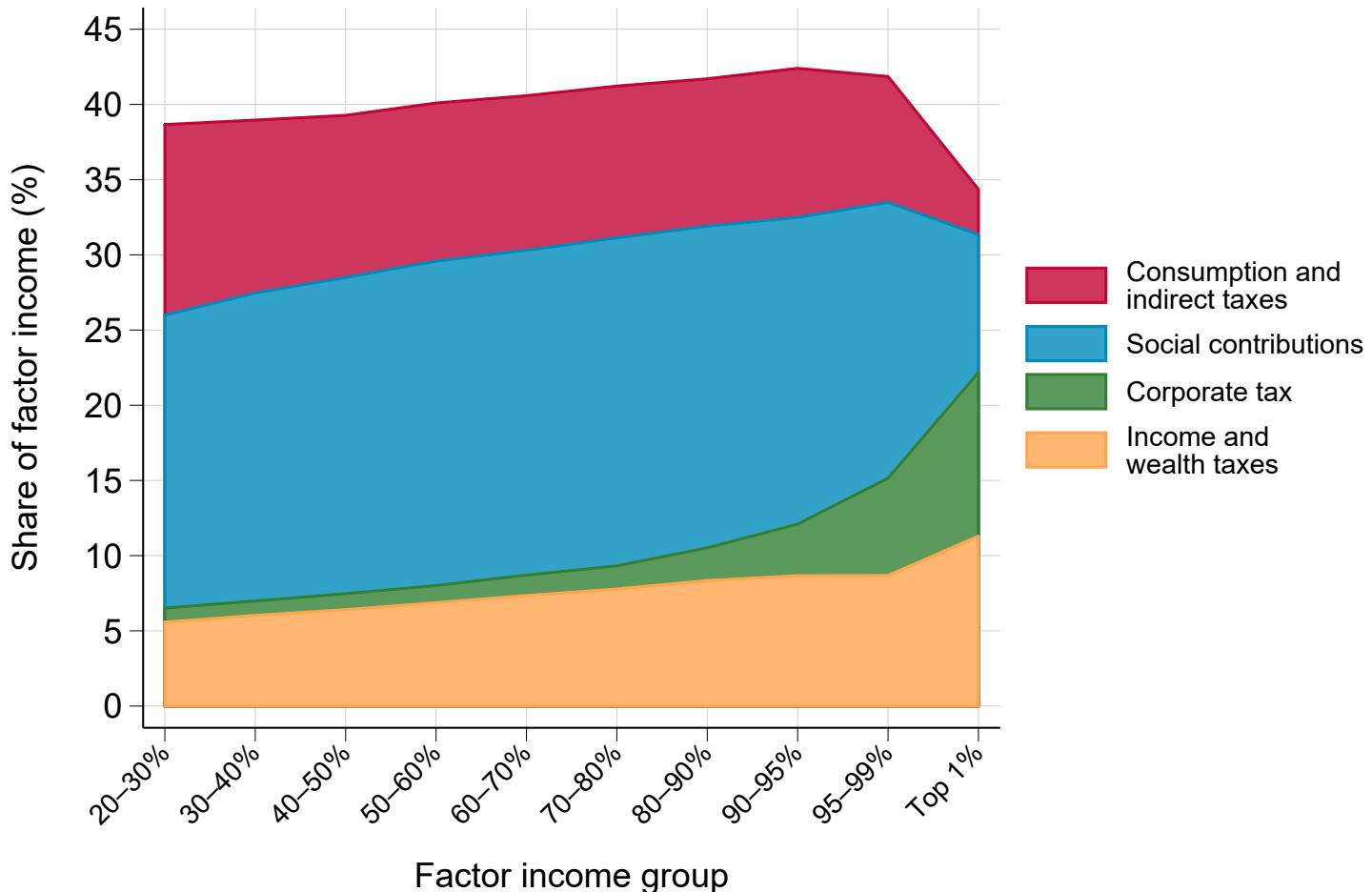
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.4.7  
Czech Republic: distribution of taxes  
Non-contributory taxes paid as a share of pretax income



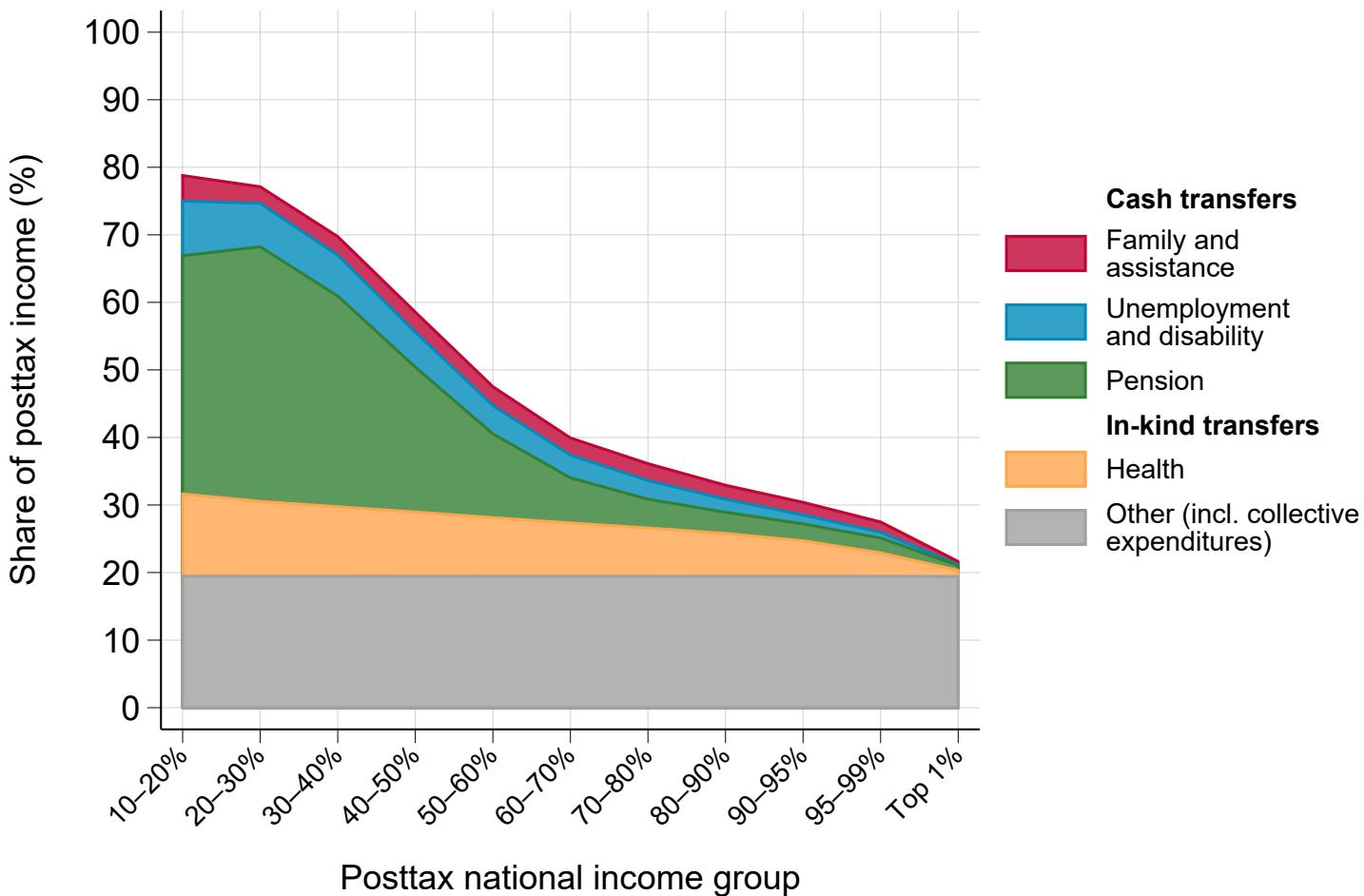
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.4.8**  
**Czech Republic: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



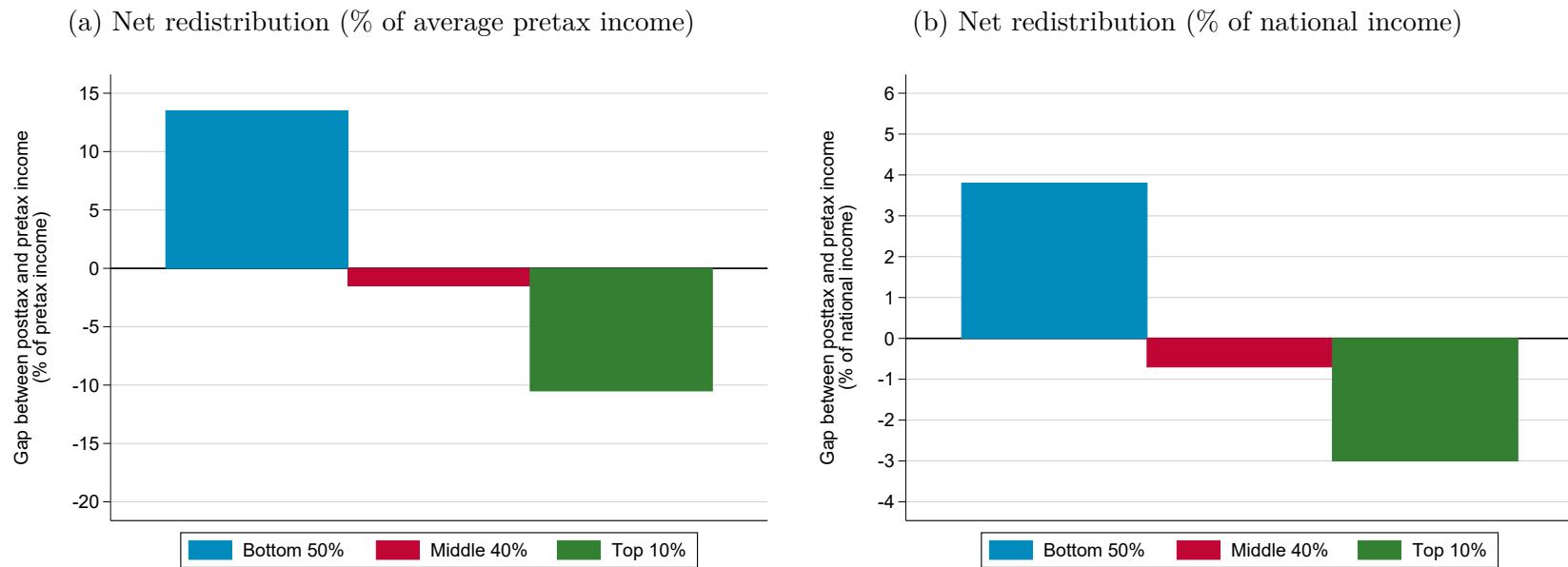
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

Figure A.3.4.9  
Czech Republic: distribution of transfers



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.4.10**  
**Czech Republic: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.4.1**  
**Czech Republic: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1976	x								
1980	x			x					
1981									
1982									
1983									
1984									
1985	x			x					
1986									
1987									
1988	x			x					
1989									
1990								x	
1991								x	
1992	x	x	x					x	
1993			x					x	
1994		x		x				x	
1995			x	x	x	x	x	x	x
1996	x	x	x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999			x	x	x	x	x	x	x
2000			x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002	x	x	x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.4.2**  
**Czech Republic: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			79.2%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	76.6%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	2.6%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	7.4%
(+)	Government primary income	National accounts	Proportional to pretax income	13.4%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	14.6%
(+)	Pension benefits	Survey + tax data	Observed	13.7%
(+)	Unemployment benefits	Survey + tax data	Observed	.9%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			30%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	6.8%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	5.3%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	13.7%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	4.2%
(+)	Transfers			32.4%
	<i>Cash transfers</i>	Survey + tax data	Observed	4.7%
	<i>Public health expenditures</i>	National accounts	Lump sum	8.2%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	19.5%
(+)	Budget balance	National accounts	Proportional to posttax income	-2.4%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.4.3**  
**Czech Republic: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2004–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2004–2017); Employer contributions (OECD, 2004–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 65.4% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.08 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1992–2013; SILC, 2004–2017; Atkinson and Micklewright 1992, CS, 1976–1988; PovcalNet, 1992–2002); pretax income (LIS, 1996–2013; SILC, 2004–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.4 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1980–2015 ( <a href="#">Novokmet, 2018</a> )	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 2.7 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 1.6 pp. higher than in the raw survey. The top 1% share of posttax income is 1.0 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	Due to lack of data, we use the average European distribution for corporate stocks.  See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 15.7% of imputed rents, and account for 16.5% of consumption.  Undistributed corporate profits increase the top 10% share of income by 1.0 pp. on average; Imputed rents decrease the top 10% share of income by 0.2 pp. on average; The corporate tax increase the top 10% share of pretax income by 1.0 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.0 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.4.4**  
**The distribution of national income in Czech Republic, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€26,100	100%	€26,100	100%	€26,100	100%
Bottom 50%	€14,500	27.7%	€15,400	29.4%	€16,400	31.5%
Bottom 20%	€9,800	7.5%	€10,600	8.1%	€12,200	9.3%
Next 30%	€17,600	20.2%	€18,500	21.3%	€19,300	22.1%
Middle 40%	€28,500	43.6%	€28,200	43.2%	€28,000	42.9%
Top 10%	€75,100	28.7%	€71,700	27.4%	€67,200	25.7%
Top 1%	€266,000	10.2%	€258,000	9.9%	€235,000	9.0%
Top 0.1%	€1,060,000	4.0%	€1,080,000	4.1%	€975,000	3.7%
Top 0.01%	€4,340,000	1.7%	€4,720,000	1.8%	€4,250,000	1.6%
Top 0.001%	€17,920,000	0.7%	€20,800,000	0.8%	€18,720,000	0.7%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

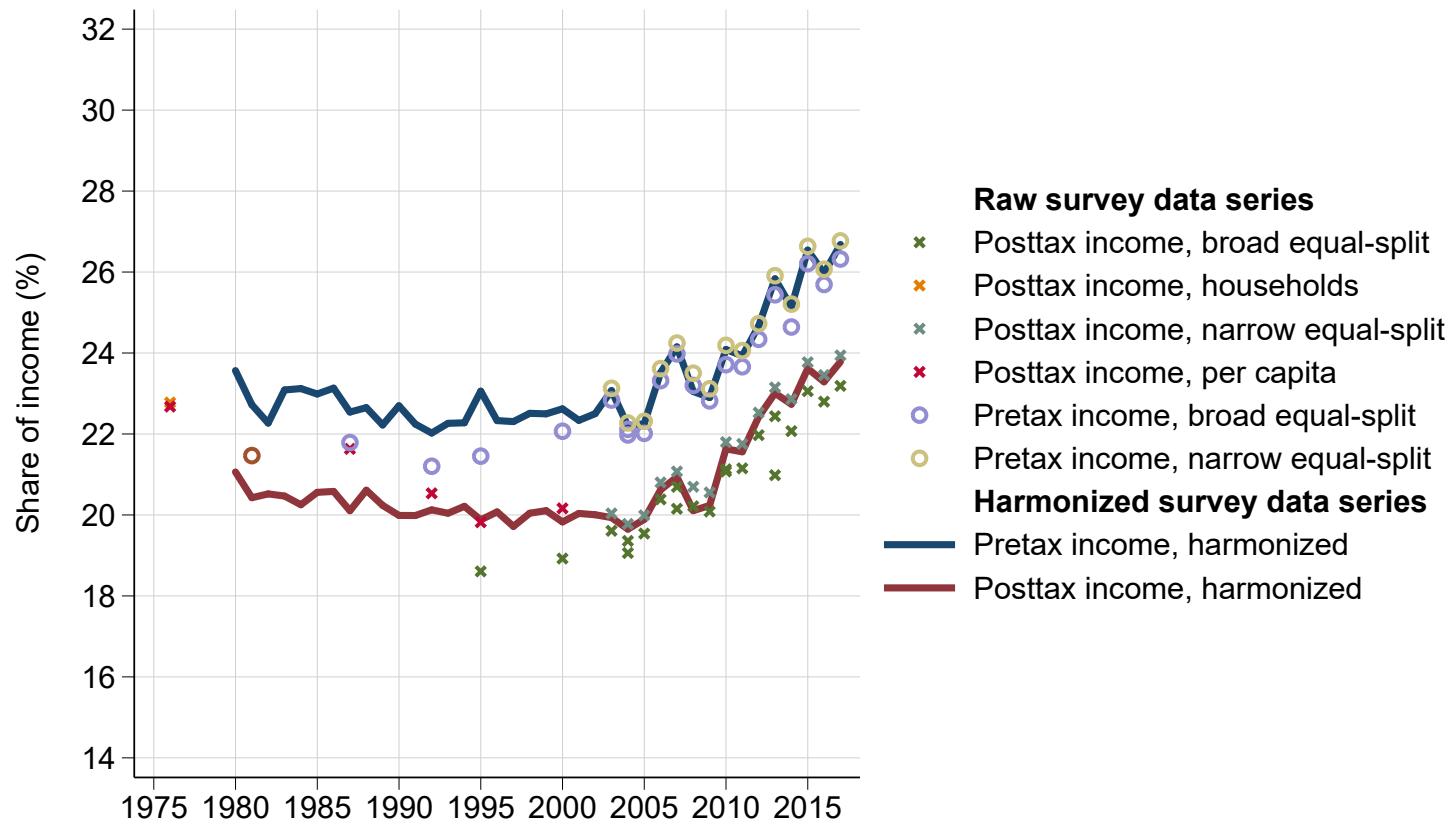
**Table A.3.4.5**  
**The distribution of national income growth in Czech Republic, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.0%	1.2%	1.0%	1.2%	1.0%	1.2%
Bottom 50%	0.4%	1.4%	0.4%	0.8%	0.5%	0.9%
Bottom 20%	0.1%	1.8%	0.1%	1.1%	0.3%	1.2%
Next 30%	0.5%	1.2%	0.5%	0.7%	0.6%	0.8%
Middle 40%	0.8%	1.1%	0.8%	1.1%	0.8%	1.1%
Top 10%	2.4%	1.0%	2.5%	1.5%	2.4%	1.5%
Top 1%	5.0%	0.9%	5.1%	1.7%	4.9%	1.6%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

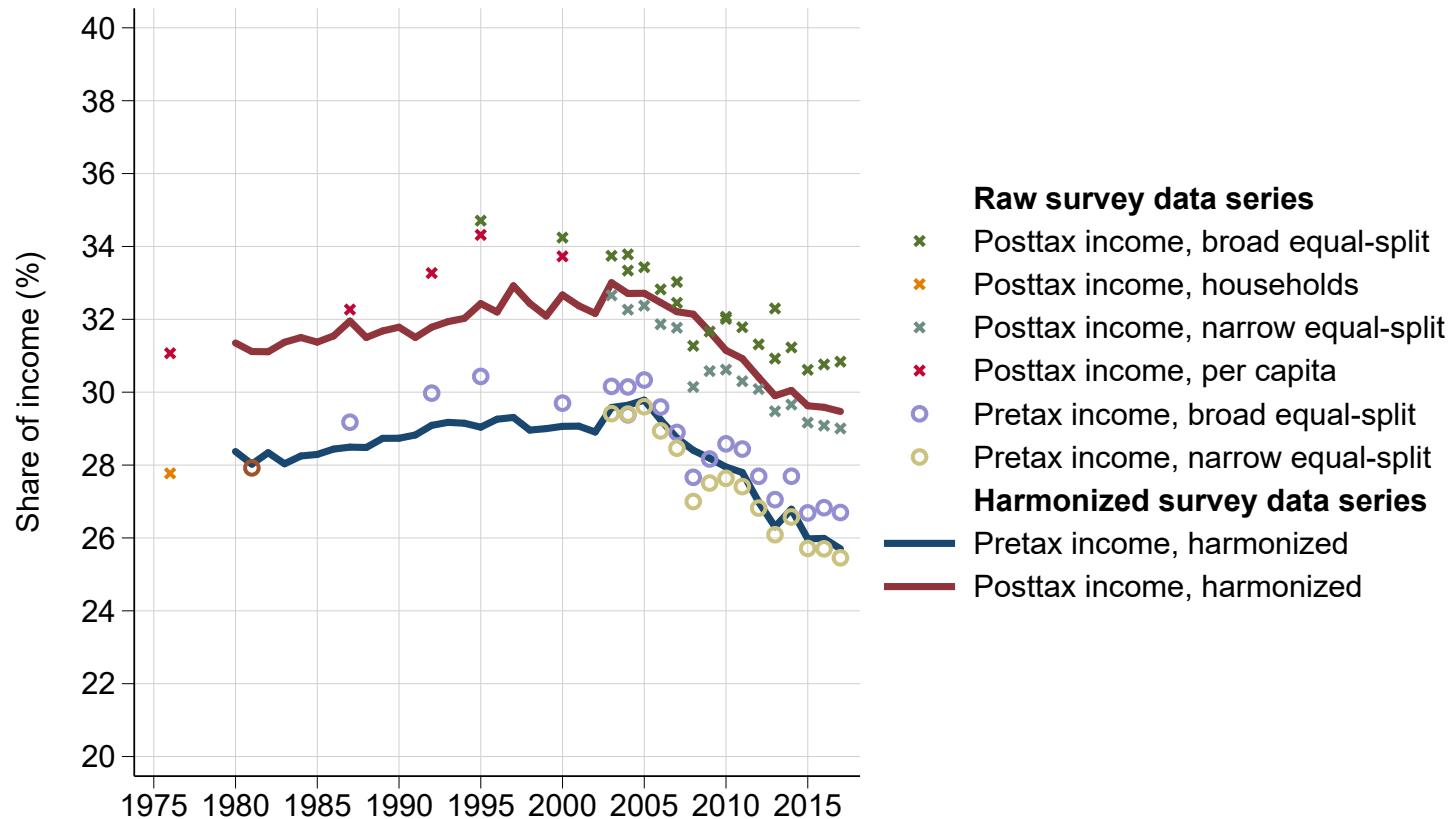
### 3.5 Denmark

**Figure A.3.5.1**  
**Denmark: harmonization of survey data**  
**Top 10% pretax income share**



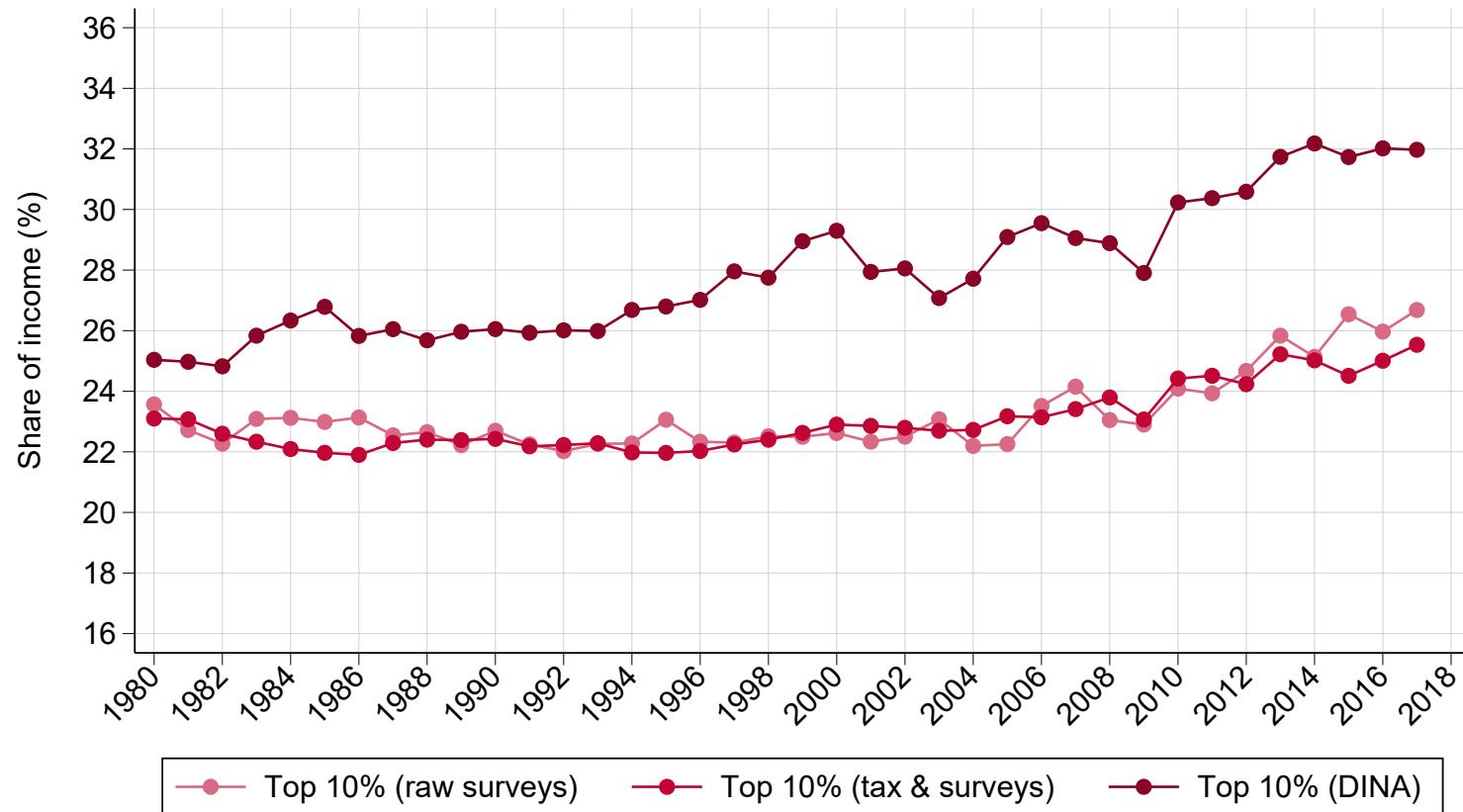
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.5.2**  
**Denmark: harmonization of survey data**  
**Bottom 50% pretax income share**



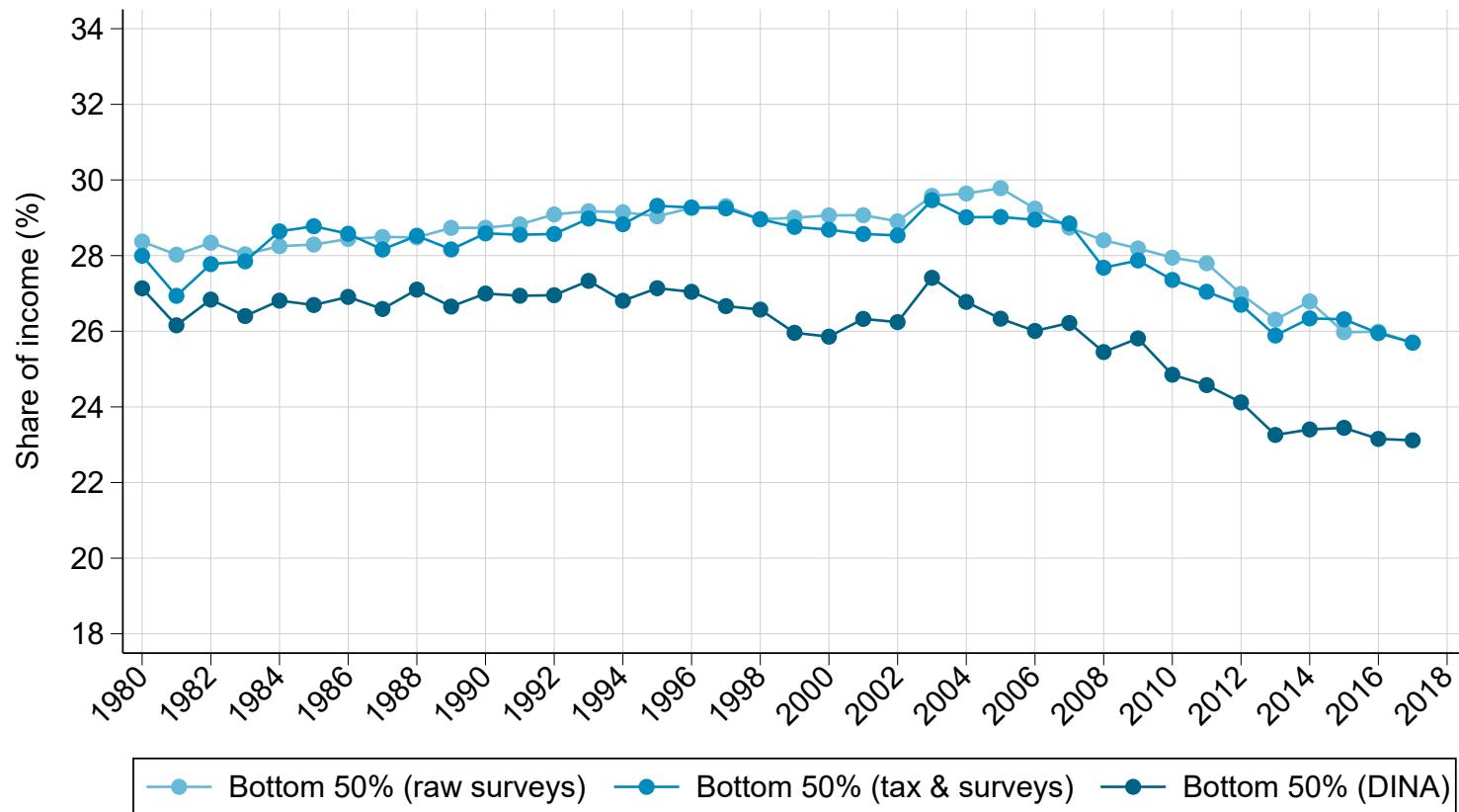
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.5.3**  
**Denmark: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



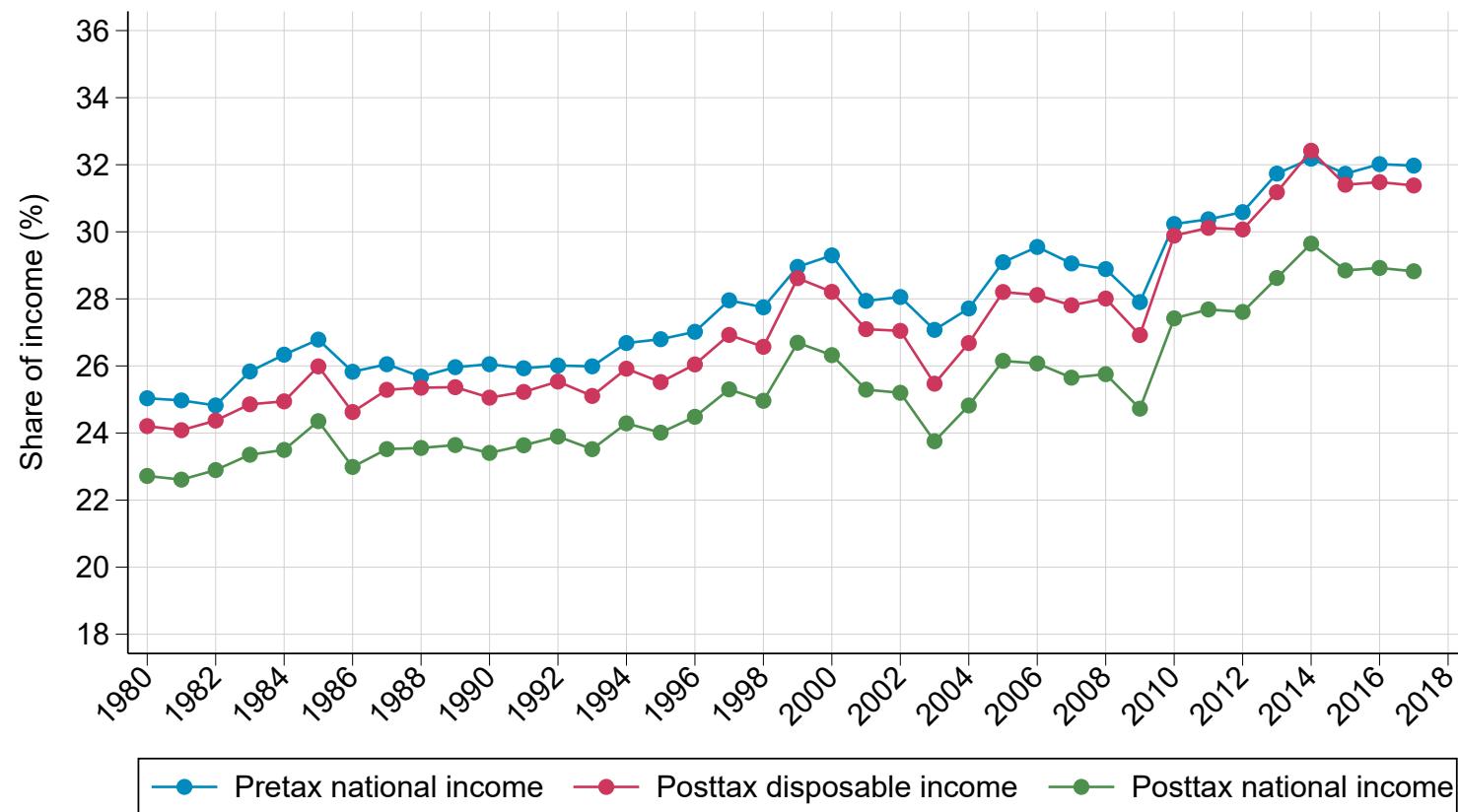
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.5.4**  
**Denmark: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



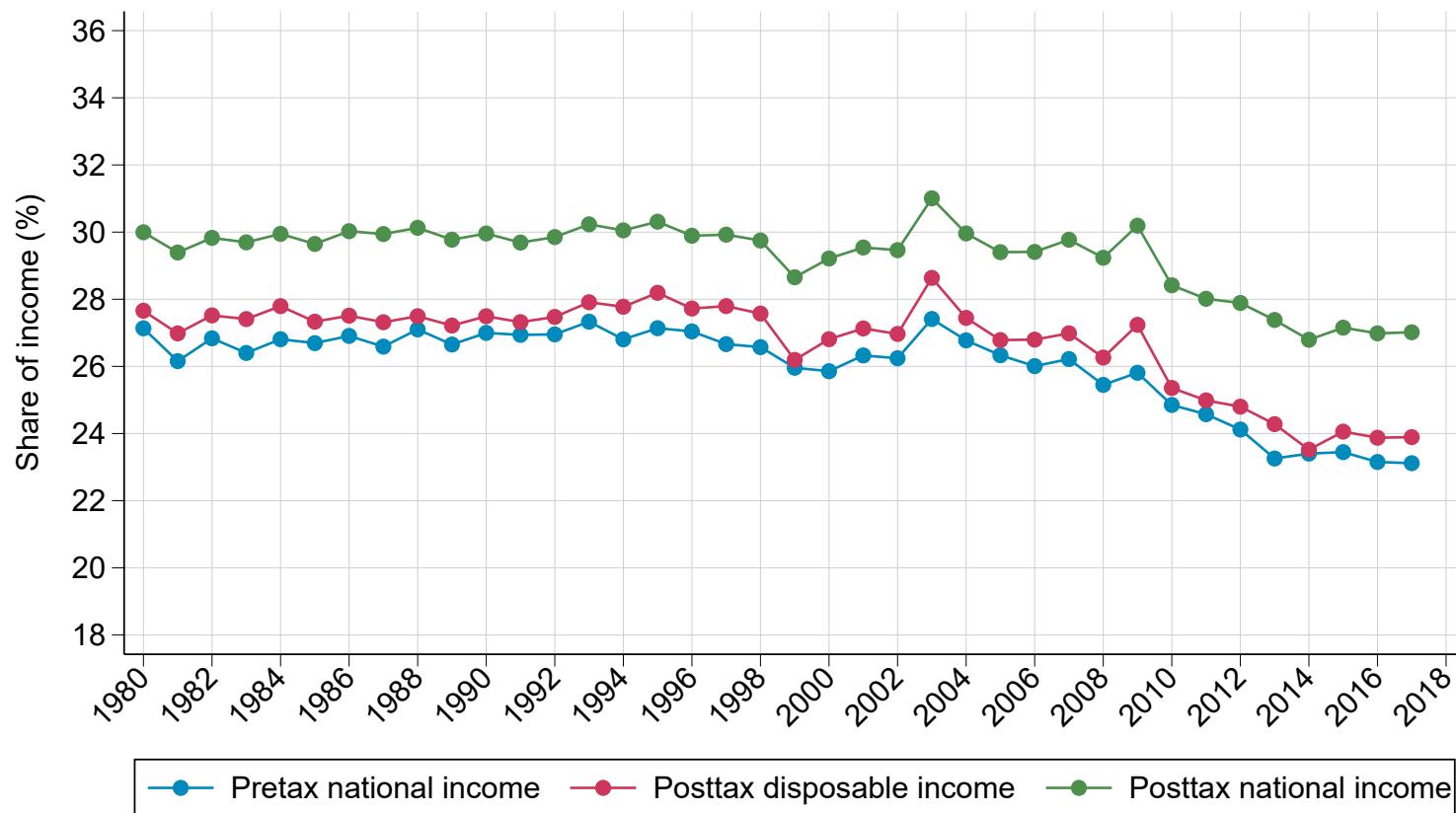
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.5.5**  
**Denmark: from pretax national income to posttax national income**  
**Top 10% income share**



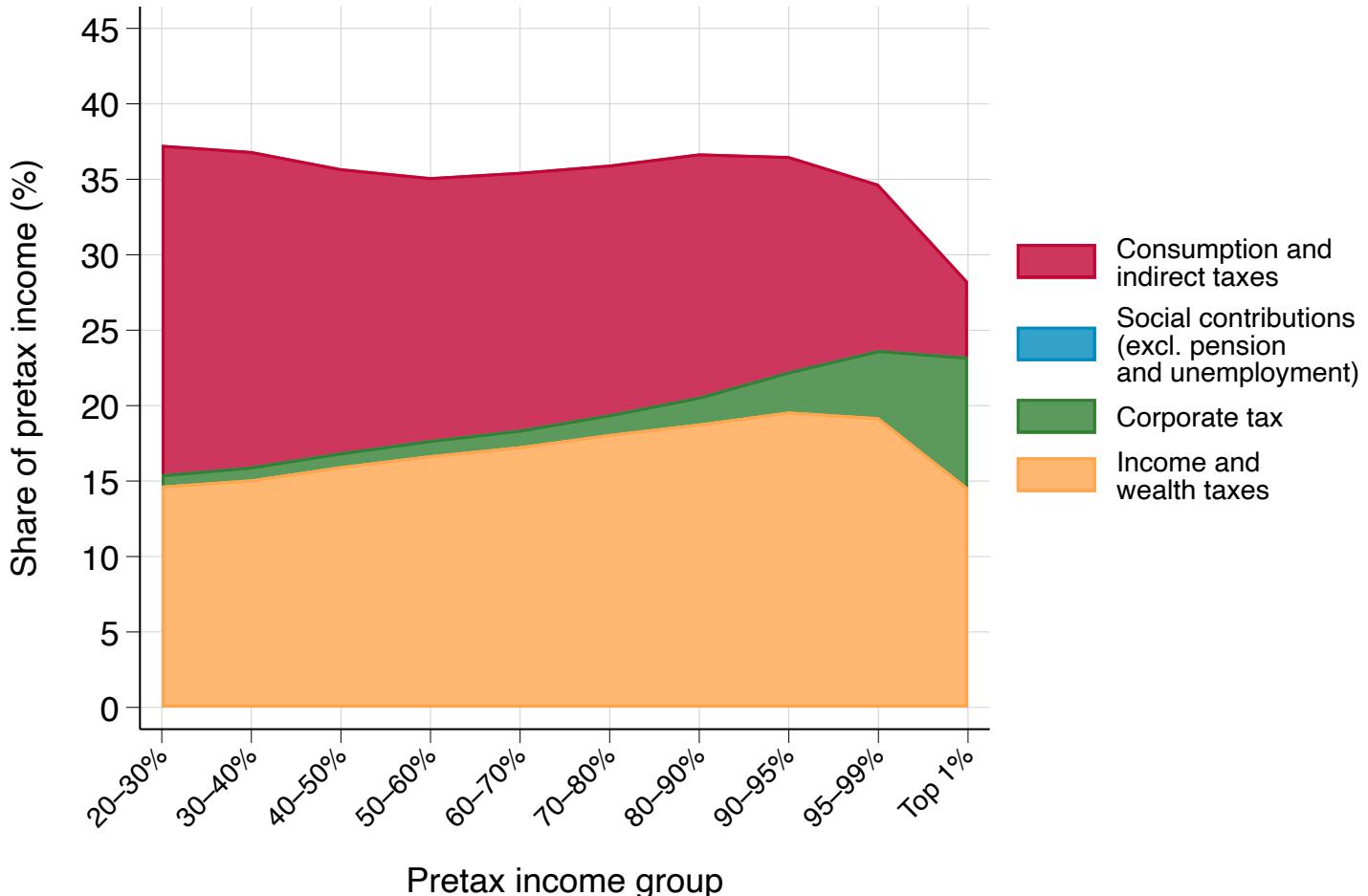
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.5.6**  
**Denmark: from pretax national income to posttax national income**  
**Bottom 50% income share**



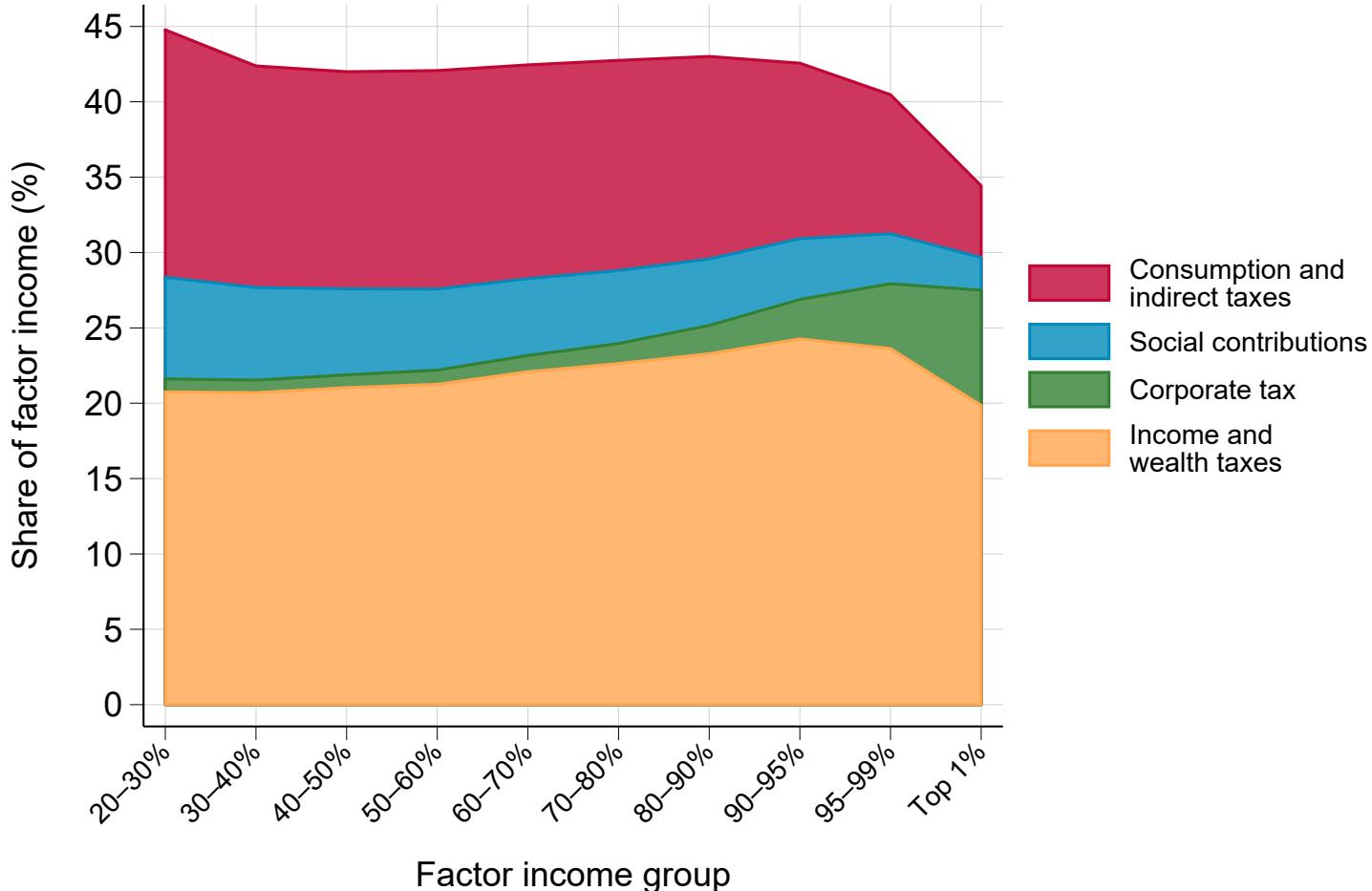
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.5.7**  
**Denmark: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



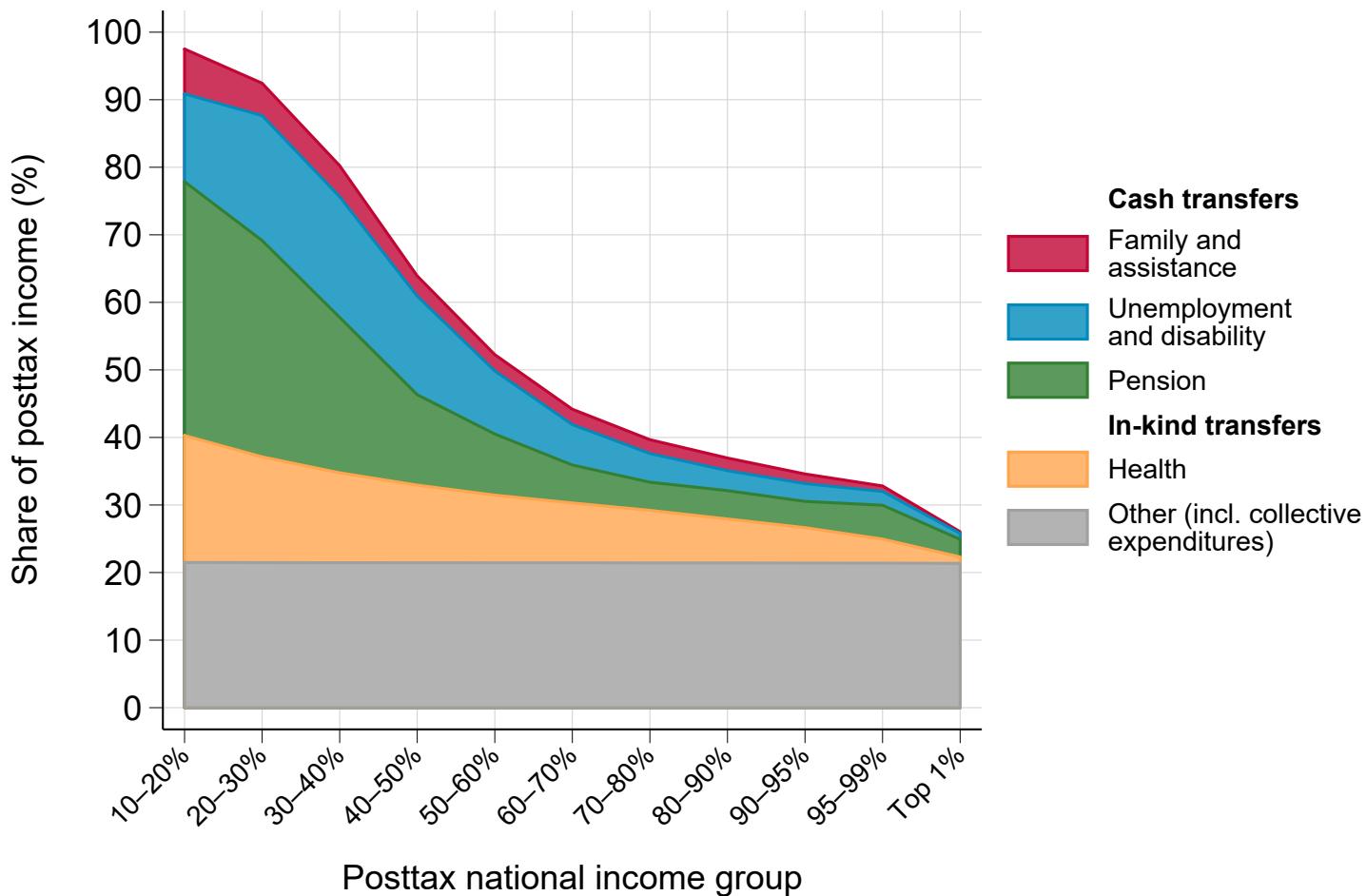
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.5.8**  
**Denmark: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



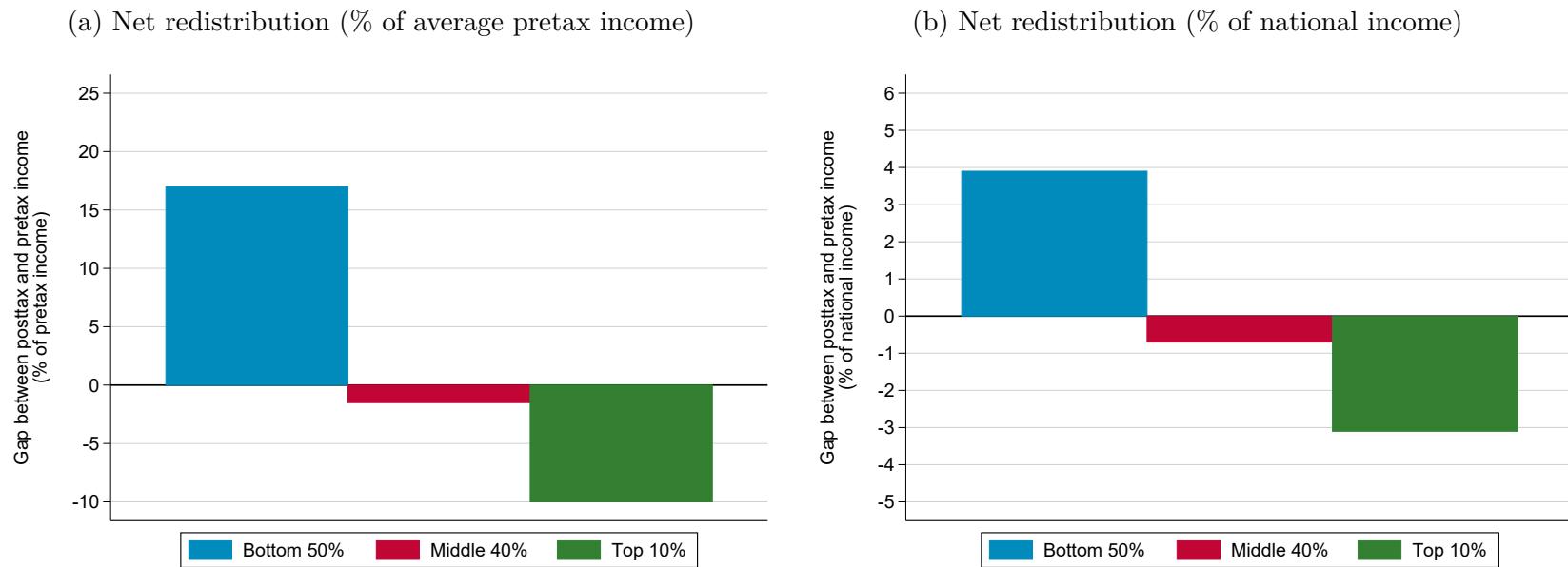
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.5.9**  
**Denmark: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.5.10**  
**Denmark: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.5.1**  
**Denmark: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1976	x								
1980			x						x
1981	x		x	x			x	x	x
1982			x	x			x	x	x
1983			x	x			x	x	x
1984			x	x			x	x	x
1985			x	x			x	x	x
1986			x	x			x	x	x
1987	x	x	x	x			x	x	x
1988			x	x			x	x	x
1989			x	x			x	x	x
1990			x	x		x	x	x	x
1991			x	x		x	x	x	x
1992	x	x	x	x		x	x	x	x
1993			x	x		x	x	x	x
1994			x	x	x	x	x	x	x
1995	x	x	x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999			x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x		x	x	x	x	x	x
2012	x	x		x	x	x	x	x	x
2013	x	x		x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.5.2**  
**Denmark: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			
(+)	Household primary income			100%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	68.4%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	68.1%
			Proportional to equity ownership / wages and pension for equity held through pension funds	.3%
(+)	Corporate primary income	National accounts		15.1%
(+)	Government primary income	National accounts	Proportional to pretax income	16.5%
	<b>Pretax national income</b>			
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	19.6%
(+)	Pension benefits	Survey + tax data	Observed	19.6%
(+)	Unemployment benefits	Survey + tax data	Observed	0%
	<b>Posttax national income</b>			
(+)	Pretax national income			100%
(-)	Taxes			36.9%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-11.4%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	29%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	16.4%
			Proportional to equity ownership / wages and pension for equity held through pension funds	2.9%
(+)	Corporate income tax	National accounts		
(+)	Transfers			36.4%
	<i>Cash transfers</i>	Survey + tax data	Observed	5.7%
	<i>Public health expenditures</i>	National accounts	Lump sum	9.2%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	21.6%
(+)	Budget balance	National accounts	Proportional to posttax income	.4%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.5.3**  
**Denmark: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that all social contributions, and also, on average, 35.1% of income taxes, are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.07 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1995–2013; SILC, 2003–2017; PovcalNet, 1987–2000; van Ginneken and Park 1984, 1976); pretax income (LIS, 1987–2004; SILC, 2003–2017; Statistical Yearbook, 1981)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.7 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	1980–2010 ( <a href="#">Atkinson and Søgaard, 2013</a> )	See section 1.4.2.	When using the same income concept as the tax data, we find no major difference between the top 1% income share in the survey and in the tax data.
	Application of the correction to all survey distributions.		See section 1.4.3.	The use of tax data does not lead to notable increase in the top 1% share of pretax income. It does not lead to notable increase in the top 1% share of posttax income.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	EU-SILC, 2003–2017 (imputed rents); HBS, 2010 (consumption)	Due to lack of data, we use the average European distribution for corporate stocks.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 21.2% of imputed rents, and account for 15.4% of consumption.
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 3.2 pp. on average; Imputed rents increase the top 10% share of income by 0.02 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.9 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.8 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.9 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.5.4**  
**The distribution of national income in Denmark, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€45,700	100%	€45,700	100%	€45,700	100%
Bottom 50%	€21,100	23.1%	€21,800	23.9%	€24,700	27.0%
Bottom 20%	€11,100	4.9%	€12,100	5.3%	€16,100	7.0%
Next 30%	€27,800	18.3%	€28,300	18.6%	€30,400	20.0%
Middle 40%	€51,300	44.9%	€51,100	44.7%	€50,400	44.2%
Top 10%	€146,000	32.0%	€143,000	31.4%	€132,000	28.8%
Top 1%	€508,000	11.1%	€491,000	10.8%	€438,000	9.6%
Top 0.1%	€2,080,000	4.5%	€1,990,000	4.4%	€1,760,000	3.8%
Top 0.01%	€8,880,000	1.9%	€8,440,000	1.8%	€7,430,000	1.6%
Top 0.001%	€38,420,000	0.8%	€36,210,000	0.8%	€31,870,000	0.7%

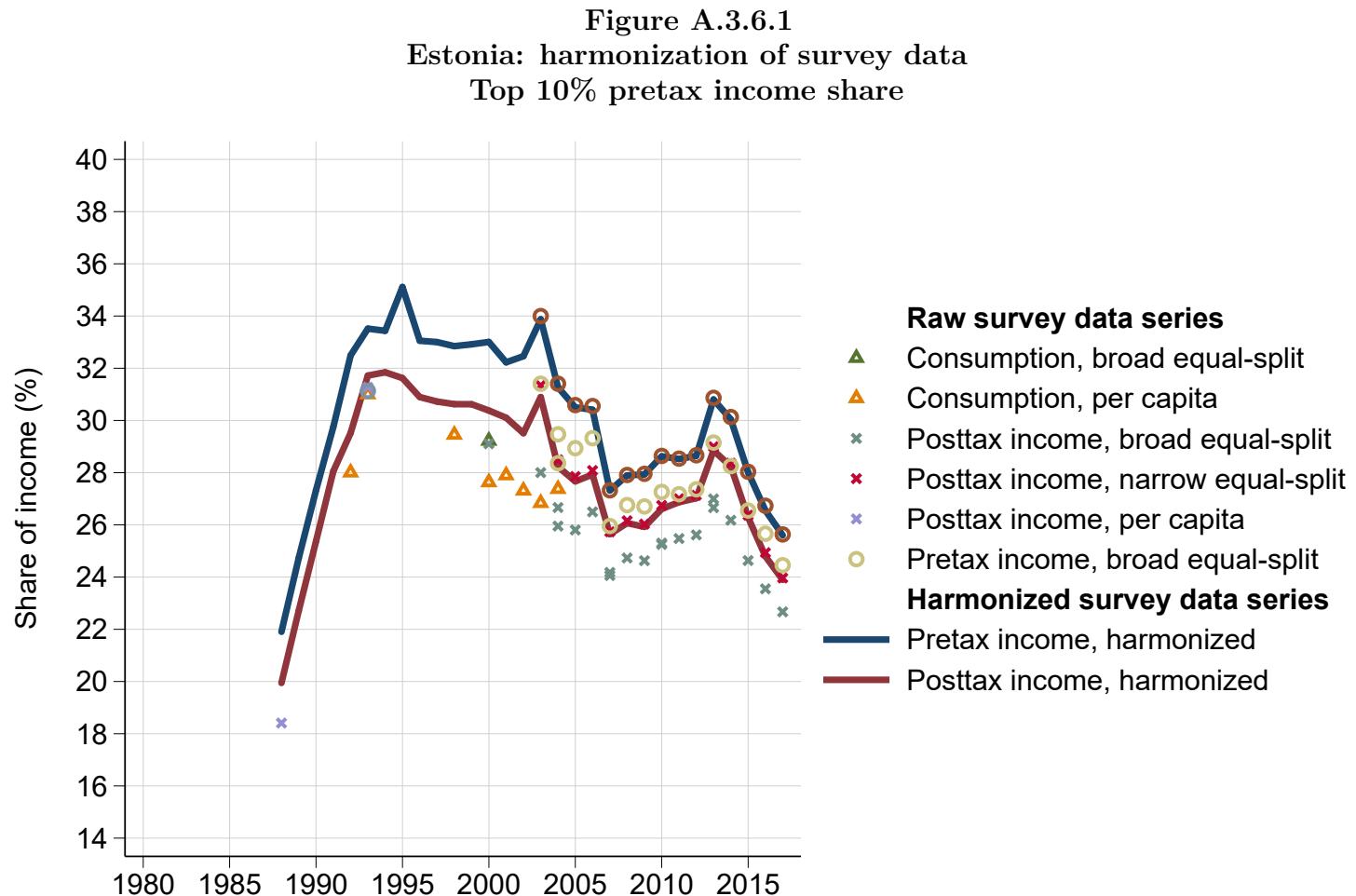
*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.5.5**  
**The distribution of national income growth in Denmark, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.5%	0.4%	1.5%	0.4%	1.5%	0.4%
Bottom 50%	1.0%	-0.9%	1.1%	-0.8%	1.2%	-0.6%
Bottom 20%	0.8%	-1.9%	1.0%	-1.4%	1.3%	-0.8%
Next 30%	1.1%	-0.6%	1.1%	-0.7%	1.2%	-0.5%
Middle 40%	1.3%	0.4%	1.3%	0.3%	1.3%	0.3%
Top 10%	2.2%	1.4%	2.2%	1.6%	2.1%	1.6%
Top 1%	3.1%	1.8%	3.3%	2.0%	3.2%	2.0%

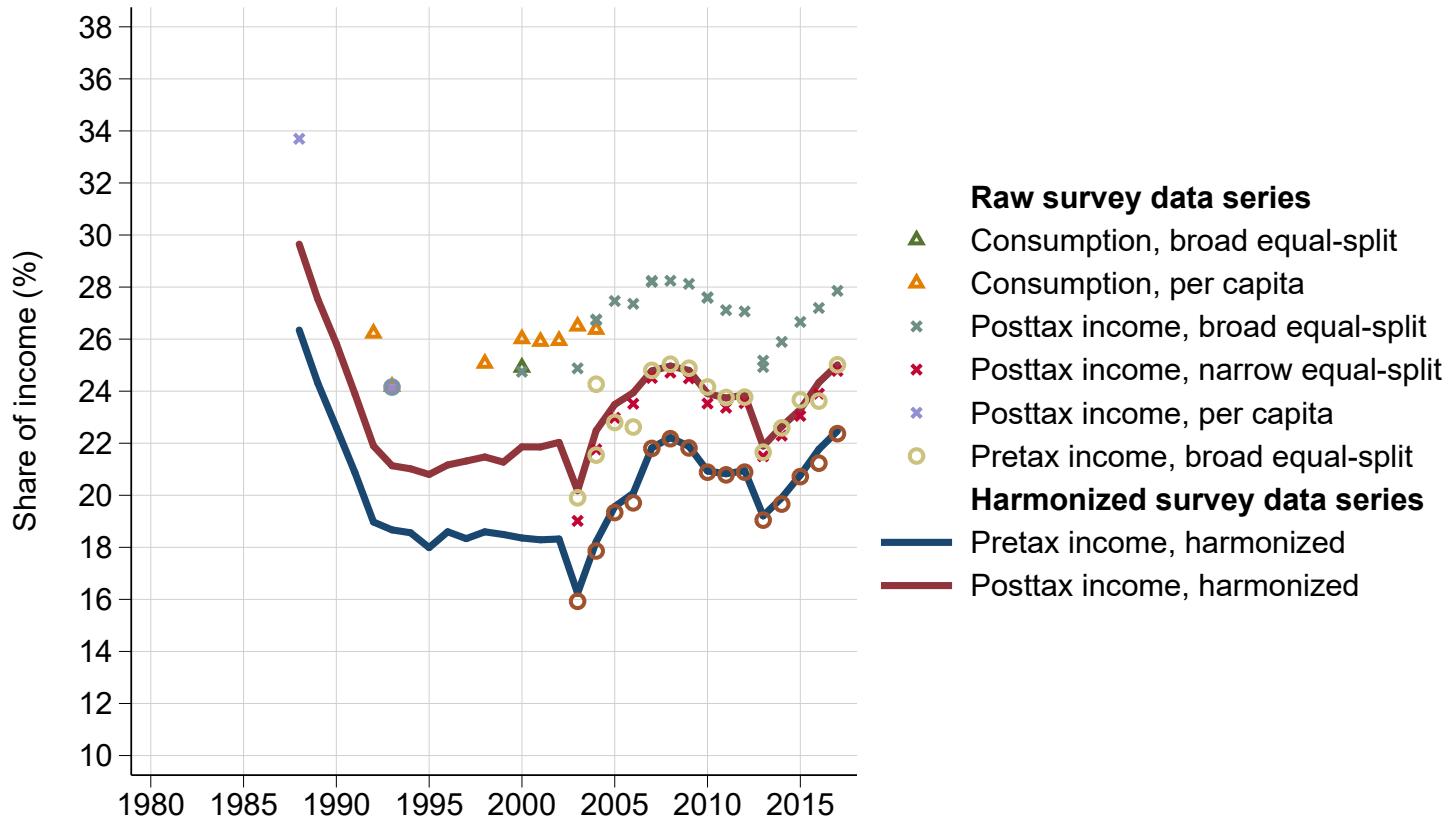
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

### 3.6 Estonia



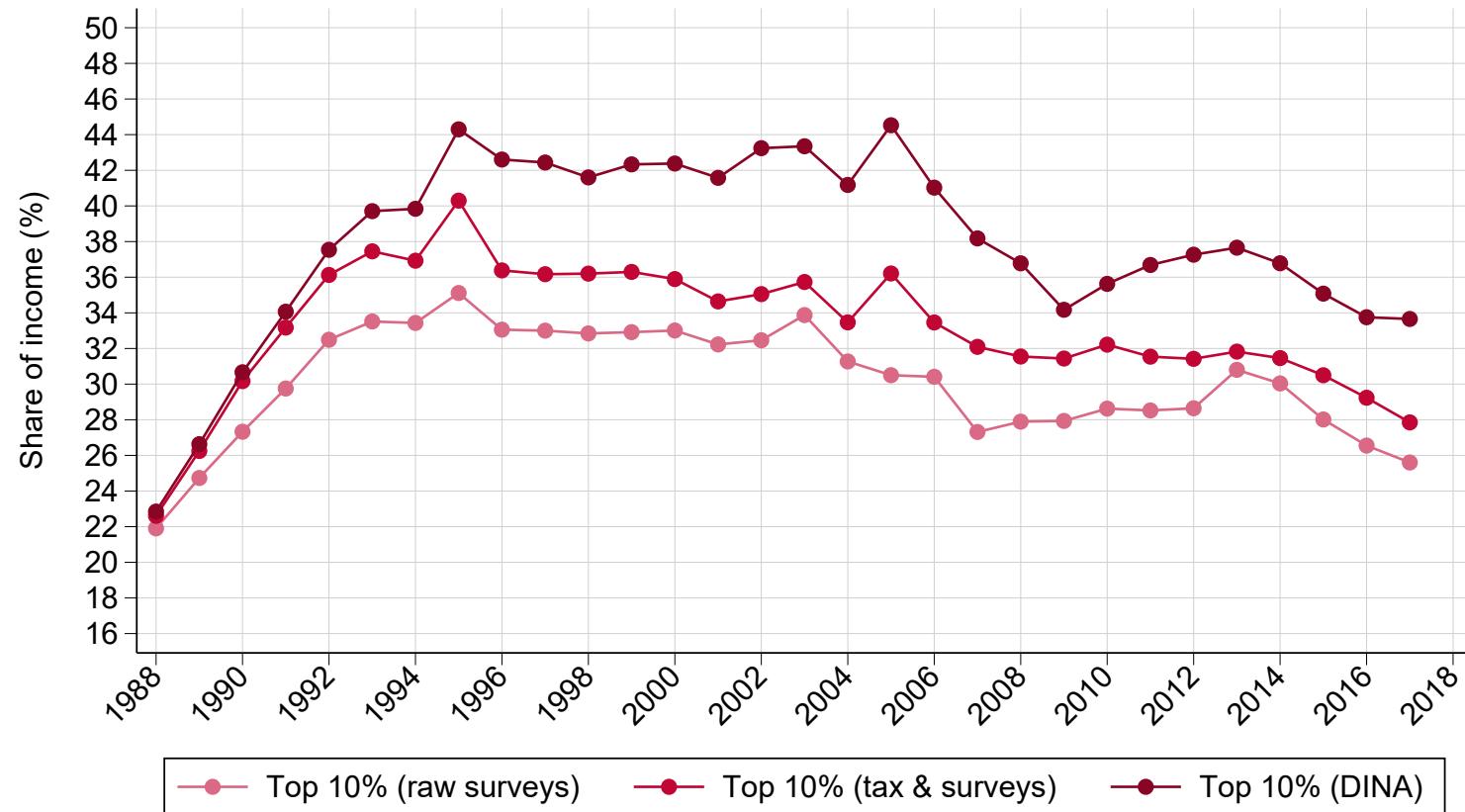
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.6.2**  
**Estonia: harmonization of survey data**  
**Bottom 50% pretax income share**



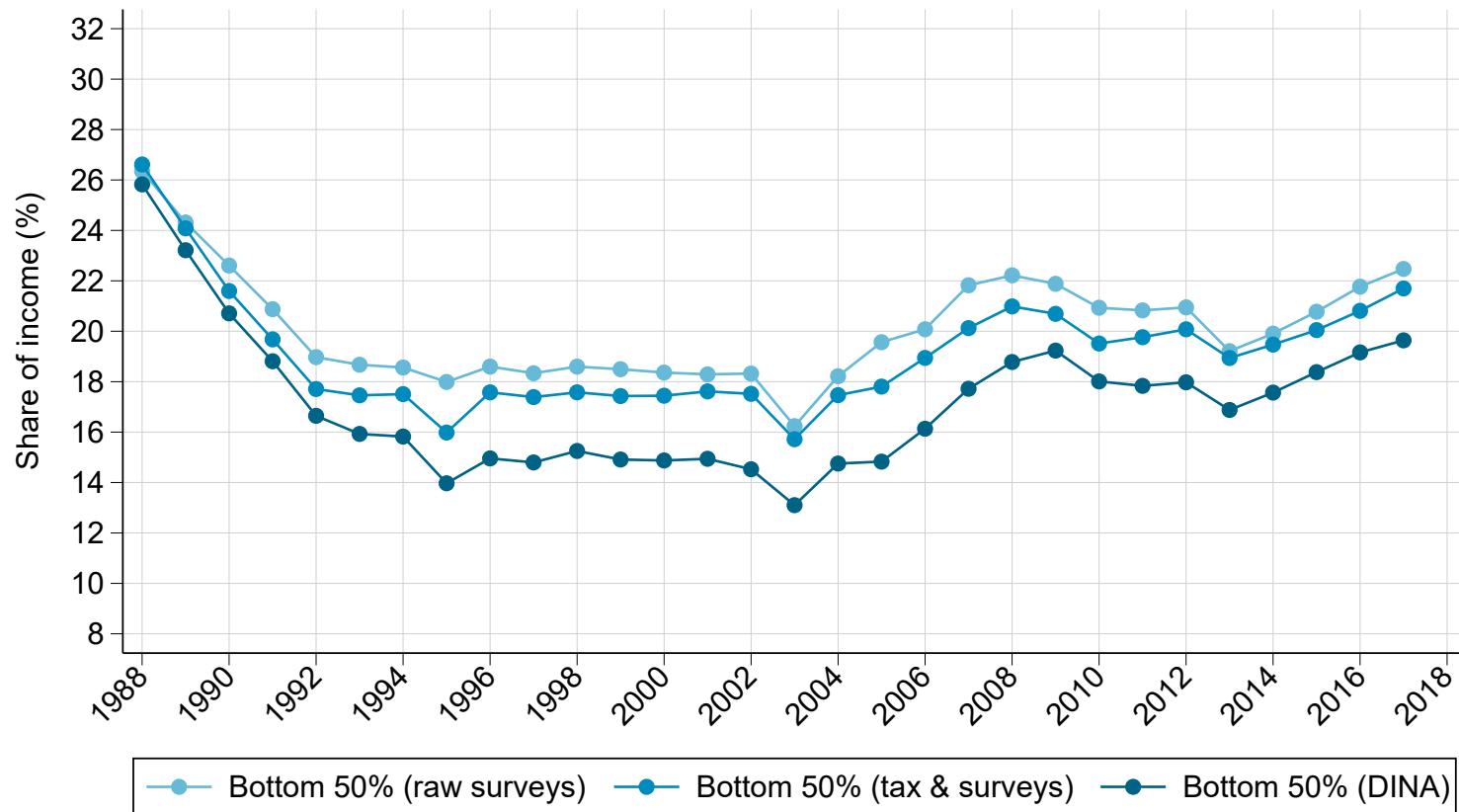
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.6.3**  
**Estonia: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



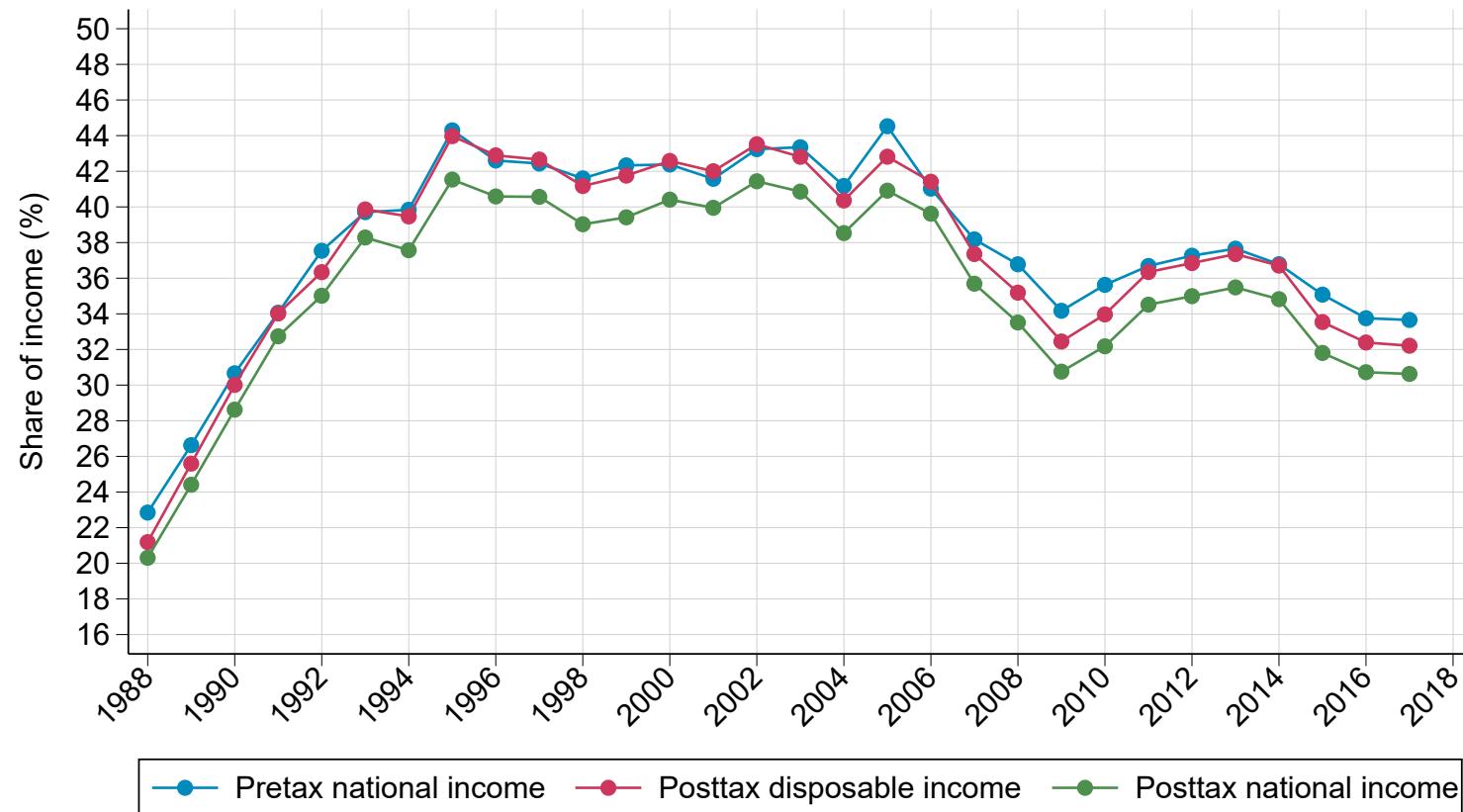
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.6.4**  
**Estonia: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



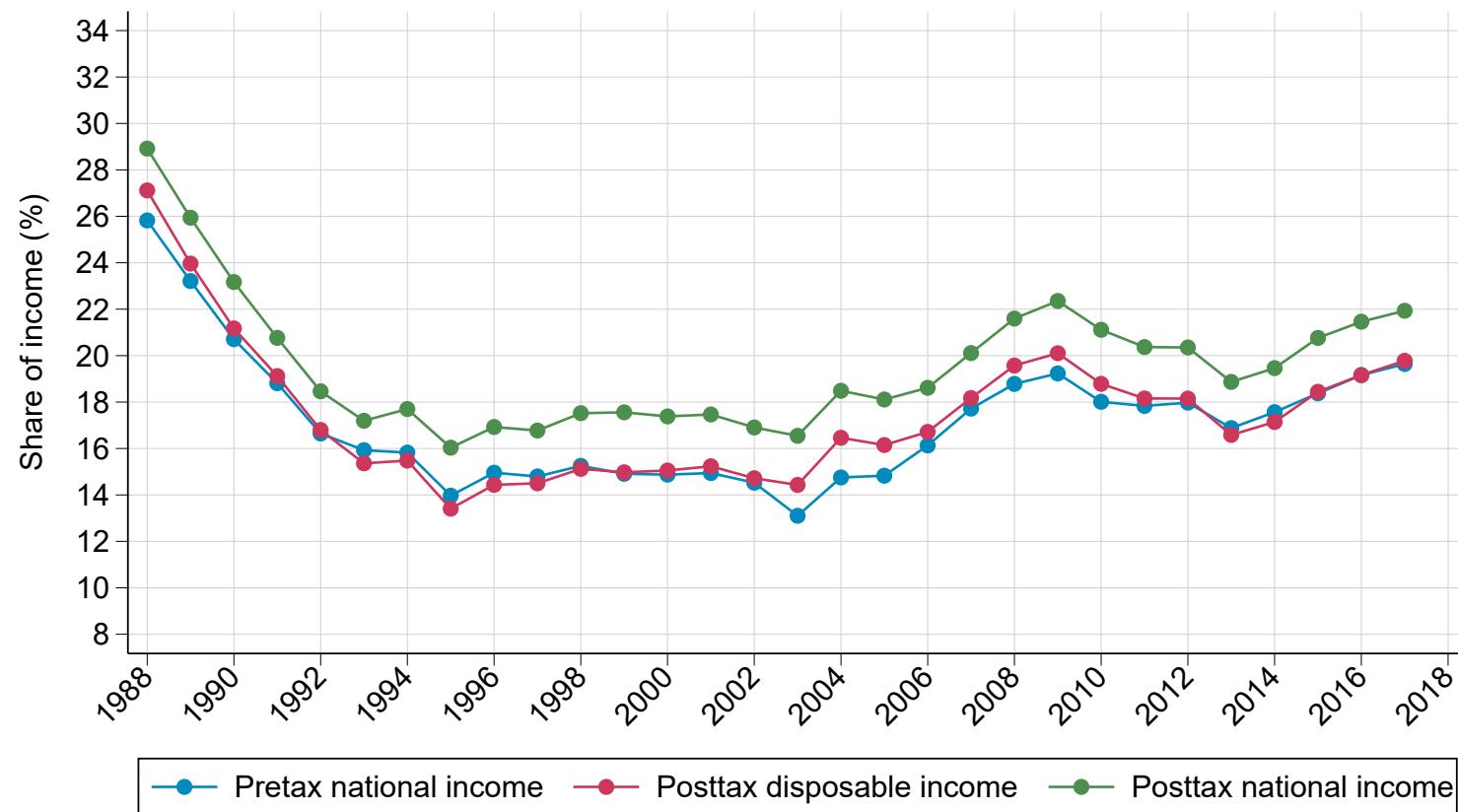
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.6.5**  
**Estonia: from pretax national income to posttax national income**  
**Top 10% income share**



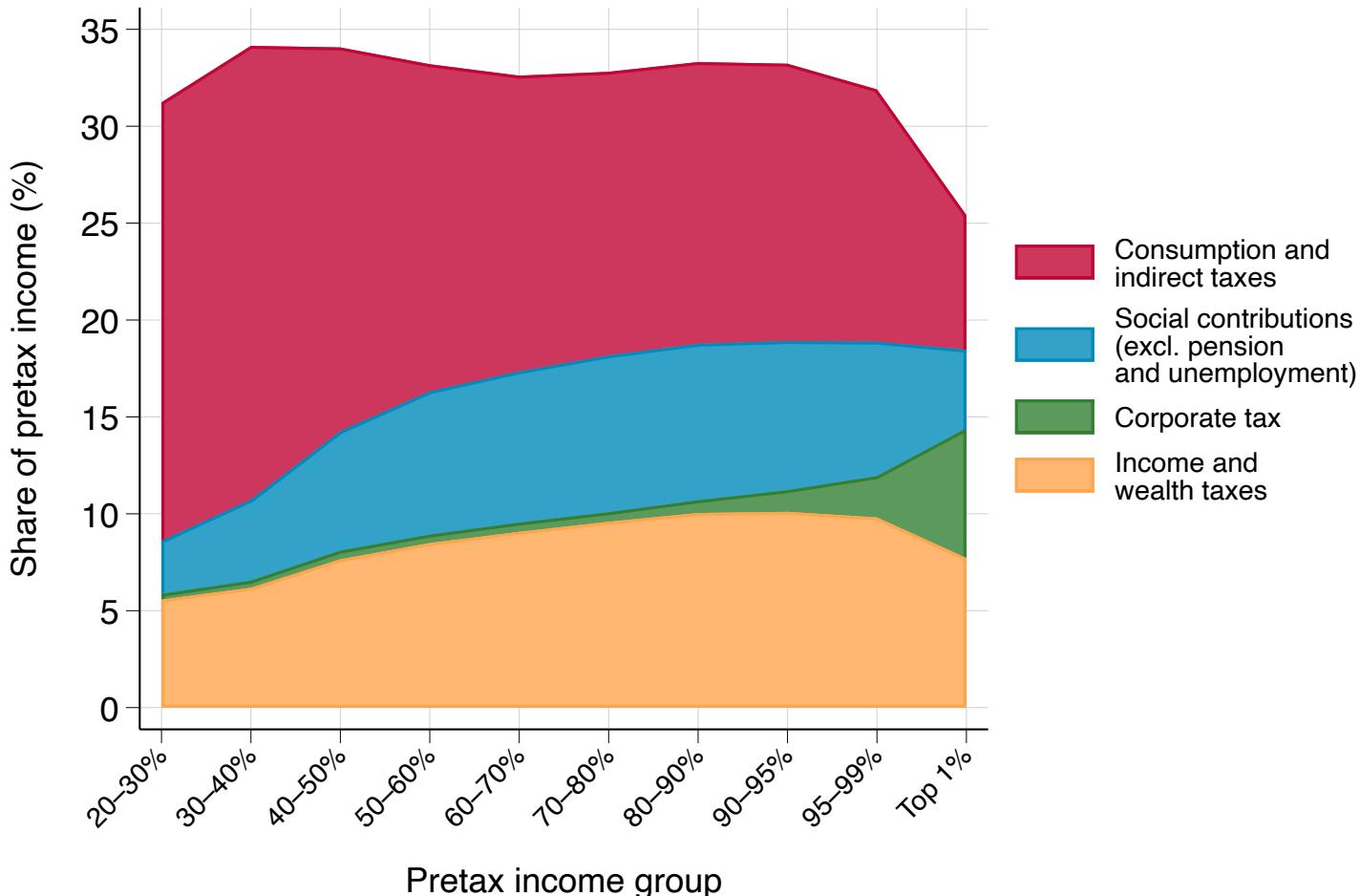
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.6.6**  
**Estonia: from pretax national income to posttax national income**  
**Bottom 50% income share**



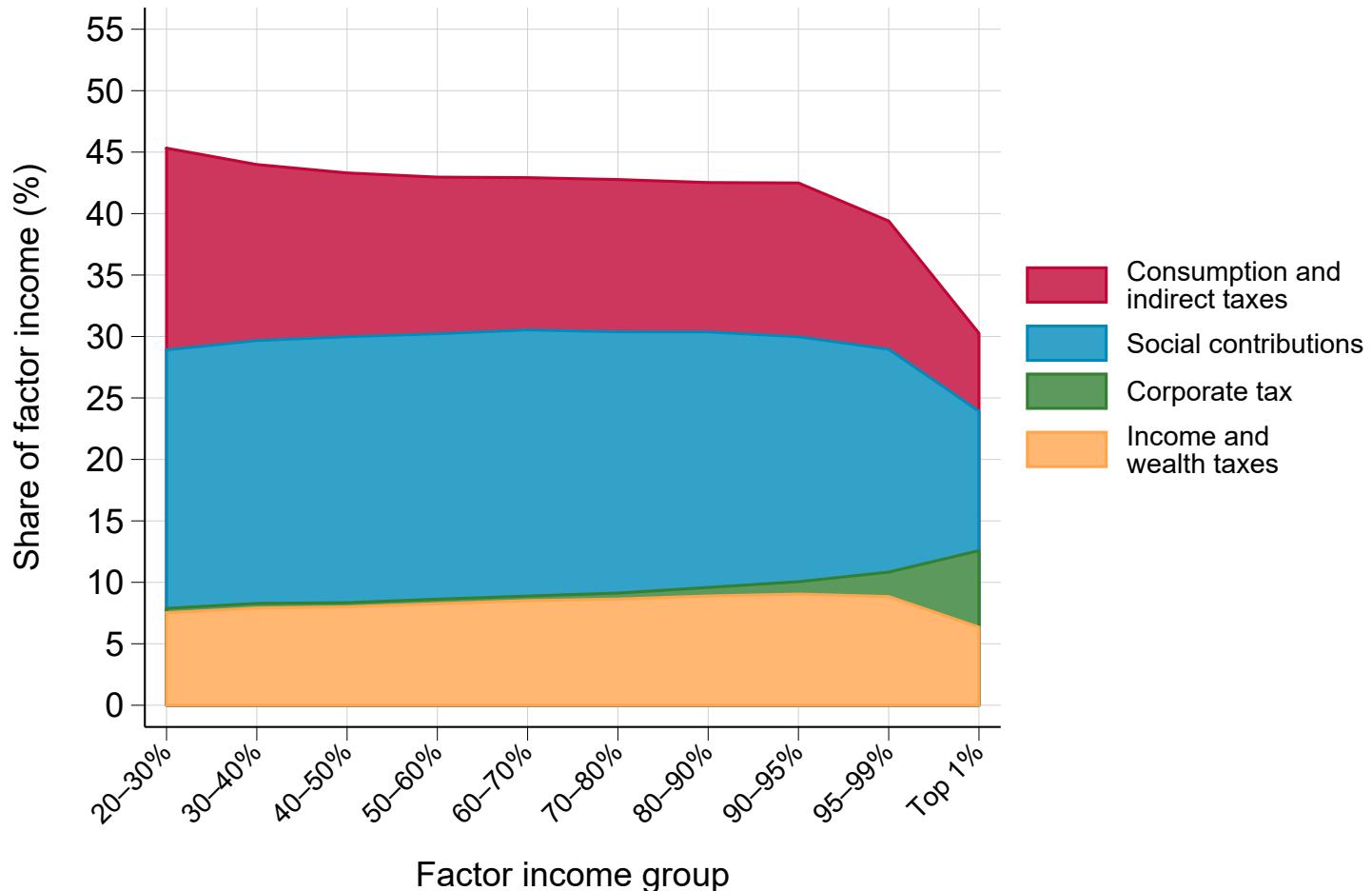
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.6.7**  
**Estonia: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



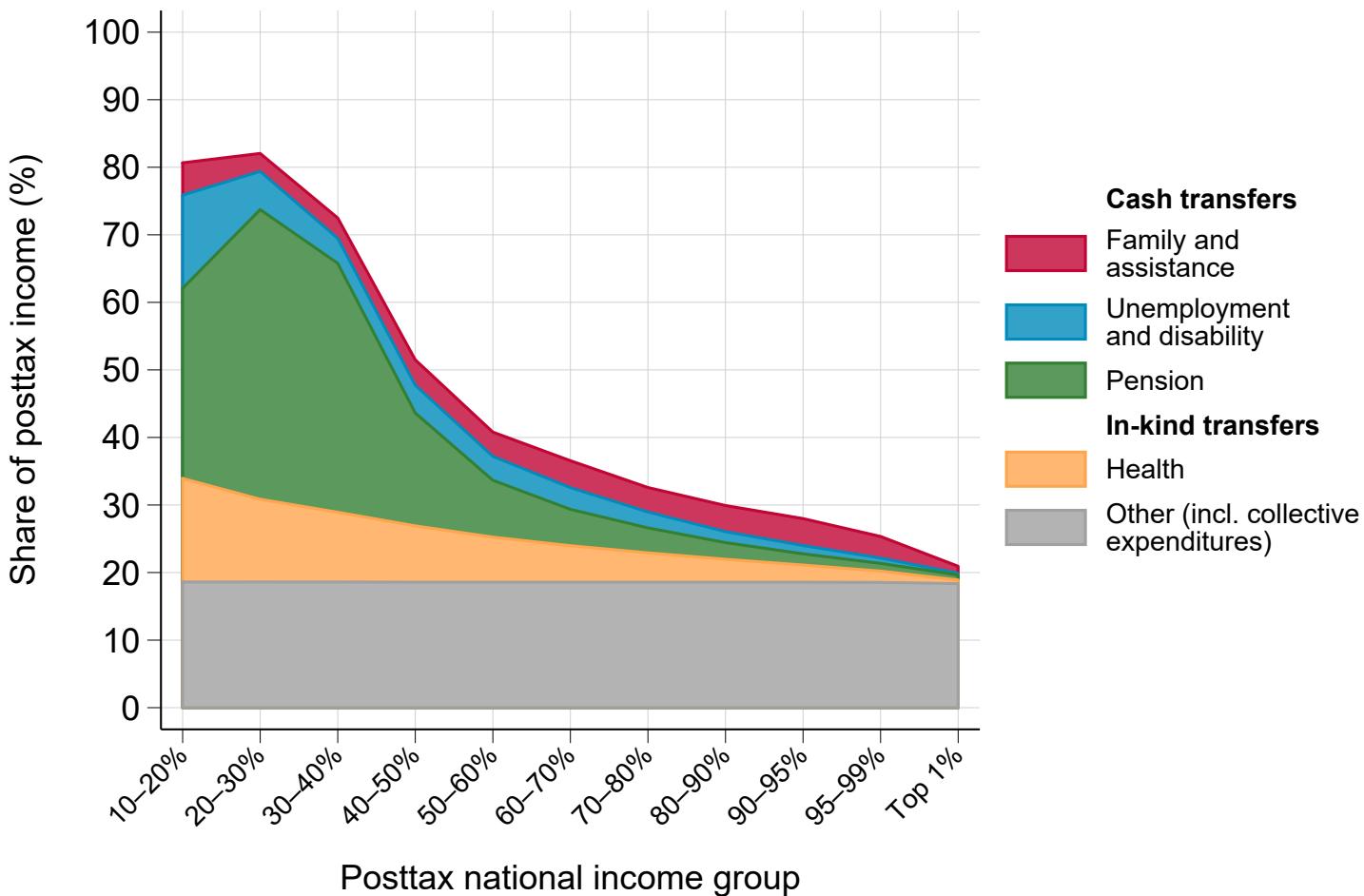
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.6.8**  
**Estonia: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



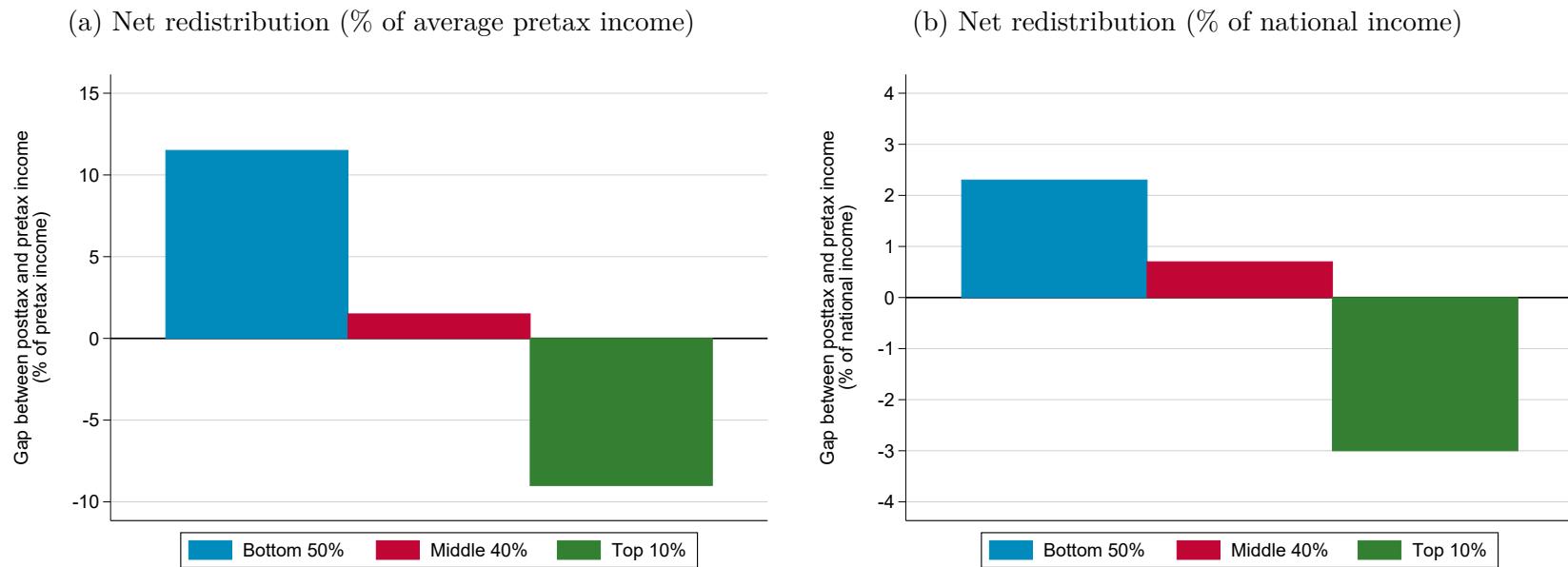
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.6.9**  
**Estonia: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.6.10**  
**Estonia: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.6.1**  
**Estonia: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988	x								
1989									
1990									
1991									
1992	x								x
1993	x								x
1994				x		x	x	x	x
1995				x	x	x	x	x	x
1996				x	x	x	x	x	x
1997				x	x	x	x	x	x
1998	x			x	x	x	x	x	x
1999				x	x	x	x	x	x
2000	x	x		x	x	x	x	x	x
2001	x			x	x	x	x	x	x
2002	x		x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x	x	x	x	x	x	x	x
2017	x	x	x	x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.6.2**  
**Estonia: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			69.6%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	70.4%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	-0.8%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	12.9%
(+)	Government primary income	National accounts	Proportional to pretax income	17.5%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	11.5%
(+)	Pension benefits	Survey + tax data	Observed	11.1%
(+)	Unemployment benefits	Survey + tax data	Observed	.5%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			28.7%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	4%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	6.6%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	16.3%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	1.8%
(+)	Transfers			28.1%
	<i>Cash transfers</i>	Survey + tax data	Observed	3.8%
	<i>Public health expenditures</i>	National accounts	Lump sum	5.5%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	18.9%
(+)	Budget balance	National accounts	Proportional to posttax income	.6%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.6.3**  
**Estonia: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 69.5% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.1 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010; LIS, 2000; Milanovic and Ying 1996, 1992–1993; PovcalNet, 1998–2004); posttax income (LIS, 2000–2013; SILC, 2003–2017; PovcalNet, 1988–1993); pretax income (LIS, 2004; SILC, 2003–2017; Milanovic and Ying 1996, 1993)	See section 1.3.	Pretax and posttax incomes partially estimated from consumption. On average, the top 10% share is 0.05 pp. higher for posttax income than consumption and 2.4 pp. for pretax income than consumption.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	2002–2017 (Authors)	See section 1.4.2.	Using the same income concept as the tax data, we find that the top 1% share is 2.7 pp. higher in the tax data than the survey data.
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 3.0 pp. higher than in the raw survey. The top 1% share of posttax income is 1.8 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCS, 2013, 2017 (corporate stocks); EU-SILC, 2005–2017 (imputed rents); HBS, 2010 (consumption)	We estimate that the top 10% of pretax income earners own, on average, 27.9% of stocks, capture 19.6% of imputed rents, and account for 21.5% of consumption.	
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 2.9 pp. on average; Imputed rents increase the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.4 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.8 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.5 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.6.4**  
**The distribution of national income in Estonia, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€25,900	100%	€25,900	100%	€25,900	100%
Bottom 50%	€10,200	19.6%	€10,200	19.8%	€11,400	21.9%
Bottom 20%	€5,800	4.5%	€5,100	4.0%	€6,600	5.1%
Next 30%	€13,100	15.2%	€13,700	15.8%	€14,500	16.8%
Middle 40%	€30,200	46.7%	€31,100	48.0%	€30,700	47.4%
Top 10%	€87,200	33.7%	€83,400	32.2%	€79,300	30.6%
Top 1%	€294,000	11.4%	€267,000	10.3%	€249,000	9.6%
Top 0.1%	€1,180,000	4.6%	€1,050,000	4.1%	€977,000	3.8%
Top 0.01%	€4,970,000	1.9%	€4,400,000	1.7%	€4,080,000	1.6%
Top 0.001%	€21,200,000	0.8%	€18,690,000	0.7%	€17,360,000	0.7%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

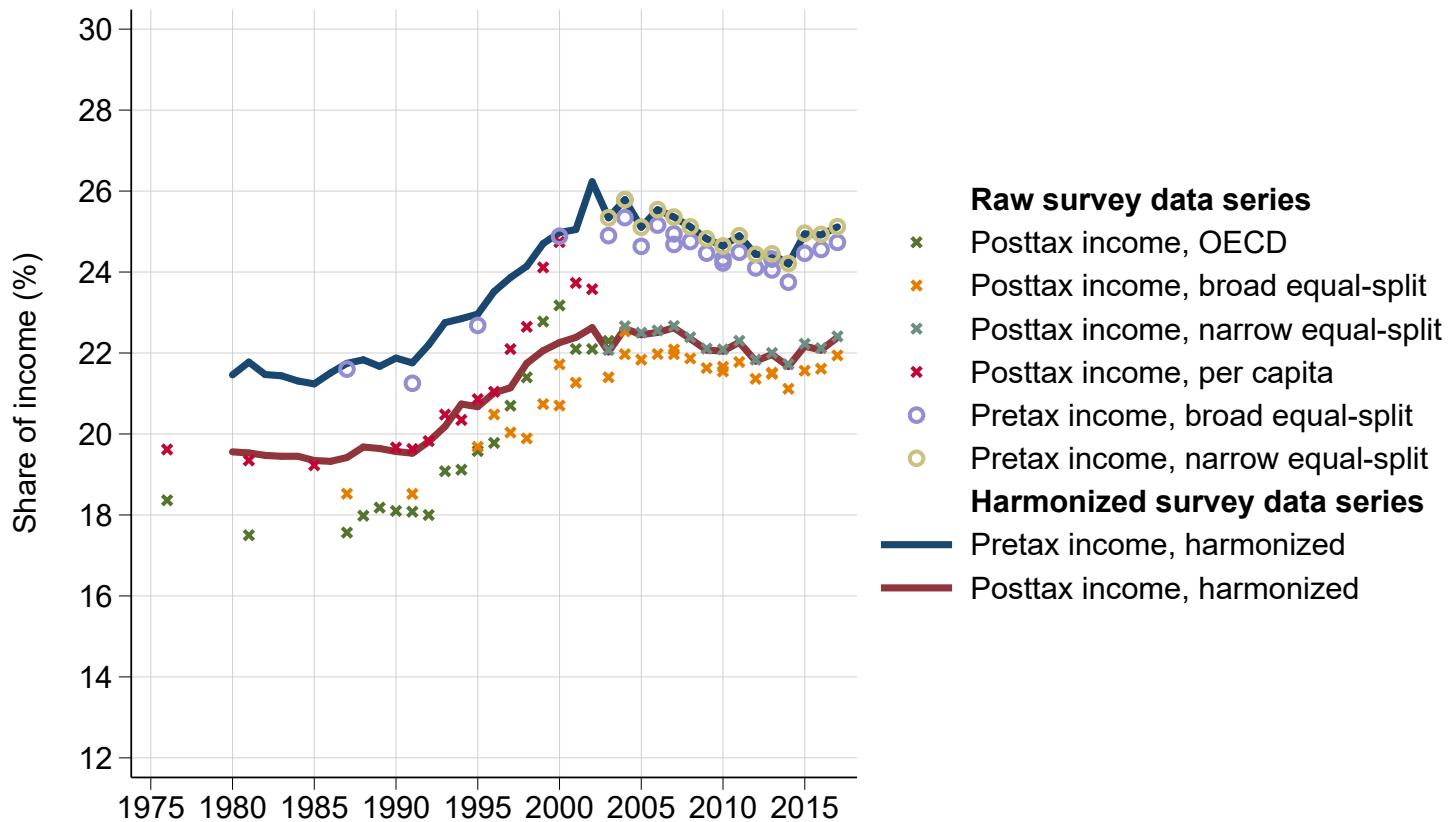
**Table A.3.6.5**  
**The distribution of national income growth in Estonia, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	2.0%	1.0%	2.0%	1.0%	2.0%	1.0%
Bottom 50%	1.3%	2.0%	1.1%	1.8%	1.2%	1.9%
Bottom 20%	1.2%	2.9%	0.8%	2.7%	1.1%	2.6%
Next 30%	1.3%	1.8%	1.2%	1.7%	1.3%	1.7%
Middle 40%	1.8%	1.6%	1.8%	1.8%	1.8%	1.7%
Top 10%	3.1%	-0.3%	3.2%	-0.5%	3.1%	-0.5%
Top 1%	4.4%	-1.4%	4.6%	-1.9%	4.6%	-2.0%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

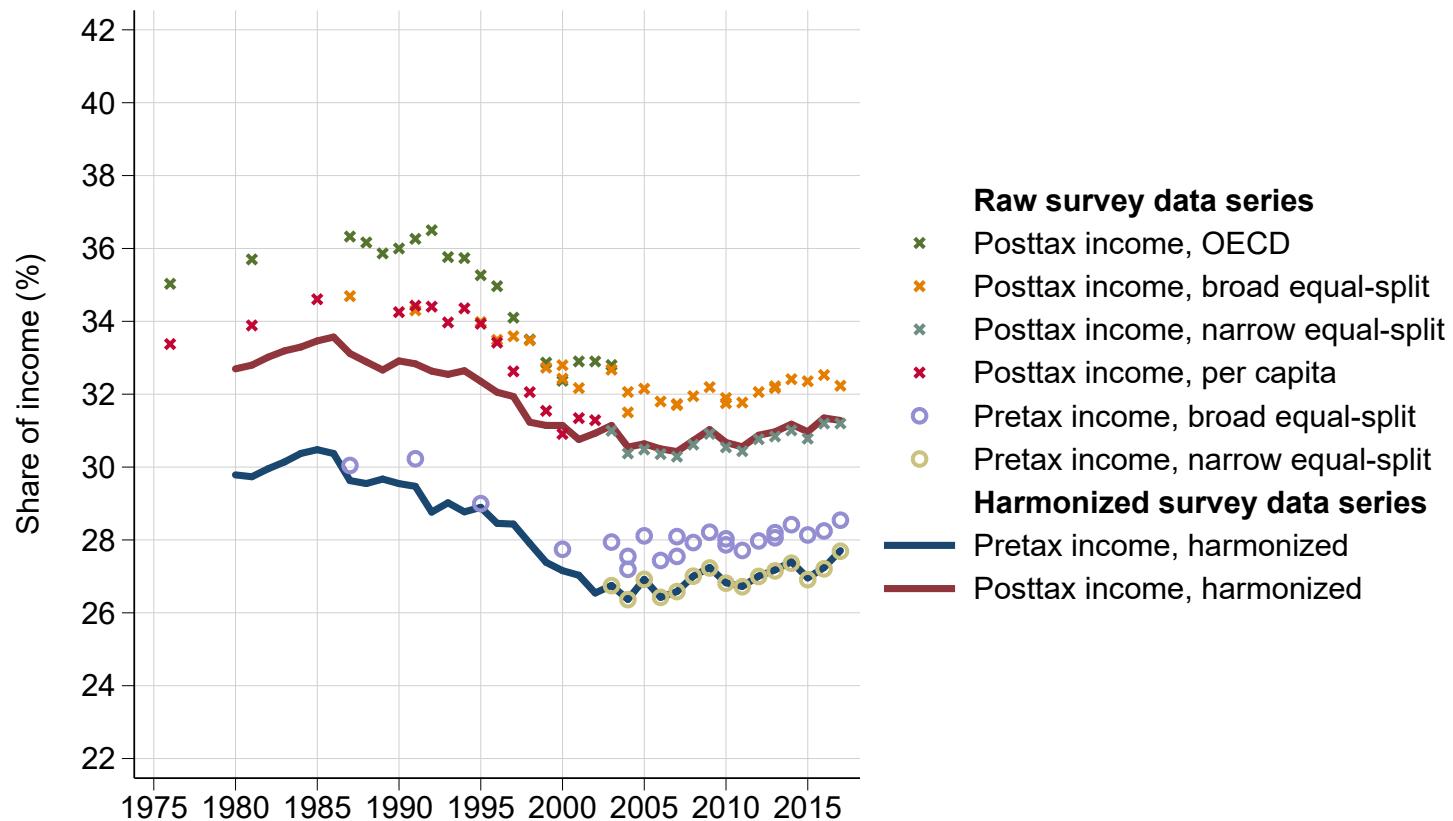
### 3.7 Finland

Figure A.3.7.1  
Finland: harmonization of survey data  
Top 10% pretax income share



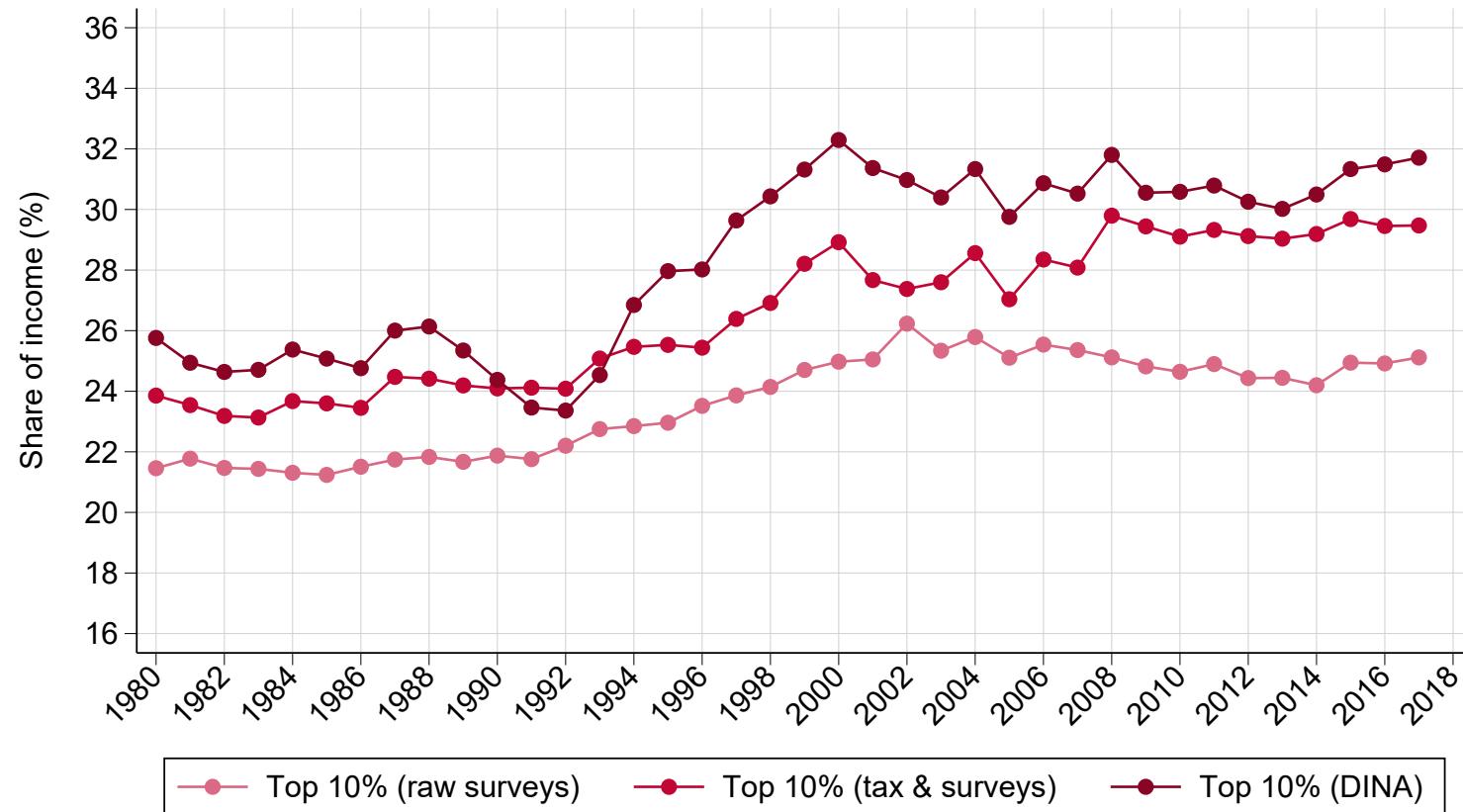
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.7.2**  
**Finland: harmonization of survey data**  
**Bottom 50% pretax income share**



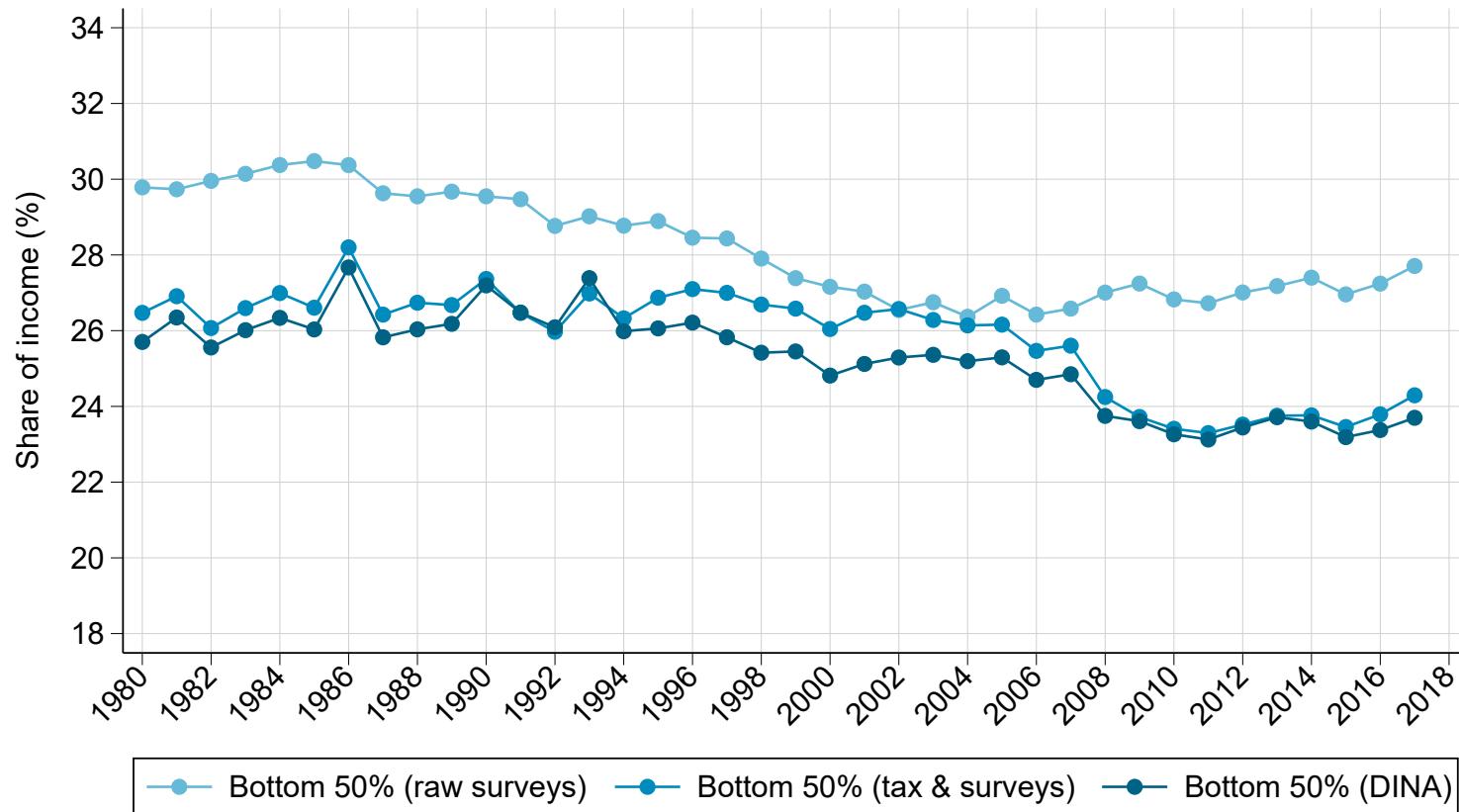
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.7.3**  
**Finland: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



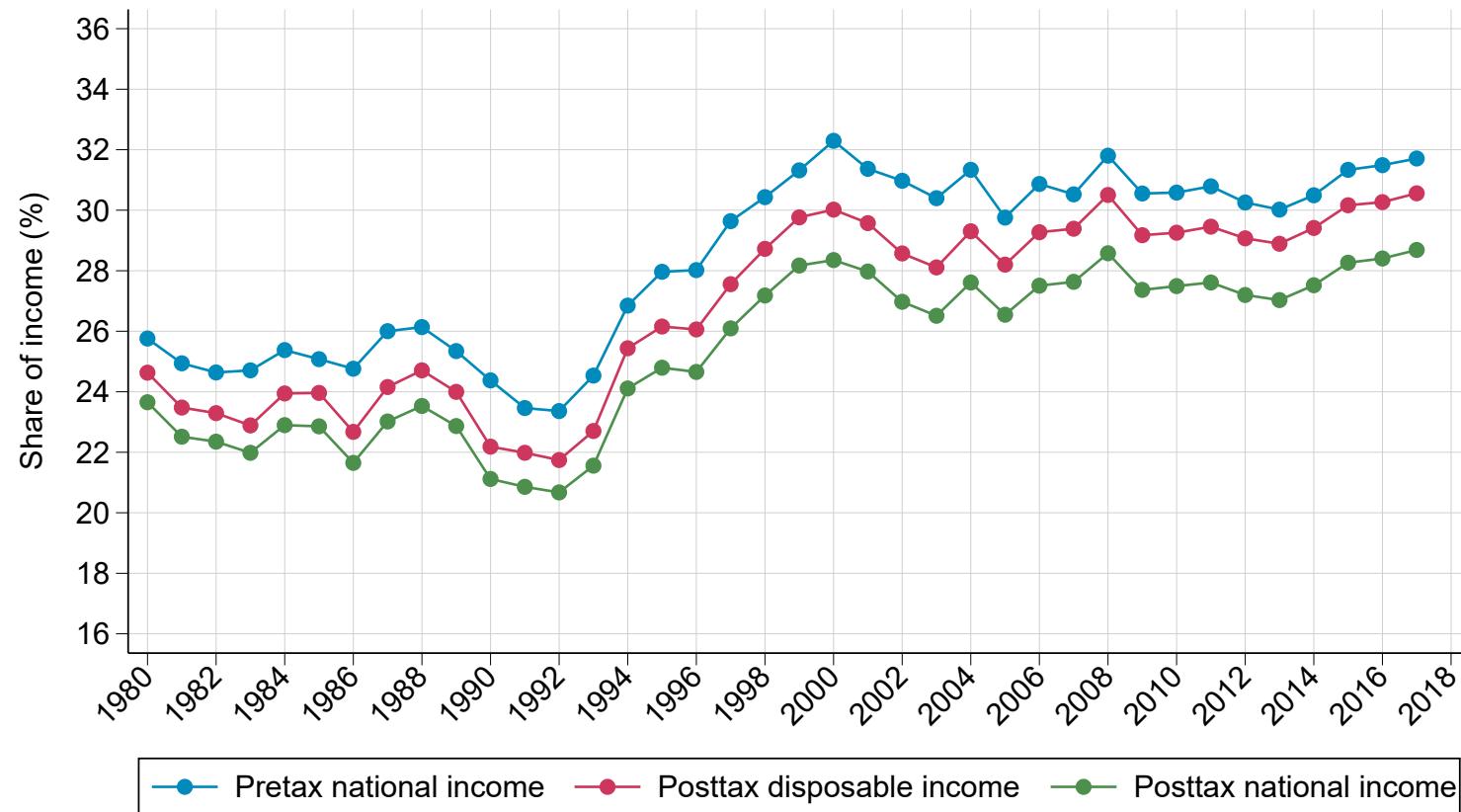
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.7.4**  
**Finland: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



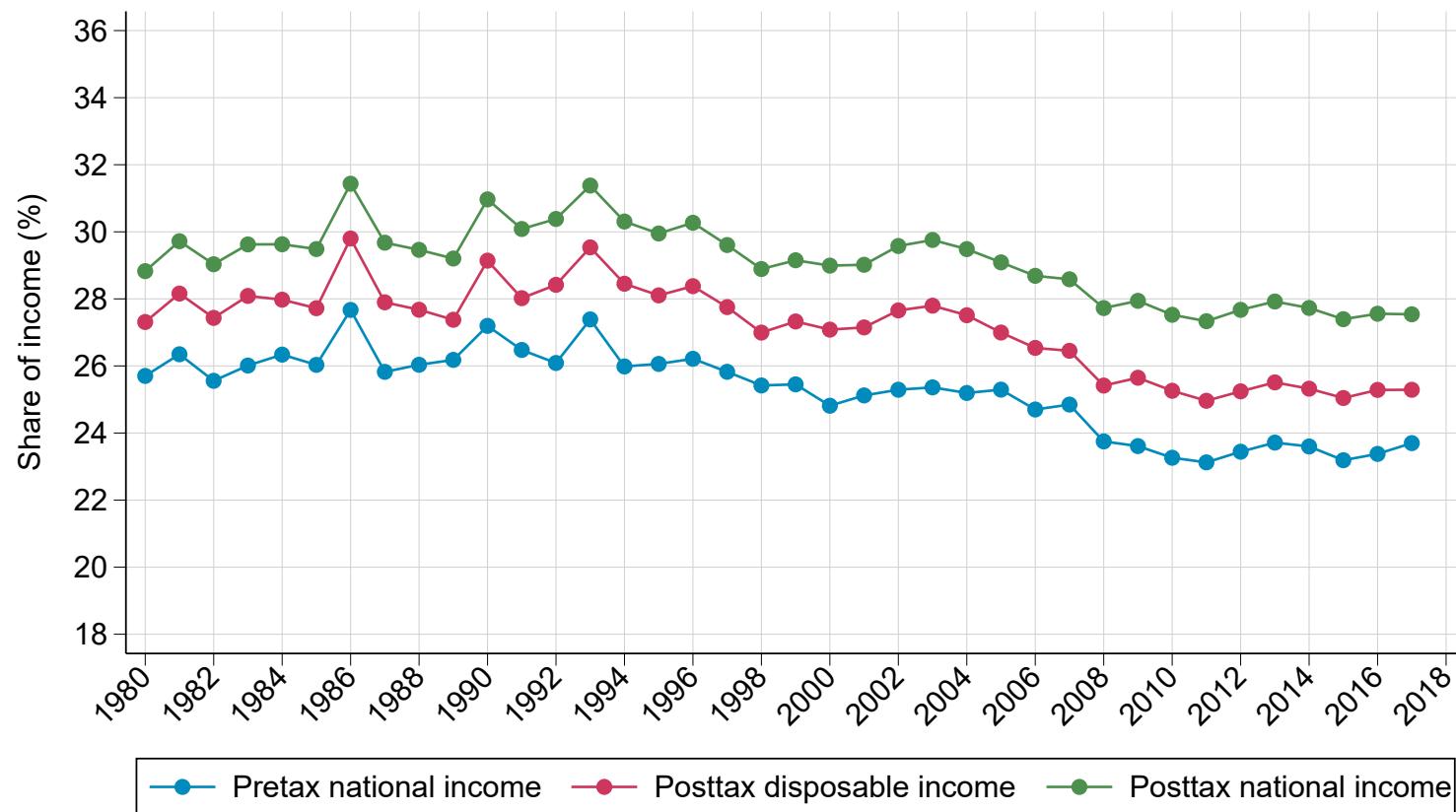
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.7.5**  
**Finland: from pretax national income to posttax national income**  
**Top 10% income share**



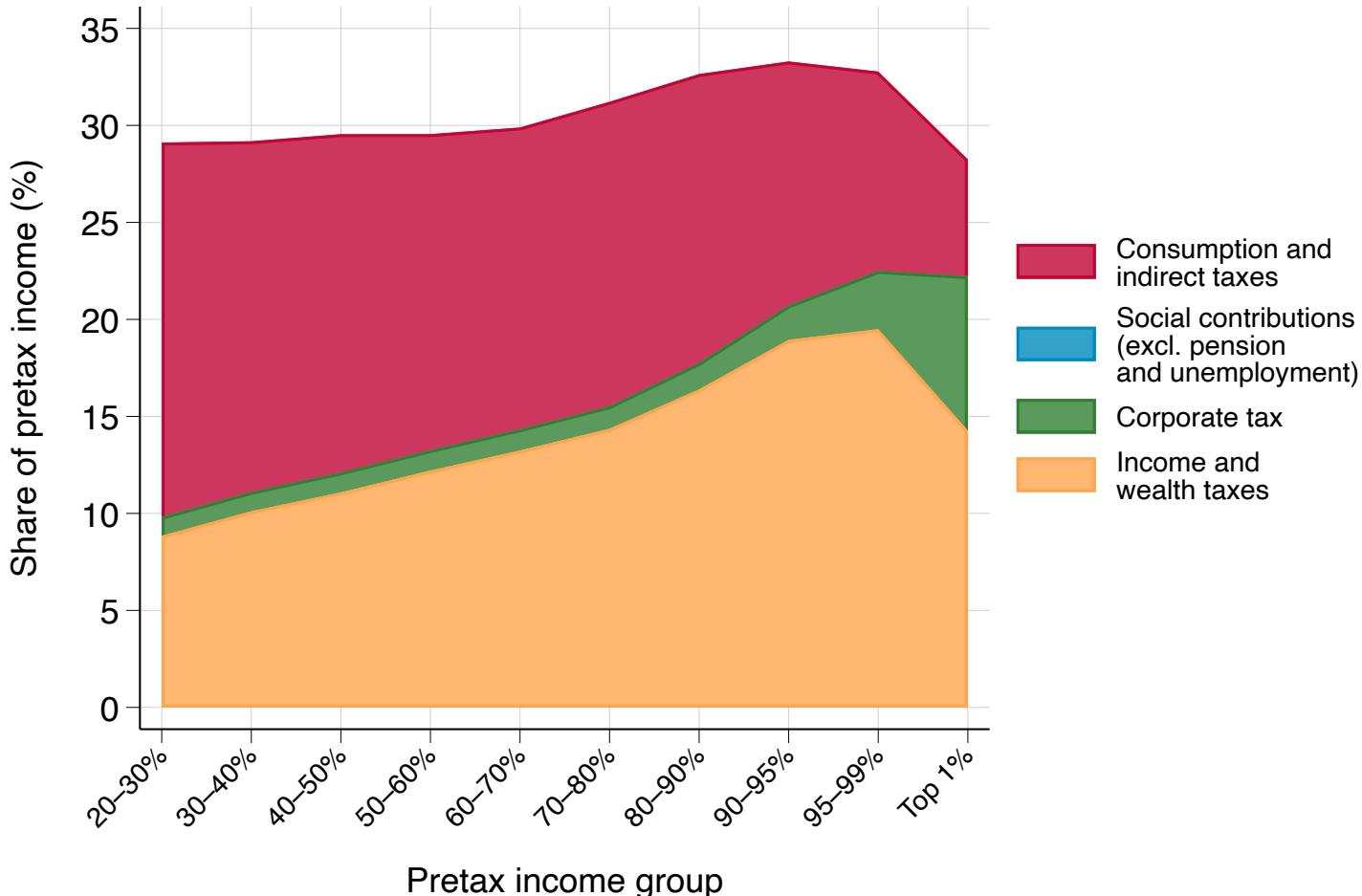
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.7.6**  
**Finland: from pretax national income to posttax national income**  
**Bottom 50% income share**



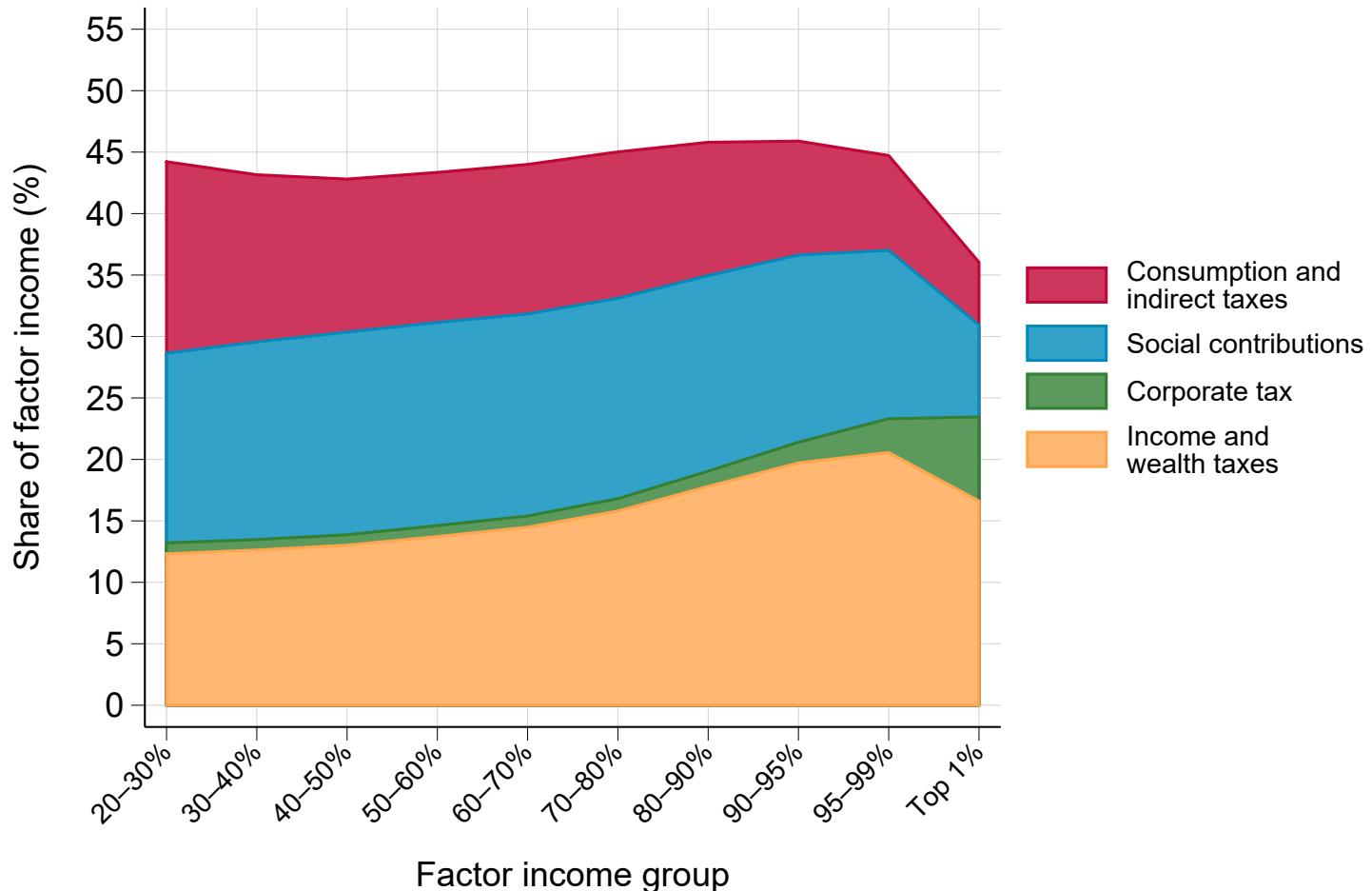
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.7.7**  
**Finland: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



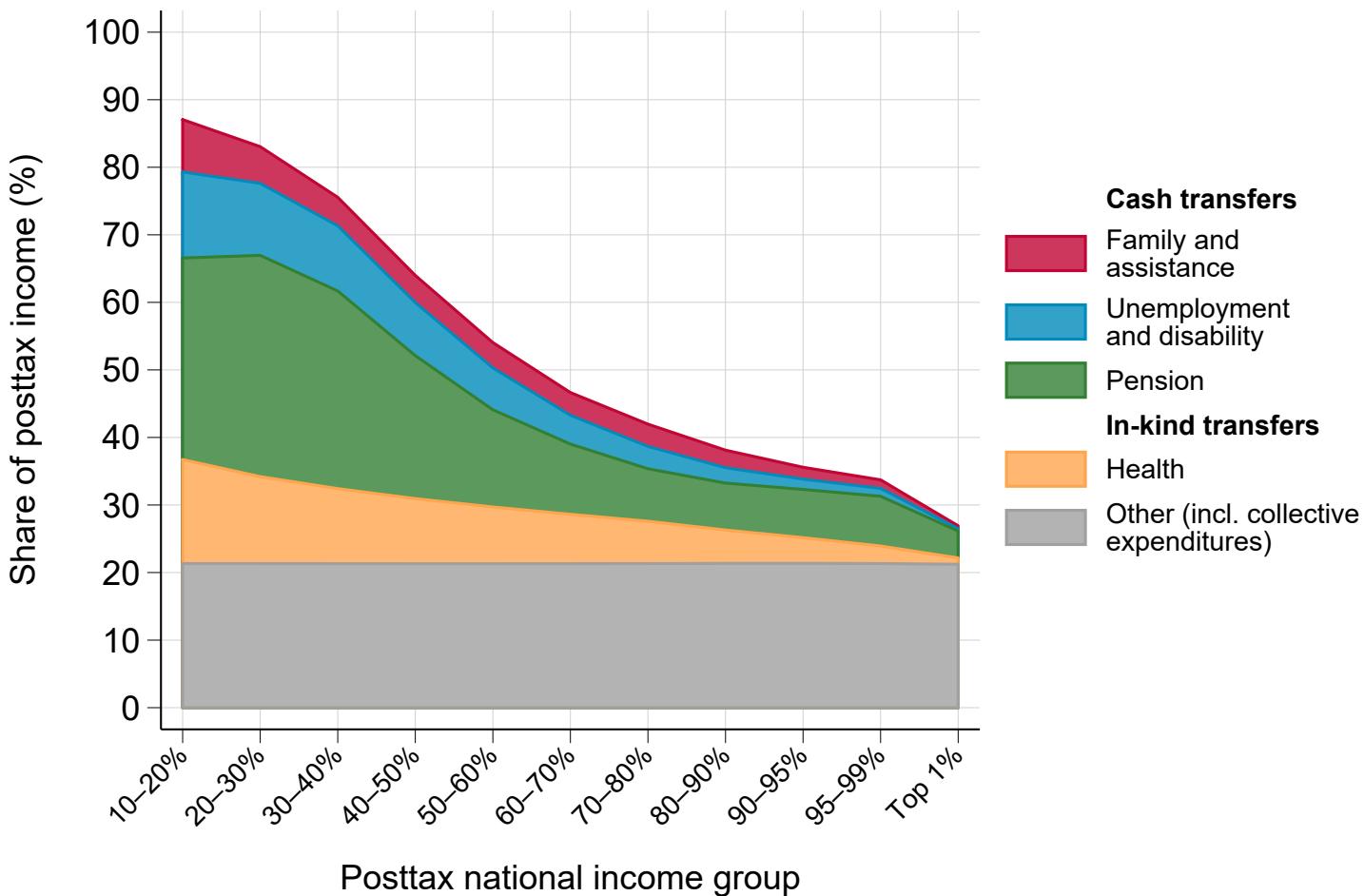
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.7.8**  
**Finland: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



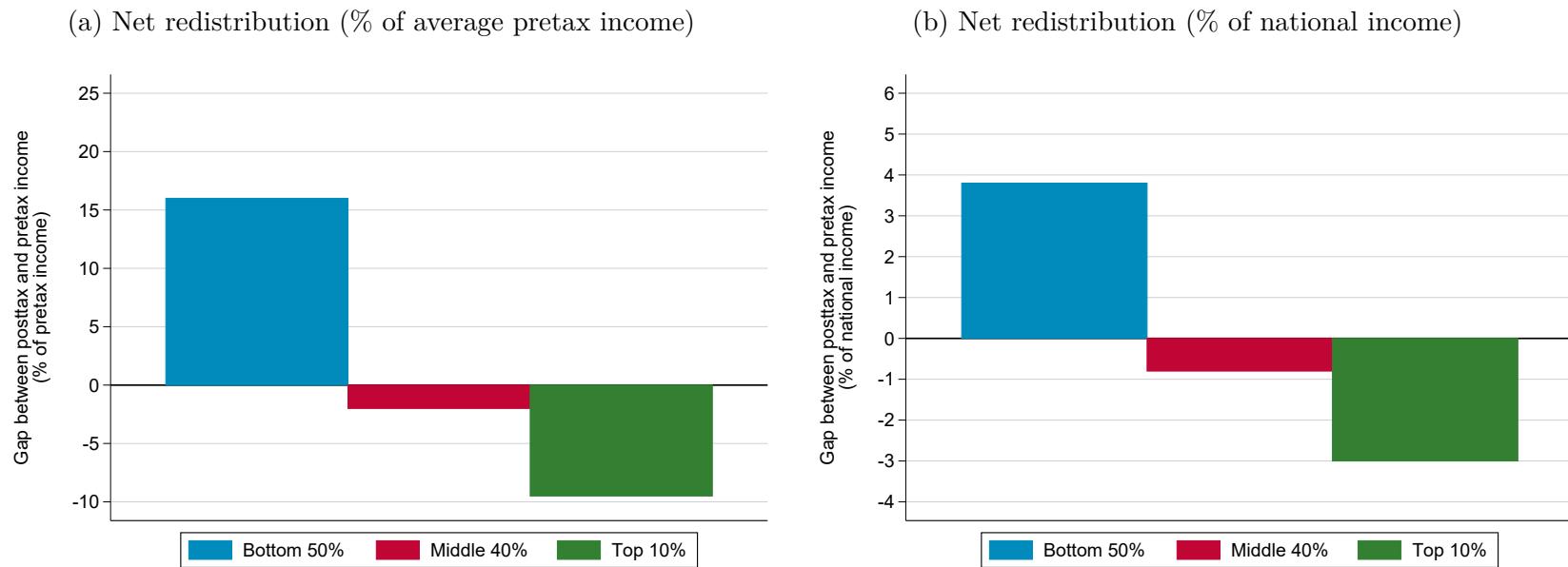
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.7.9**  
**Finland: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.7.10**  
**Finland: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.7.1**  
**Finland: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1976	x								
1980			x	x		x	x	x	x
1981	x		x	x		x	x	x	x
1982			x	x		x	x	x	x
1983			x	x		x	x	x	x
1984			x	x		x	x	x	x
1985	x		x	x		x	x	x	x
1986			x	x		x	x	x	x
1987	x	x	x	x		x	x	x	x
1988	x		x	x		x	x	x	x
1989	x		x	x		x	x	x	x
1990	x		x	x		x	x	x	x
1991	x	x	x	x		x	x	x	x
1992	x		x	x		x	x	x	x
1993	x		x	x		x	x	x	x
1994	x		x	x		x	x	x	x
1995	x	x	x	x	x	x	x	x	x
1996	x	x	x	x	x	x	x	x	x
1997	x	x	x	x	x	x	x	x	x
1998	x	x	x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001	x	x	x	x	x	x	x	x	x
2002	x		x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x		x	x	x	x	x	x
2011	x	x		x	x	x	x	x	x
2012	x	x		x	x	x	x	x	x
2013	x	x		x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.7.2**  
**Finland: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			74.3%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	71%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	3.2%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	7.5%
(+)	Government primary income	National accounts	Proportional to pretax income	18.2%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	20.9%
(+)	Pension benefits	Survey + tax data	Observed	18%
(+)	Unemployment benefits	Survey + tax data	Observed	2.9%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			28.5%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-5.6%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	15.6%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	15.5%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	3%
(+)	Transfers			33.1%
	<i>Cash transfers</i>	Survey + tax data	Observed	3.7%
	<i>Public health expenditures</i>	National accounts	Lump sum	7.4%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	22%
(+)	Budget balance	National accounts	Proportional to posttax income	-4.6%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.7.3**  
**Finland: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that all social contributions, and also, on average, 26.5% of income taxes, are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.4 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (ECHP, 1996–2001; LIS, 1987–2013; SILC, 2003–2017; Jäntti 2005, 1976–2002; Statistics Finland 2005, 1976–2003); pretax income (LIS, 1987–2013; SILC, 2003–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.8 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1980–2009 (Jäntti et al., 2010)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 1.7 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 1.0 pp. higher than in the raw survey. The top 1% share of posttax income is 1.0 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2010, 2014, 2016 (corporate stocks); EU-SILC, 2003–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 36.7% of stocks, capture 19.4% of imputed rents, and account for 19.0% of consumption.  Undistributed corporate profits increase the top 10% share of income by 1.0 pp. on average; Imputed rents decrease the top 10% share of income by 0.2 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.7 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.4 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.7.4**  
**The distribution of national income in Finland, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€36,700	100%	€36,700	100%	€36,700	100%
Bottom 50%	€17,400	23.7%	€18,500	25.3%	€20,200	27.5%
Bottom 20%	€10,100	5.5%	€12,300	6.7%	€14,500	7.9%
Next 30%	€22,200	18.2%	€22,700	18.6%	€24,000	19.6%
Middle 40%	€40,900	44.6%	€40,500	44.1%	€40,100	43.8%
Top 10%	€116,000	31.7%	€112,000	30.6%	€105,000	28.7%
Top 1%	€323,000	8.8%	€311,000	8.5%	€286,000	7.8%
Top 0.1%	€947,000	2.6%	€919,000	2.5%	€839,000	2.3%
Top 0.01%	€2,830,000	0.8%	€2,780,000	0.8%	€2,530,000	0.7%
Top 0.001%	€8,520,000	0.2%	€8,460,000	0.2%	€7,690,000	0.2%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

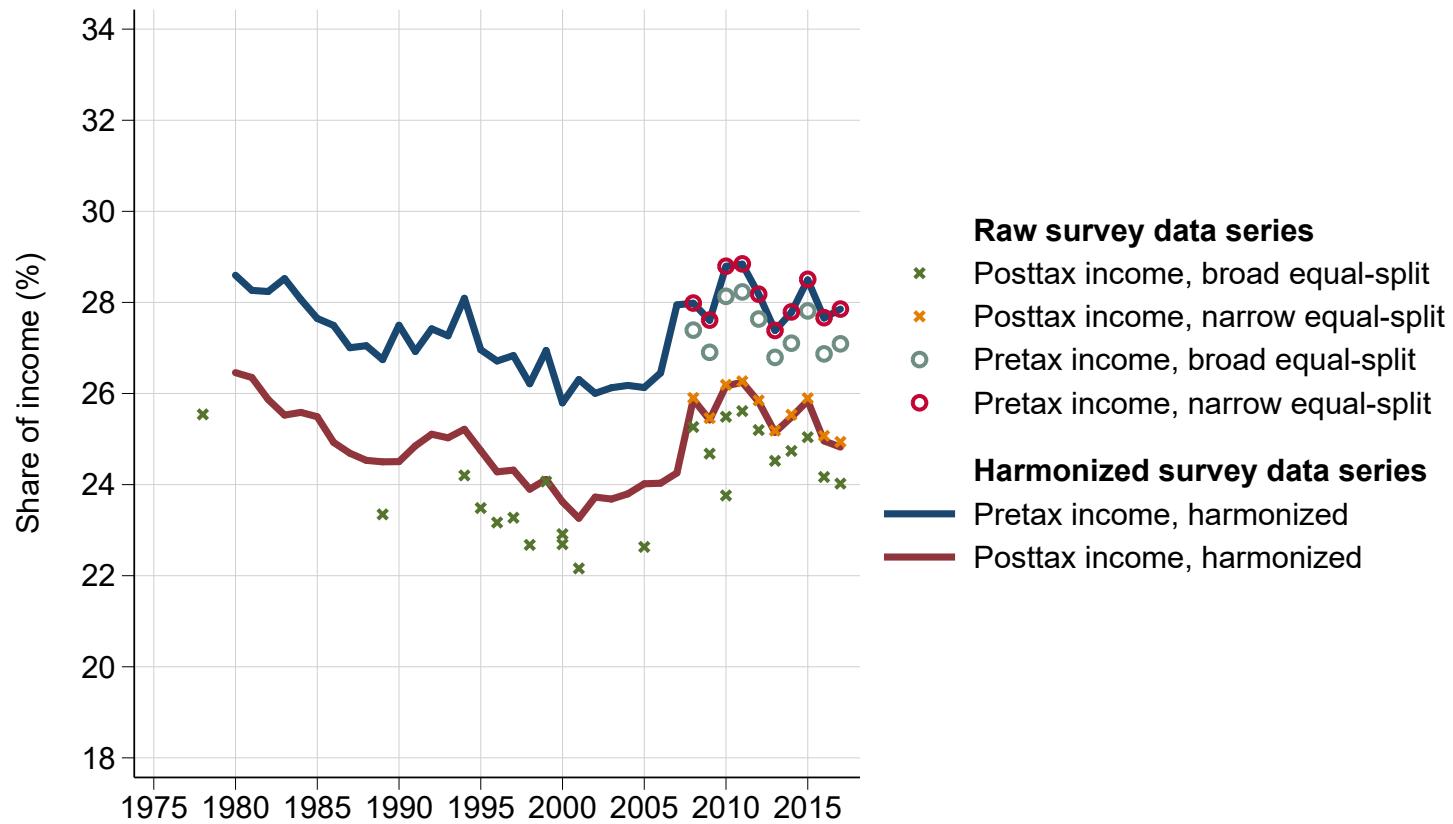
**Table A.3.7.5**  
**The distribution of national income growth in Finland, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.5%	-0.5%	1.5%	-0.5%	1.5%	-0.5%
Bottom 50%	1.3%	-0.9%	1.3%	-0.9%	1.4%	-0.8%
Bottom 20%	1.4%	-1.1%	1.7%	-0.5%	1.8%	-0.5%
Next 30%	1.3%	-0.9%	1.2%	-1.1%	1.2%	-1.0%
Middle 40%	1.3%	-0.5%	1.3%	-0.5%	1.3%	-0.5%
Top 10%	2.1%	-0.1%	2.1%	-0.1%	2.0%	-0.1%
Top 1%	2.8%	-1.2%	2.9%	-1.7%	2.8%	-1.7%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

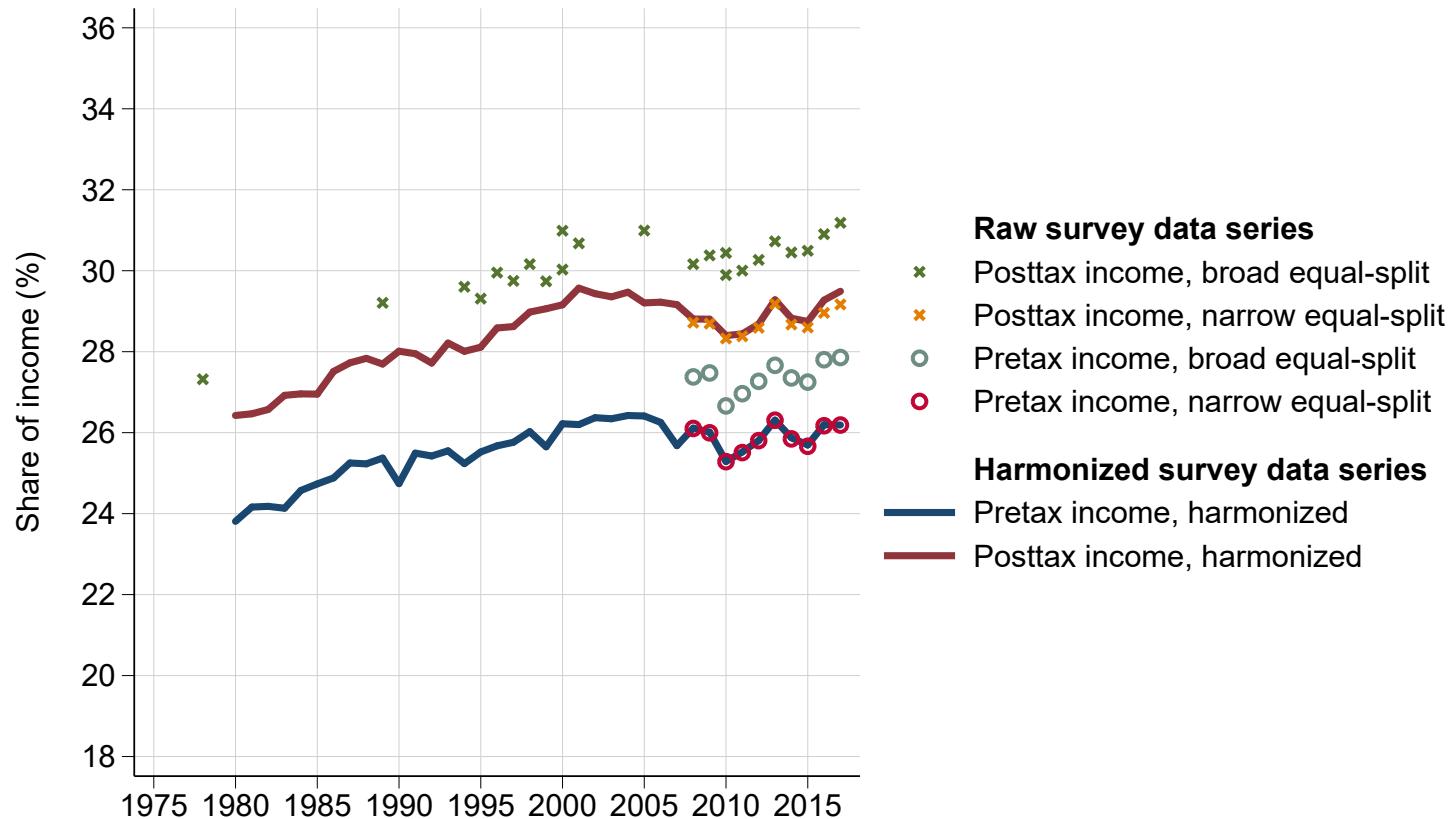
### 3.8 France

Figure A.3.8.1  
France: harmonization of survey data  
Top 10% pretax income share



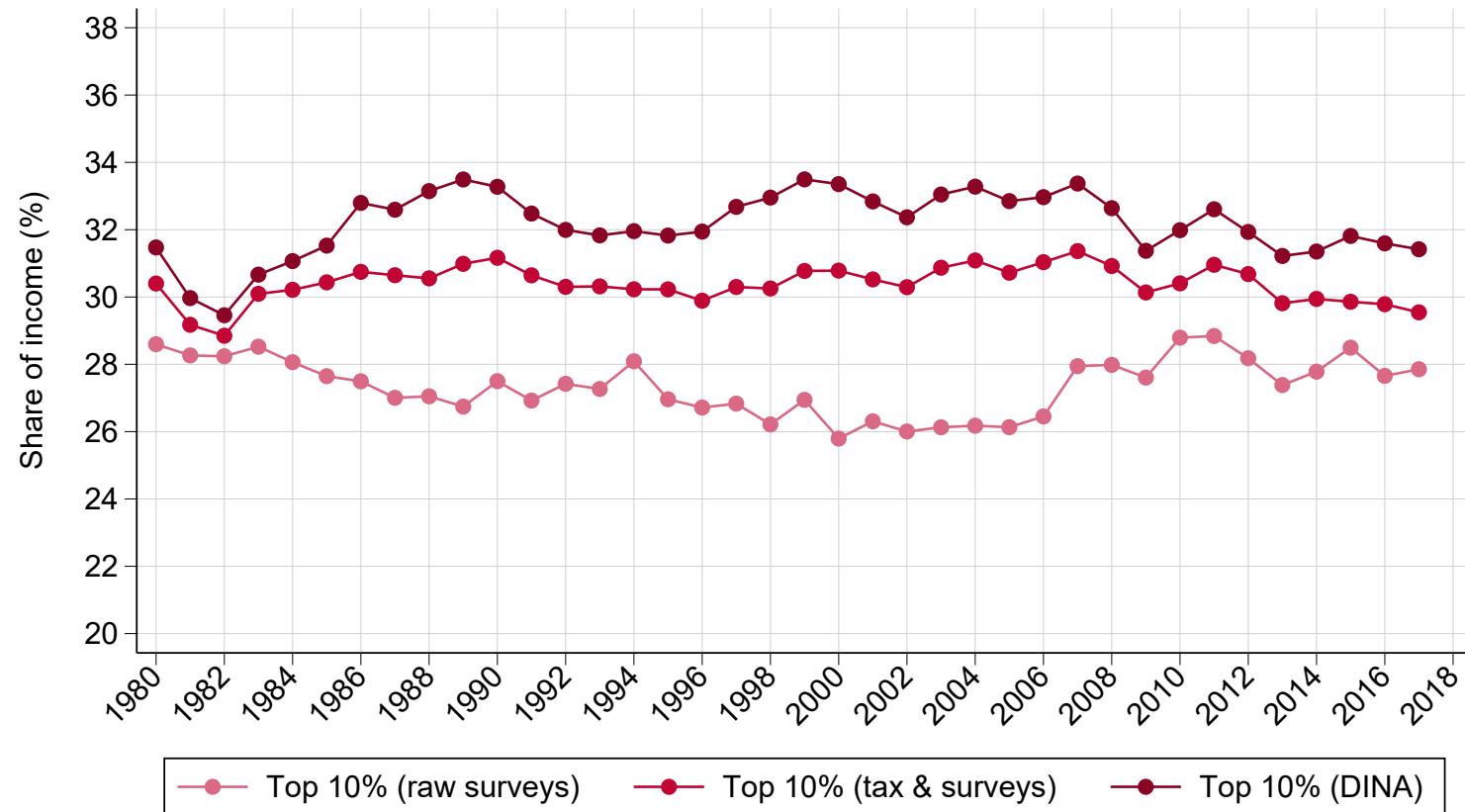
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.8.2**  
**France: harmonization of survey data**  
**Bottom 50% pretax income share**



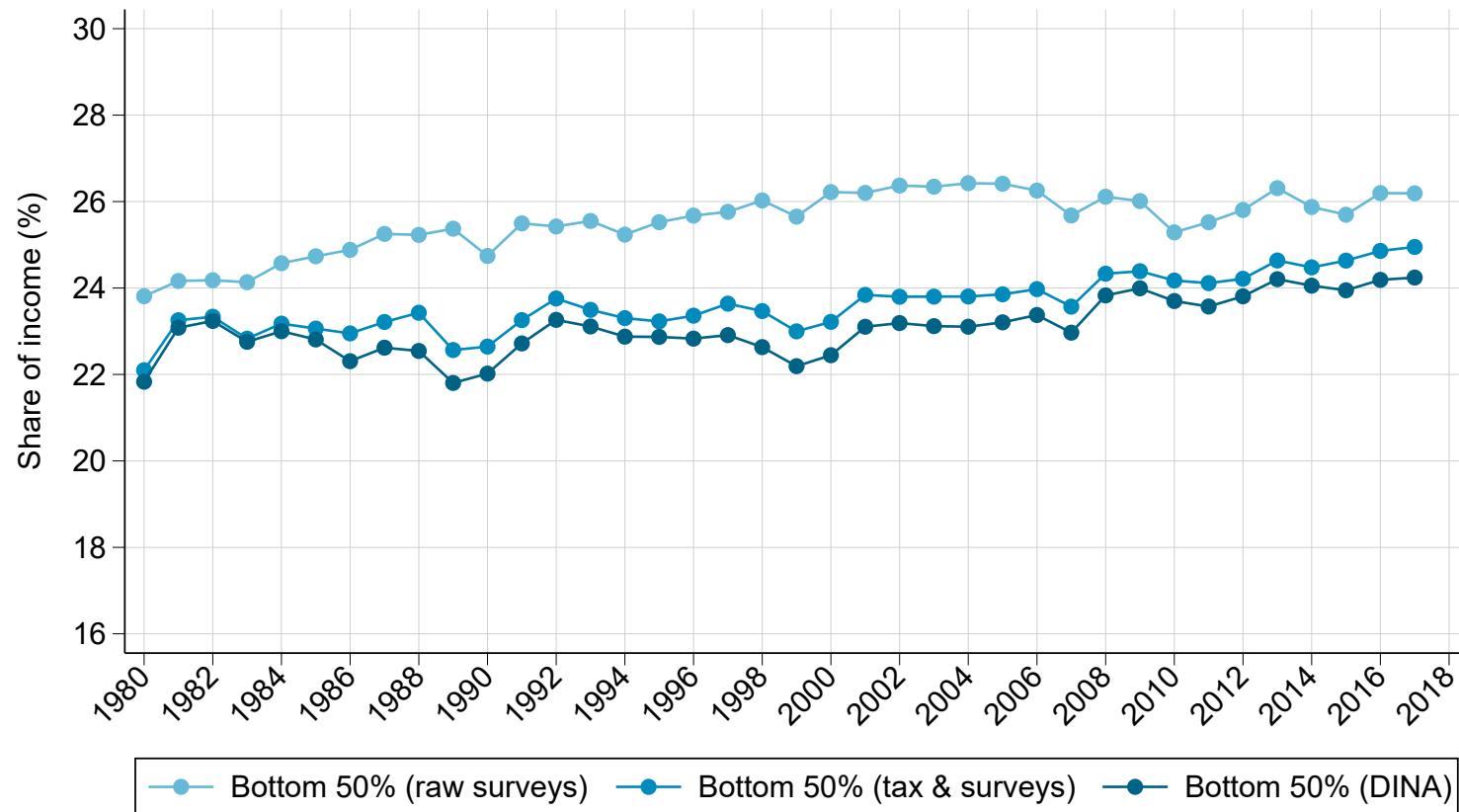
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.8.3**  
France: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



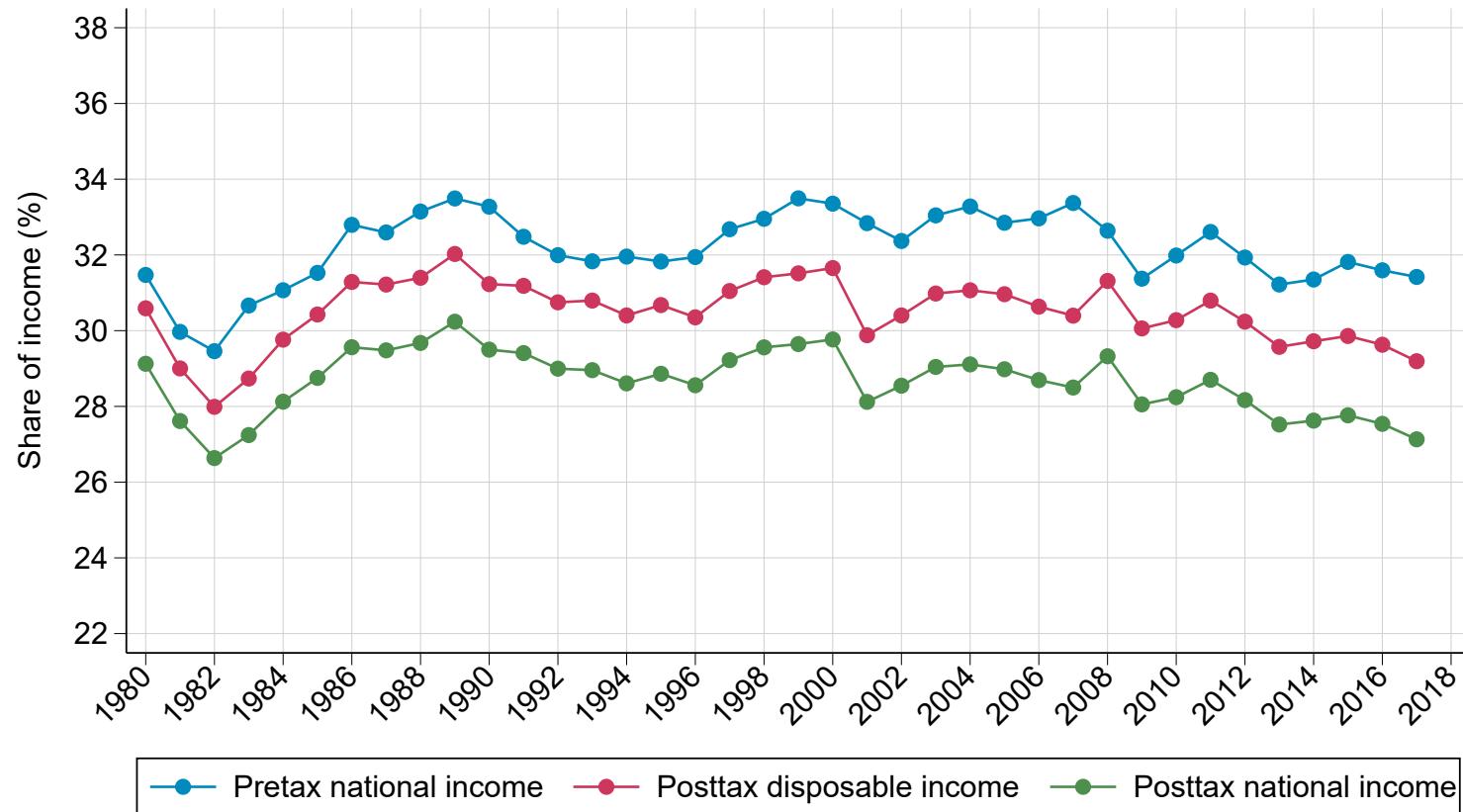
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.8.4**  
France: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



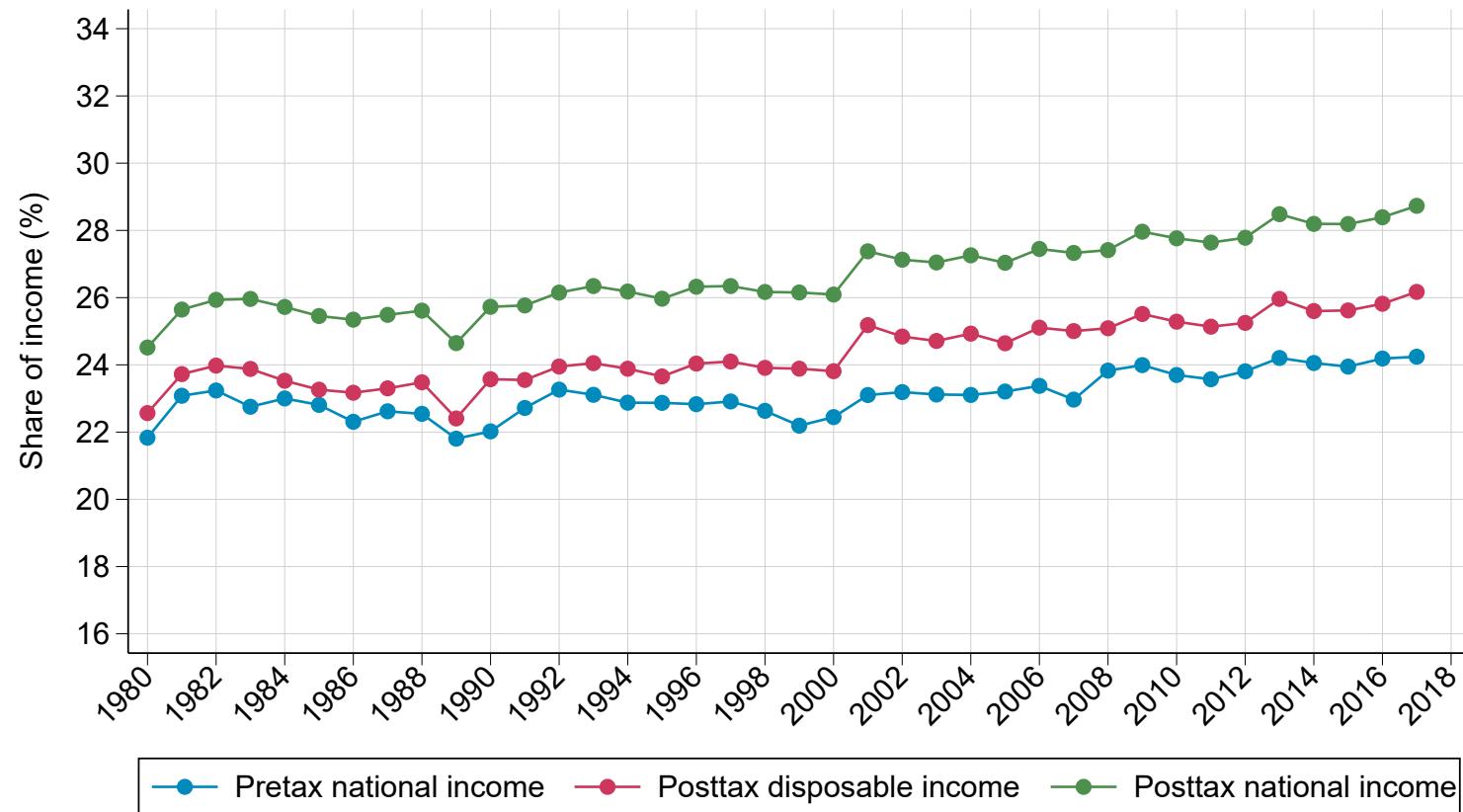
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.8.5  
France: from pretax national income to posttax national income  
Top 10% income share



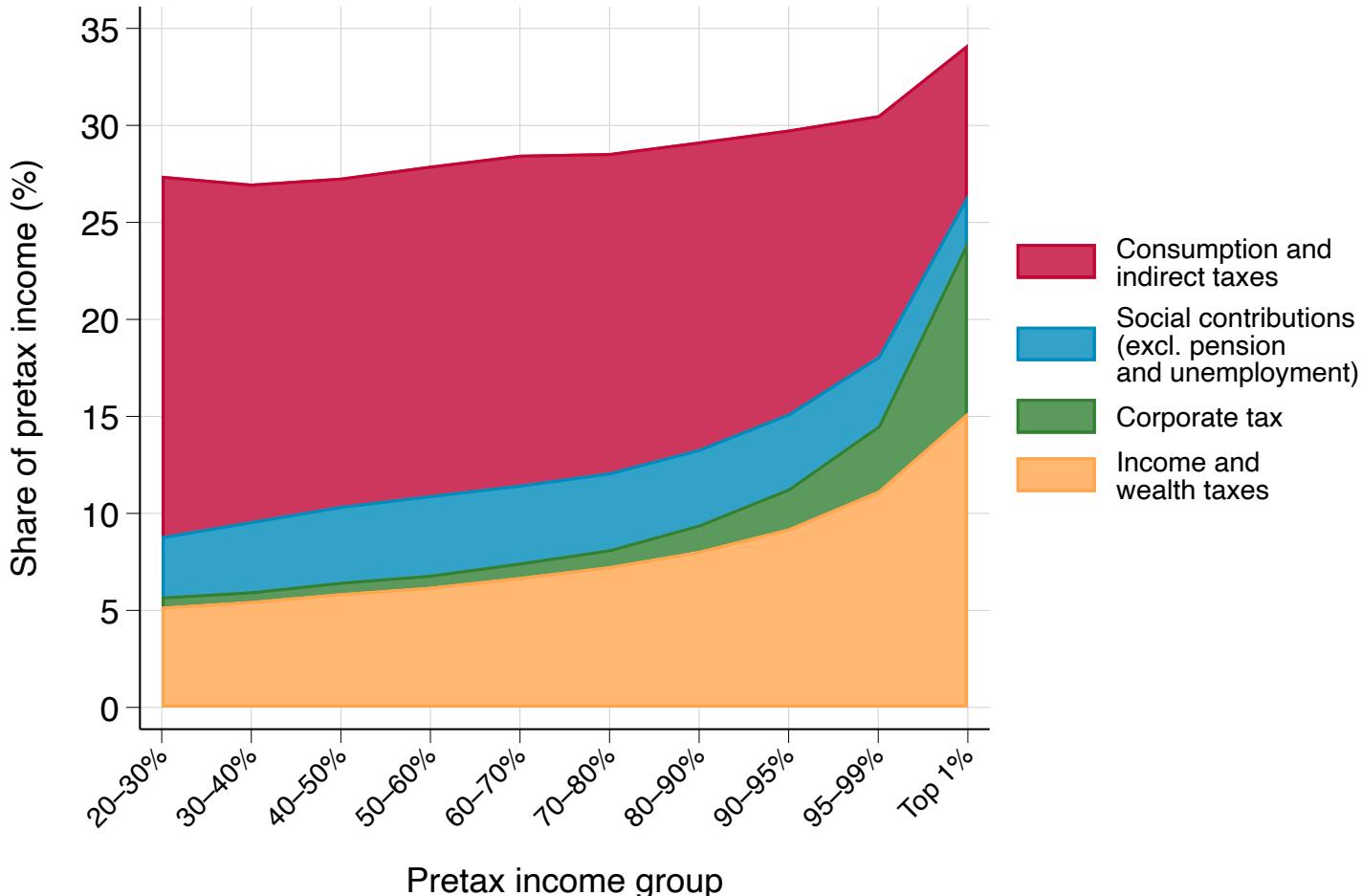
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.8.6**  
France: from pretax national income to posttax national income  
**Bottom 50% income share**



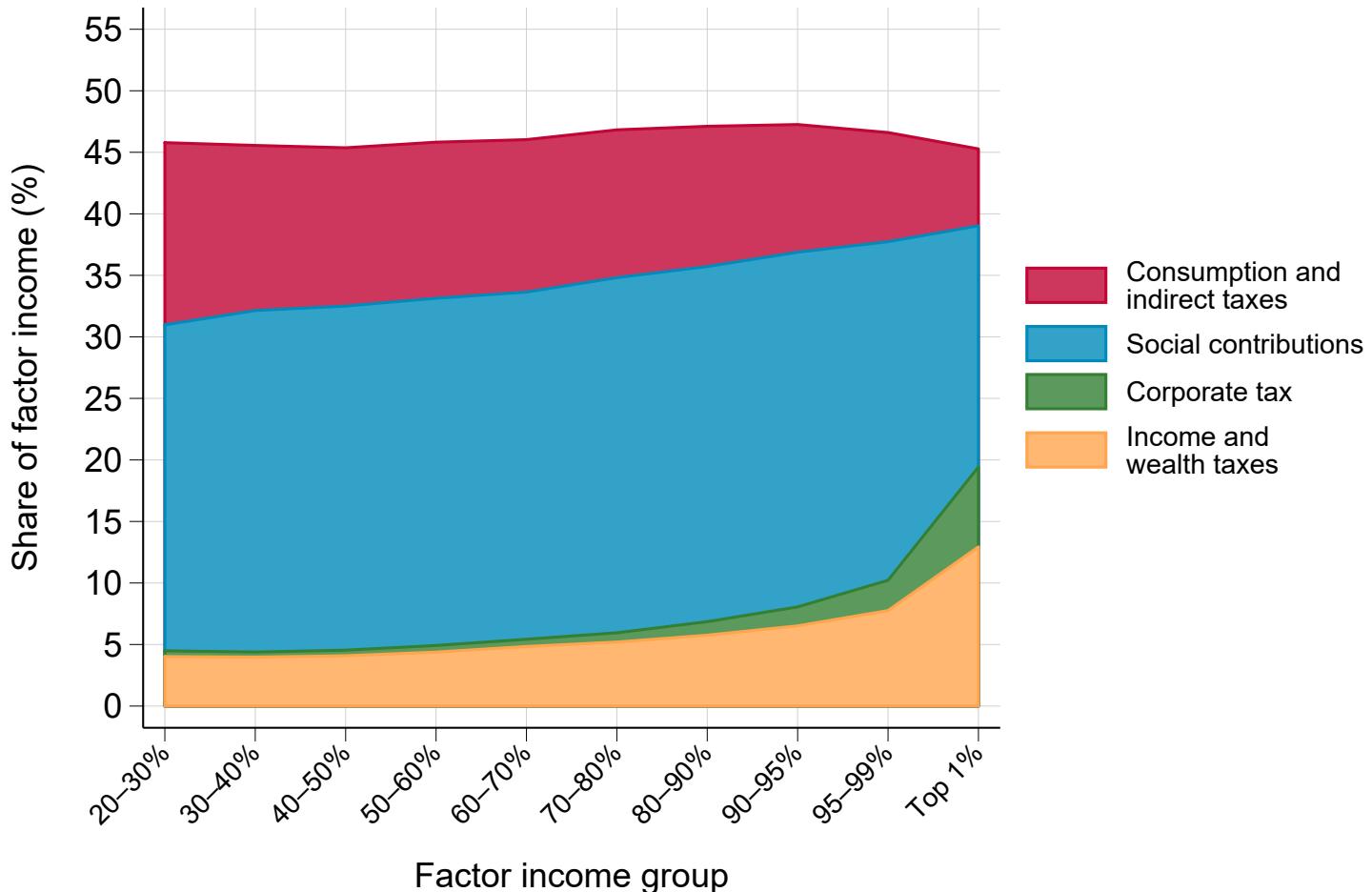
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.8.7**  
**France: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



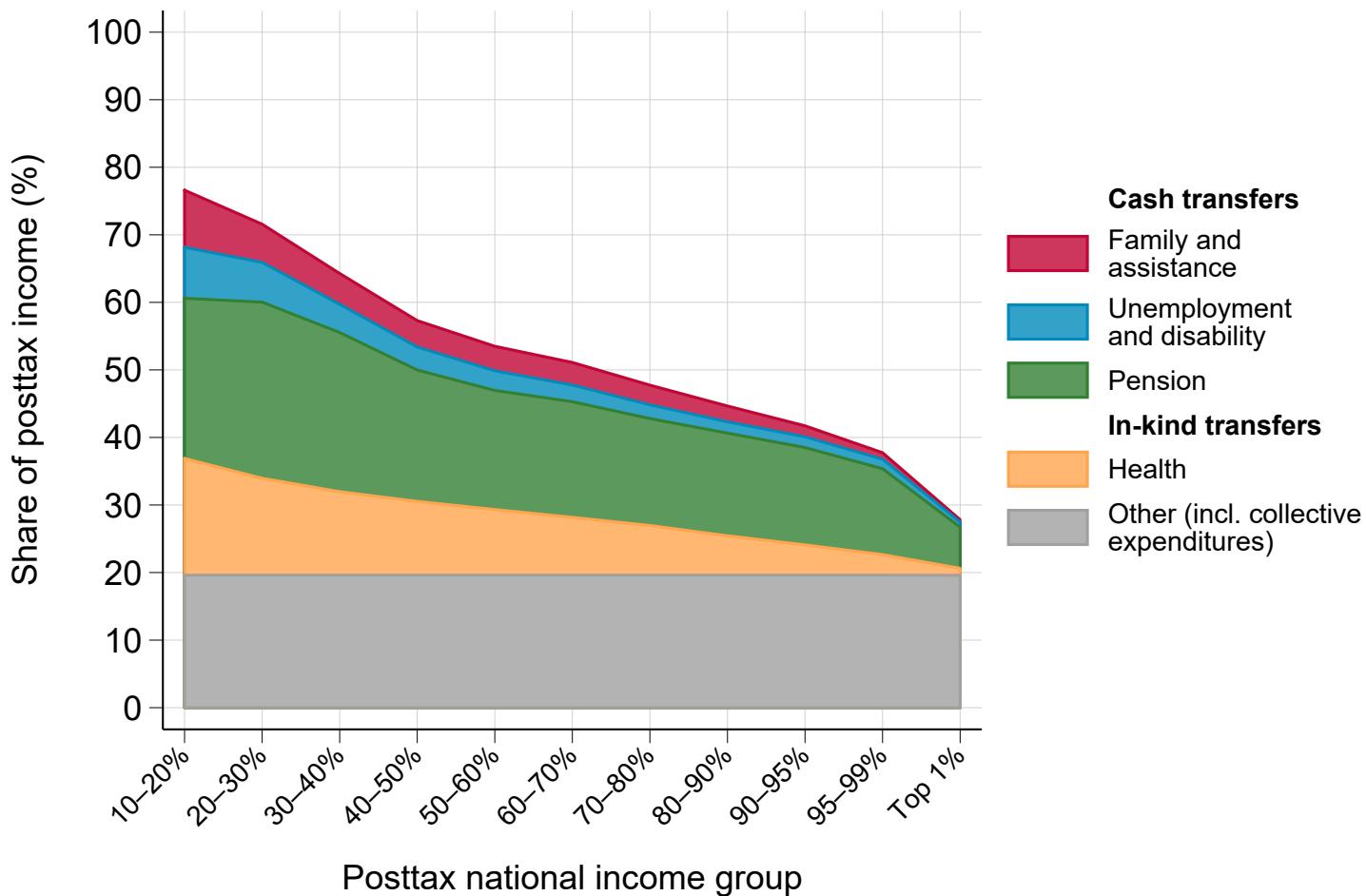
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.8.8**  
**France: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



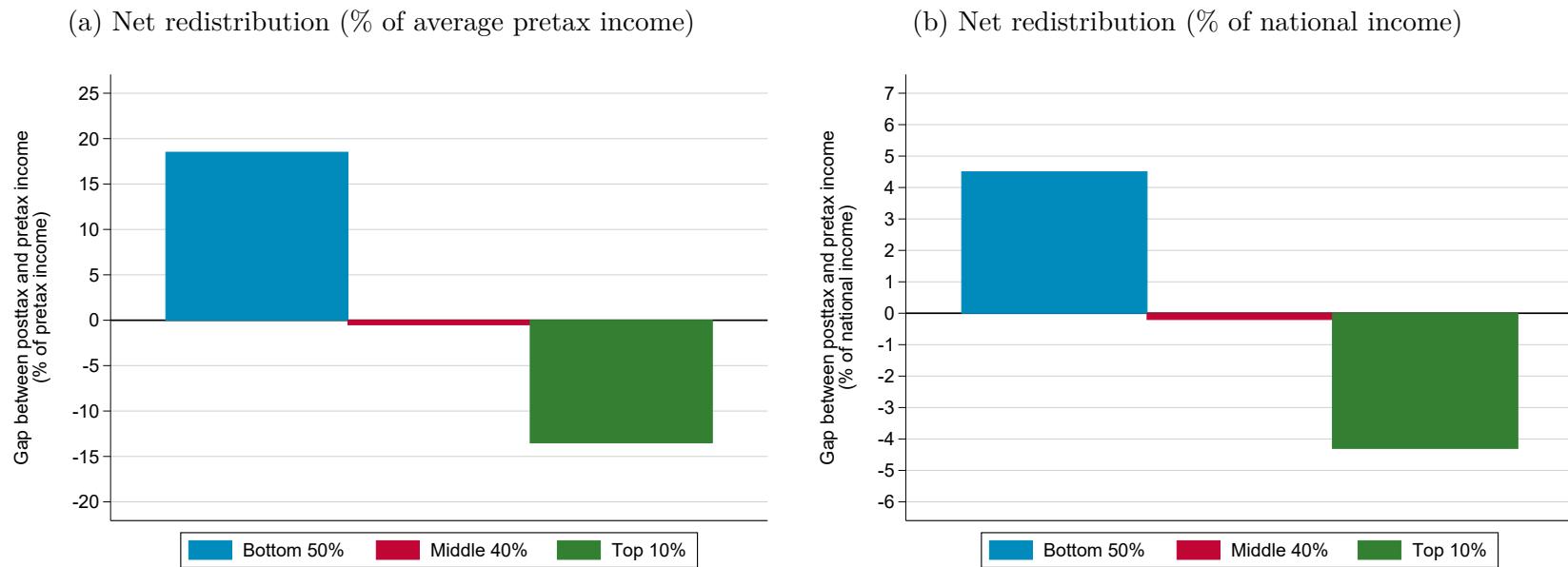
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.8.9**  
**France: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.8.10**  
**France: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.8.1**  
**France: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1978	x	x							
1980			x	x		x	x	x	x
1981			x	x		x	x	x	
1982			x	x		x	x	x	
1983			x	x		x	x	x	x
1984			x	x		x	x	x	x
1985			x	x		x	x	x	x
1986			x	x		x	x	x	x
1987			x	x		x	x	x	x
1988			x	x		x	x	x	x
1989	x	x	x	x		x	x	x	x
1990			x	x		x	x	x	x
1991			x	x		x	x	x	x
1992			x	x		x	x	x	x
1993			x	x		x	x	x	x
1994	x	x	x	x		x	x	x	
1995	x	x	x	x	x	x	x	x	x
1996	x	x	x	x	x	x	x	x	x
1997	x	x	x	x	x	x	x	x	x
1998	x	x	x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001	x	x	x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004			x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006			x	x	x	x	x	x	x
2007			x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.8.2**  
**France: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			79.6%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	75.4%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	4.2%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	6.2%
(+)	Government primary income	National accounts	Proportional to pretax income	14.2%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	22.4%
(+)	Pension benefits	Survey + tax data	Observed	20.2%
(+)	Unemployment benefits	Survey + tax data	Observed	2.2%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			31%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	1.3%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	10.9%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	15.9%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.9%
(+)	Transfers			32.8%
	<i>Cash transfers</i>	Survey + tax data	Observed	4.3%
	<i>Public health expenditures</i>	National accounts	Lump sum	8.7%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	19.9%
(+)	Budget balance	National accounts	Proportional to posttax income	-1.9%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.8.3**  
**France: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (pretax, 2006–2017; posttax, 2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 92.4% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.2 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (ECHP, 1995–2001; LIS, 1978–2010; SILC, 2008–2017); pretax income (SILC, 2008–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.5 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	1980–2014 (Garbinti, Goupille-Lebret, and Piketty, 2018)	See section 1.4.2.	Using the same income concept as the tax data, we find that the top 1% share is 2.1 pp. higher in the tax data than the survey data.
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 2.0 pp. higher than in the raw survey. The top 1% share of posttax income is 1.4 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCS, 2009, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)		We estimate that the top 10% of pretax income earners own, on average, 38.7% of stocks, capture 18.5% of imputed rents, and account for 17.5% of consumption.
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 1.2 pp. on average; Imputed rents decrease the top 10% share of income by 0.4 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.8 pp. on average; Taxes on products increase the top 10% share of posttax income by 2.0 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.8 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.8.4**  
**The distribution of national income in France, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€36,600	100%	€36,600	100%	€36,600	100%
Bottom 50%	€17,800	24.2%	€19,200	26.2%	€21,000	28.7%
Bottom 20%	€9,500	5.2%	€11,300	6.2%	€14,100	7.7%
Next 30%	€23,200	19.0%	€24,400	20.0%	€25,700	21.1%
Middle 40%	€40,600	44.3%	€40,900	44.6%	€40,400	44.1%
Top 10%	€115,000	31.4%	€107,000	29.2%	€99,400	27.1%
Top 1%	€353,000	9.6%	€300,000	8.2%	€272,000	7.4%
Top 0.1%	€1,210,000	3.3%	€915,000	2.5%	€821,000	2.2%
Top 0.01%	€4,330,000	1.2%	€2,870,000	0.8%	€2,570,000	0.7%
Top 0.001%	€15,610,000	0.4%	€9,090,000	0.2%	€8,120,000	0.2%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

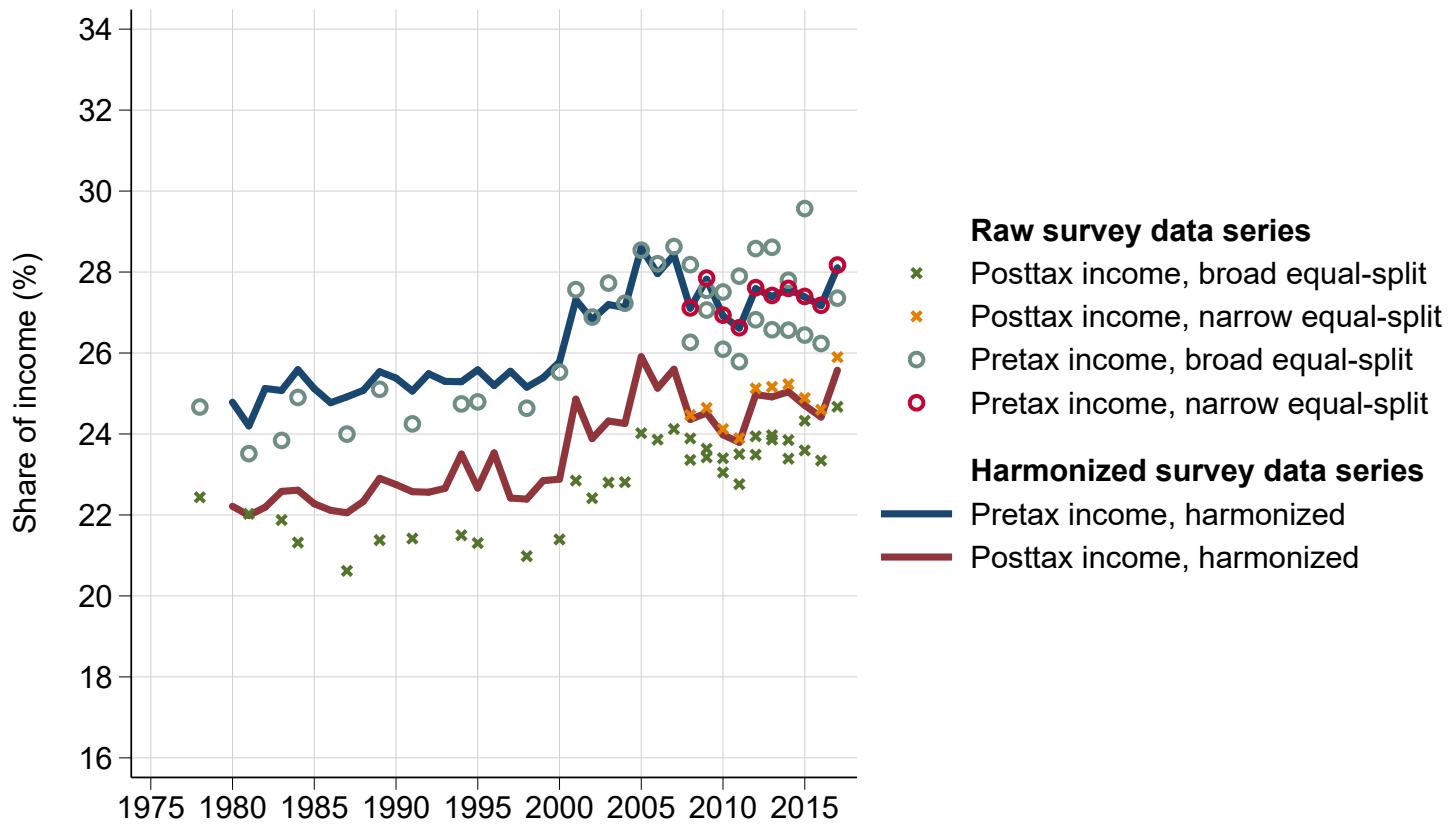
**Table A.3.8.5**  
**The distribution of national income growth in France, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	0.9%	-0.2%	0.9%	-0.2%	0.9%	-0.2%
Bottom 50%	1.2%	0.4%	1.3%	0.3%	1.3%	0.3%
Bottom 20%	1.7%	0.7%	2.1%	0.9%	2.0%	0.9%
Next 30%	1.0%	0.3%	1.1%	0.1%	1.1%	0.1%
Middle 40%	0.7%	0.0%	0.7%	-0.2%	0.7%	-0.2%
Top 10%	0.9%	-0.8%	0.7%	-0.6%	0.7%	-0.7%
Top 1%	1.1%	-1.9%	1.0%	-2.1%	0.9%	-2.2%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

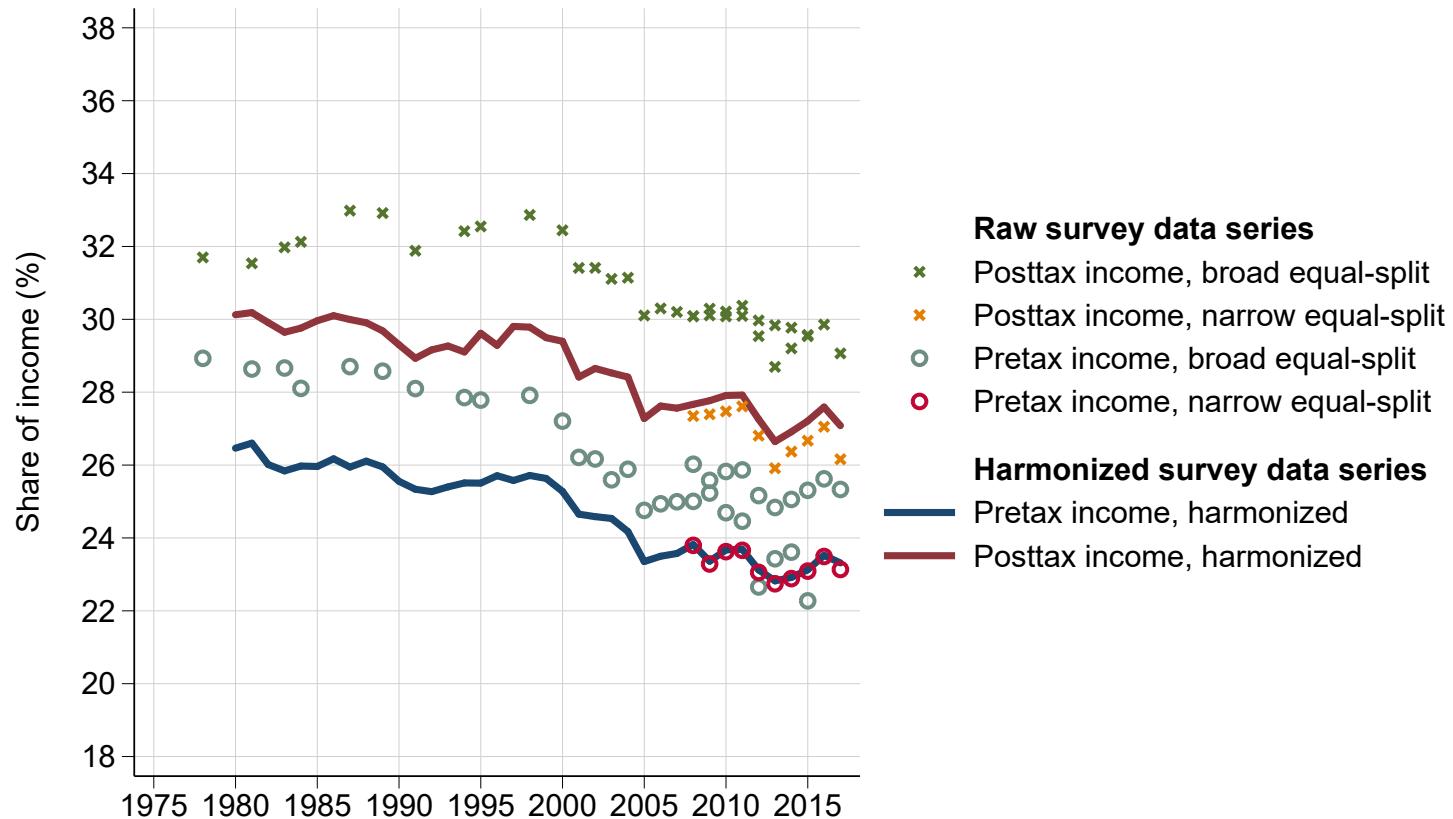
### 3.9 Germany

Figure A.3.9.1  
Germany: harmonization of survey data  
Top 10% pretax income share



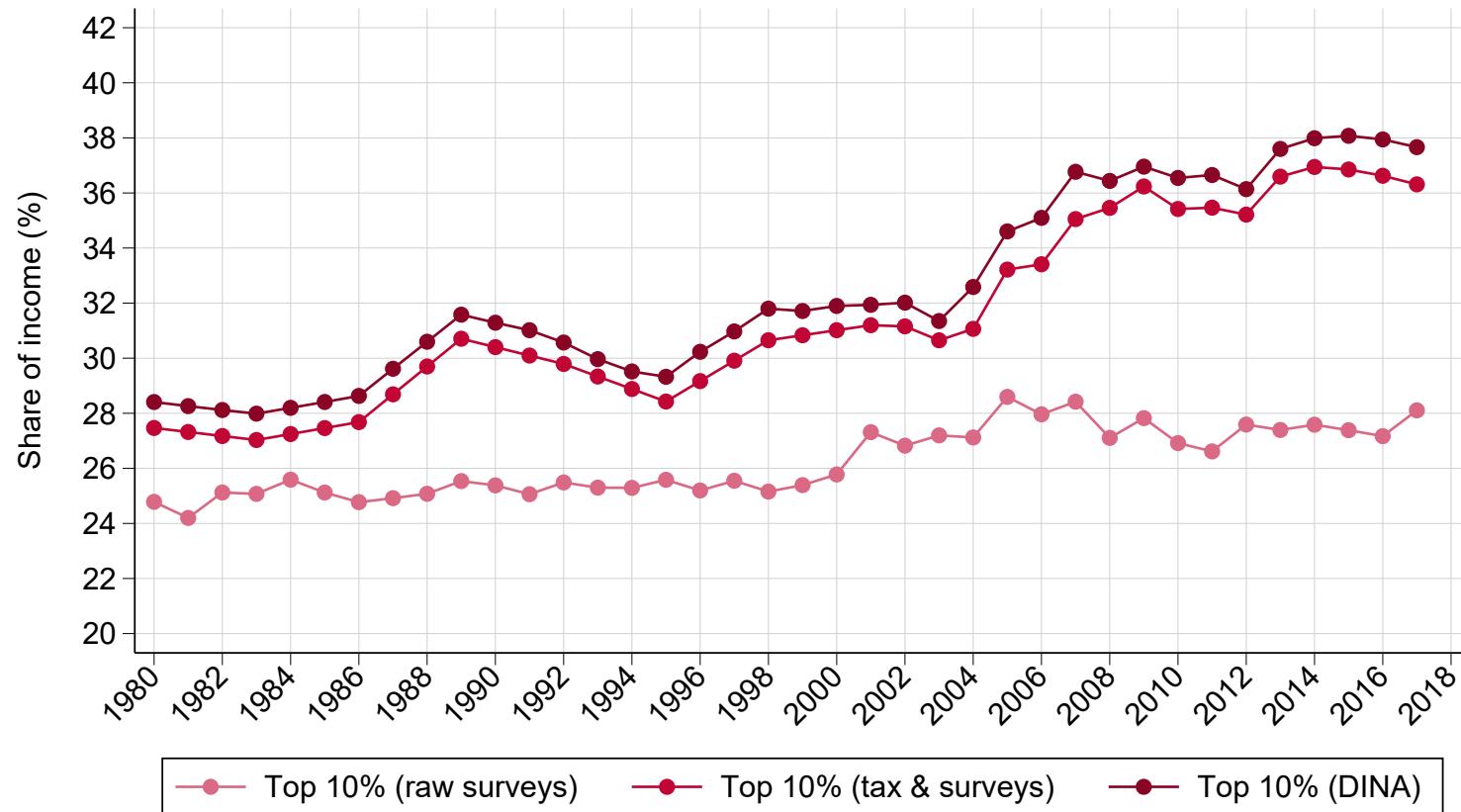
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.9.2**  
**Germany: harmonization of survey data**  
**Bottom 50% pretax income share**



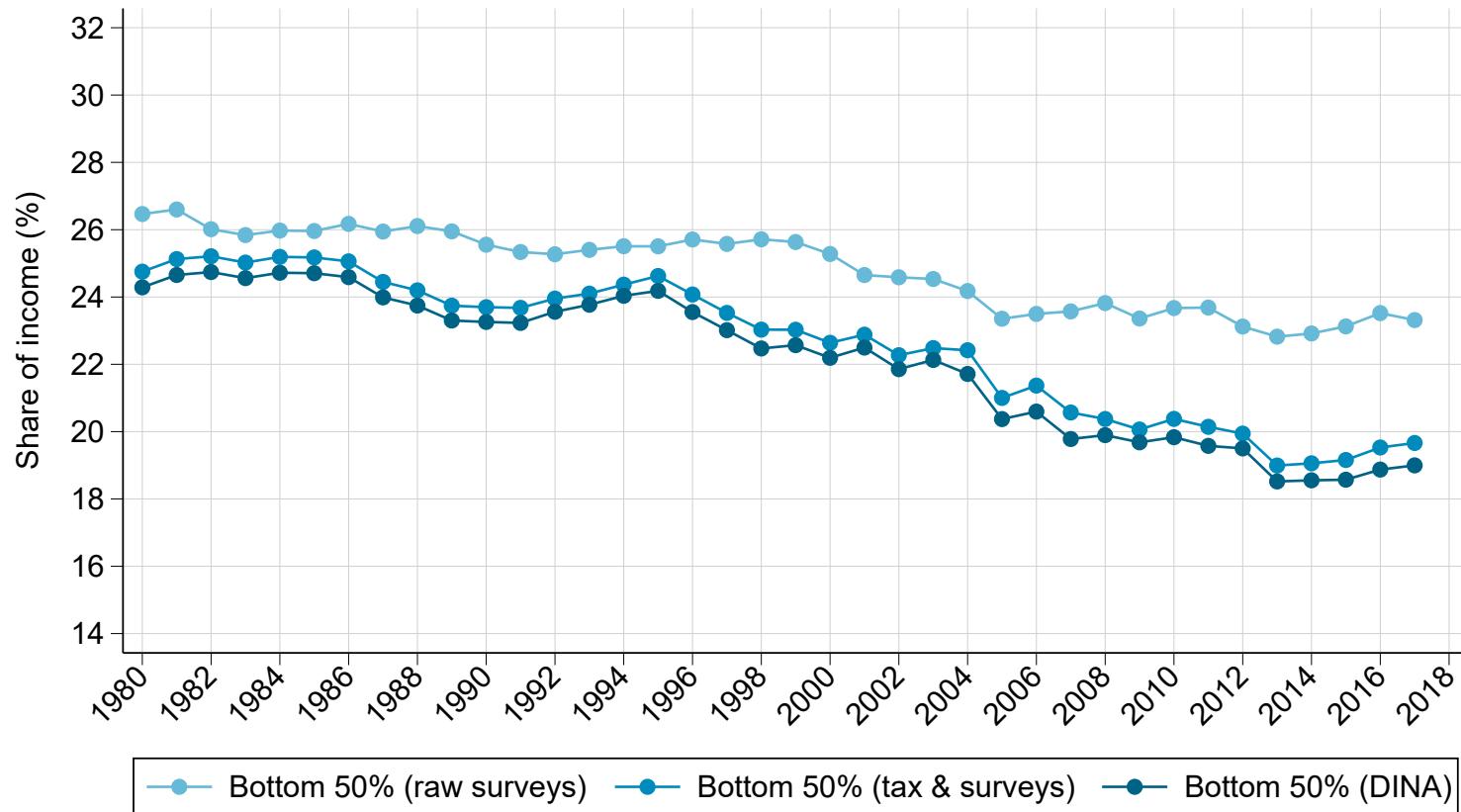
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.3.9.3  
Germany: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



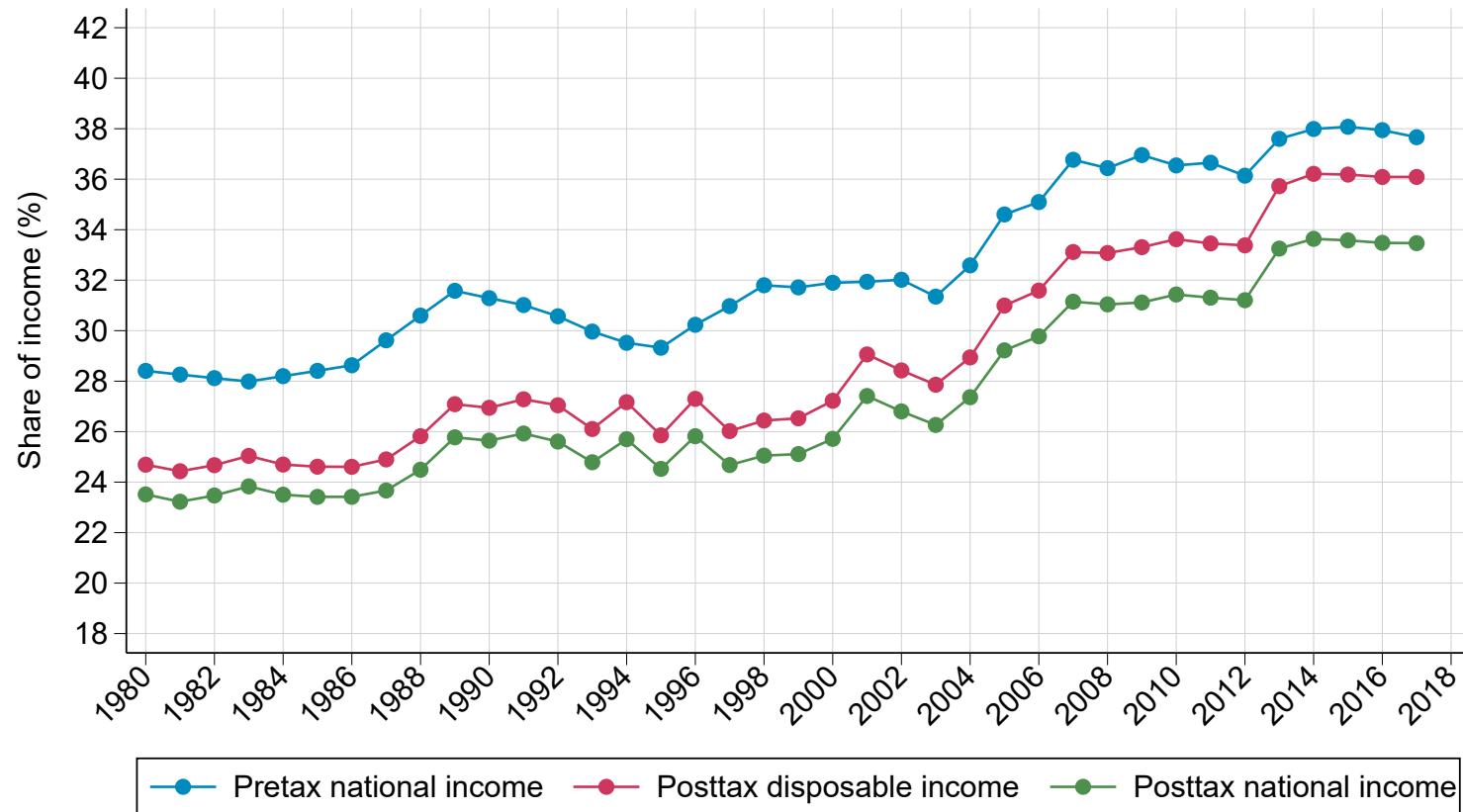
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.9.4**  
Germany: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



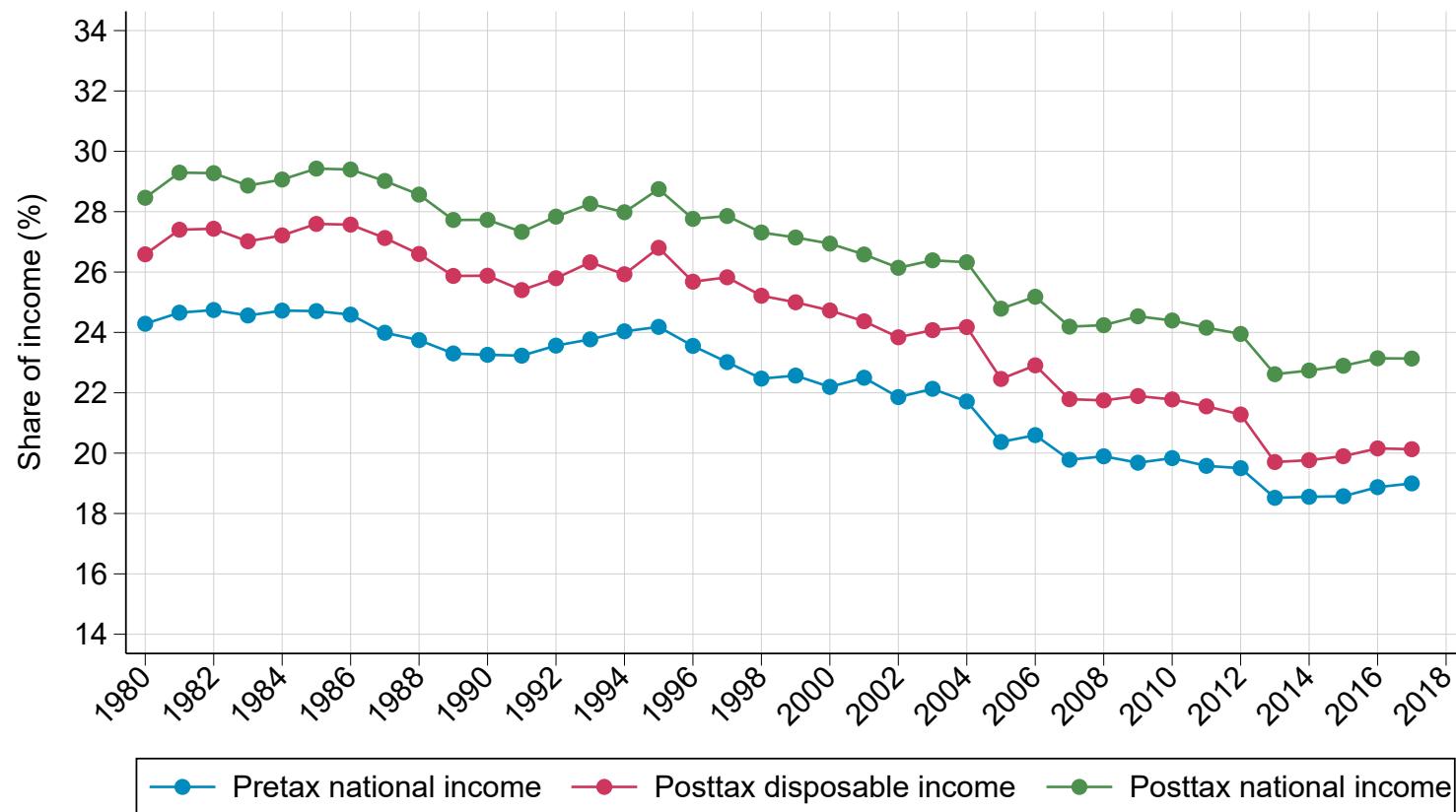
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.9.5**  
**Germany: from pretax national income to posttax national income**  
**Top 10% income share**



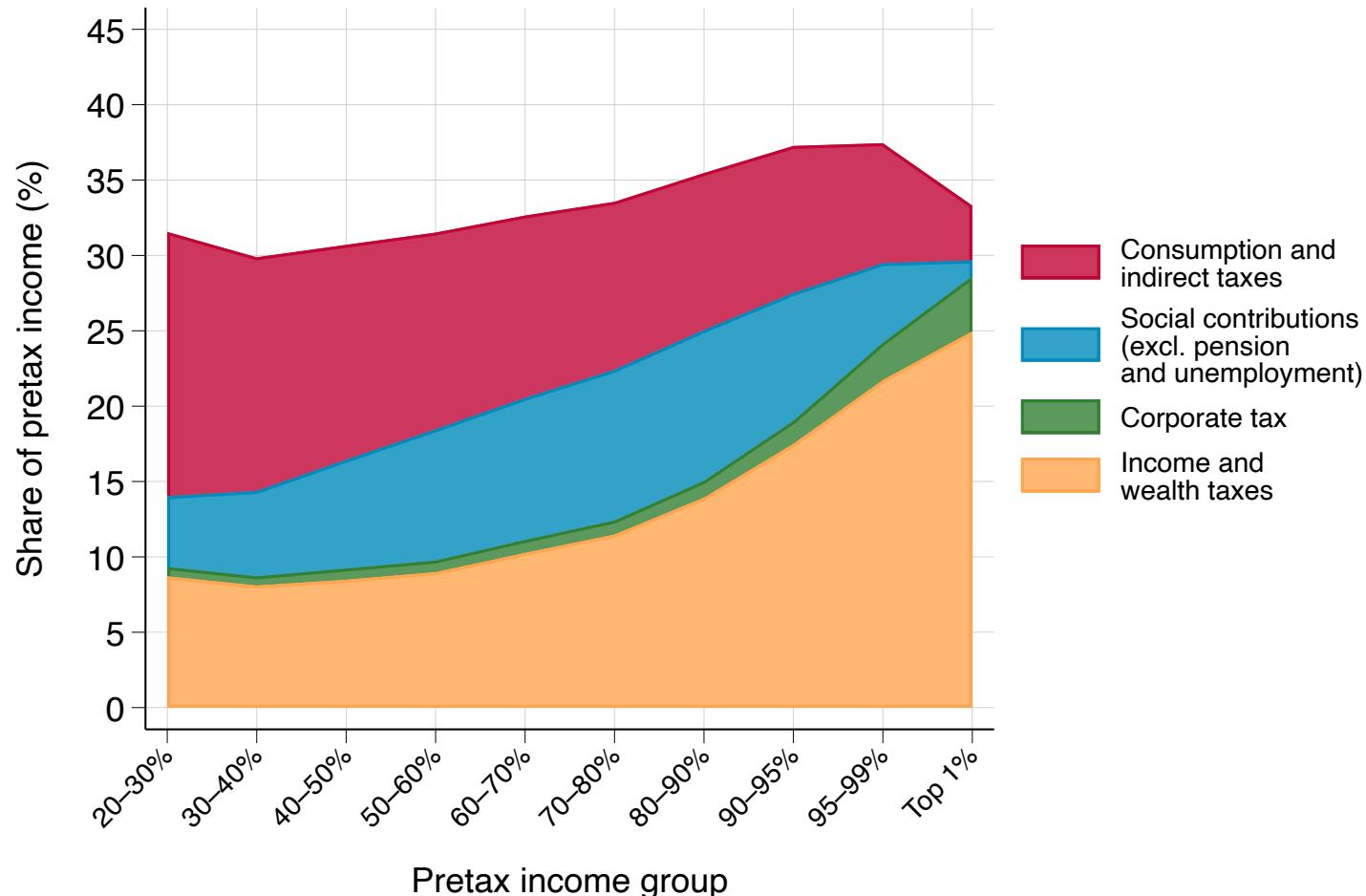
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.9.6**  
**Germany: from pretax national income to posttax national income**  
**Bottom 50% income share**



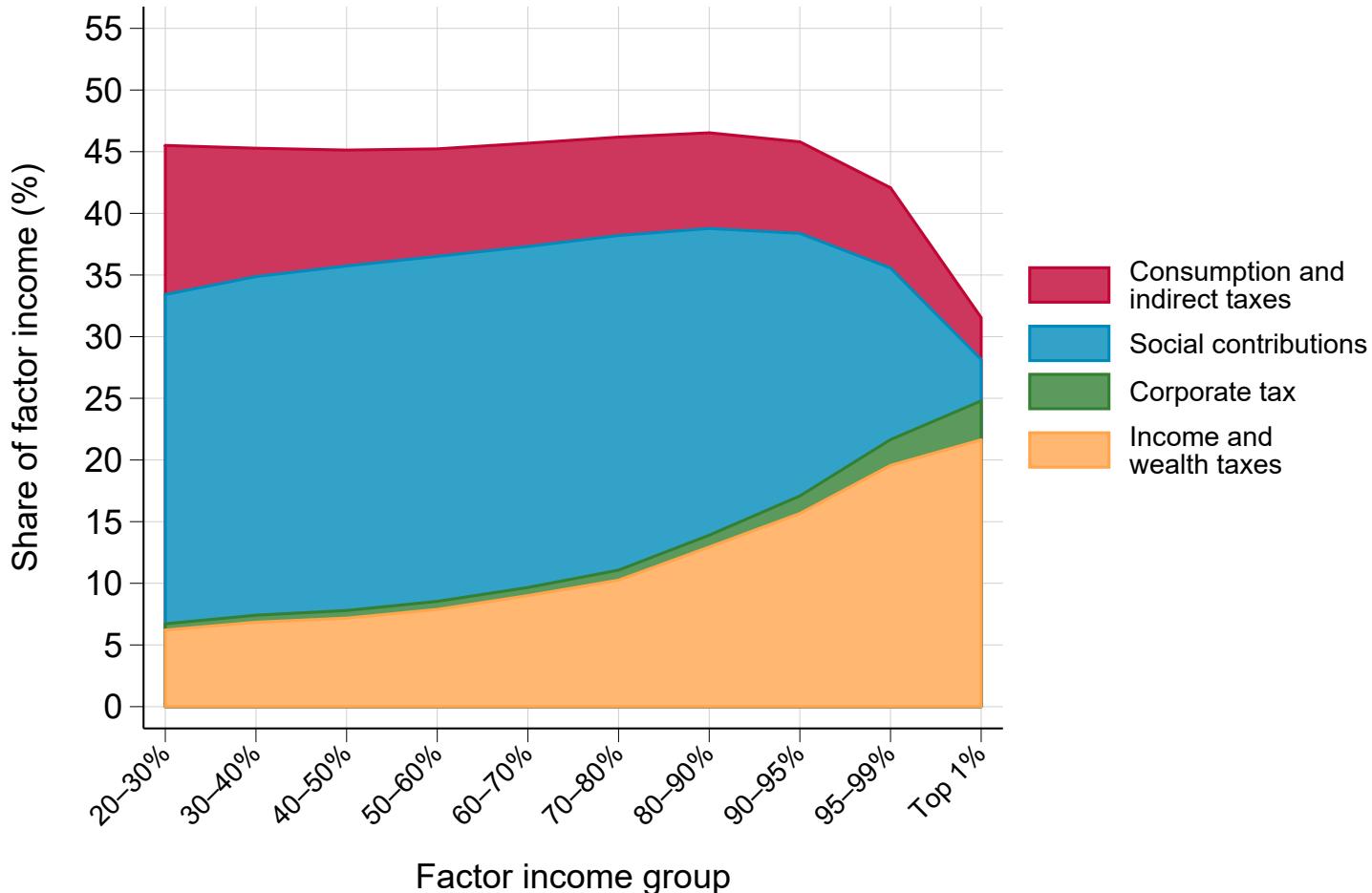
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.9.7**  
**Germany: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



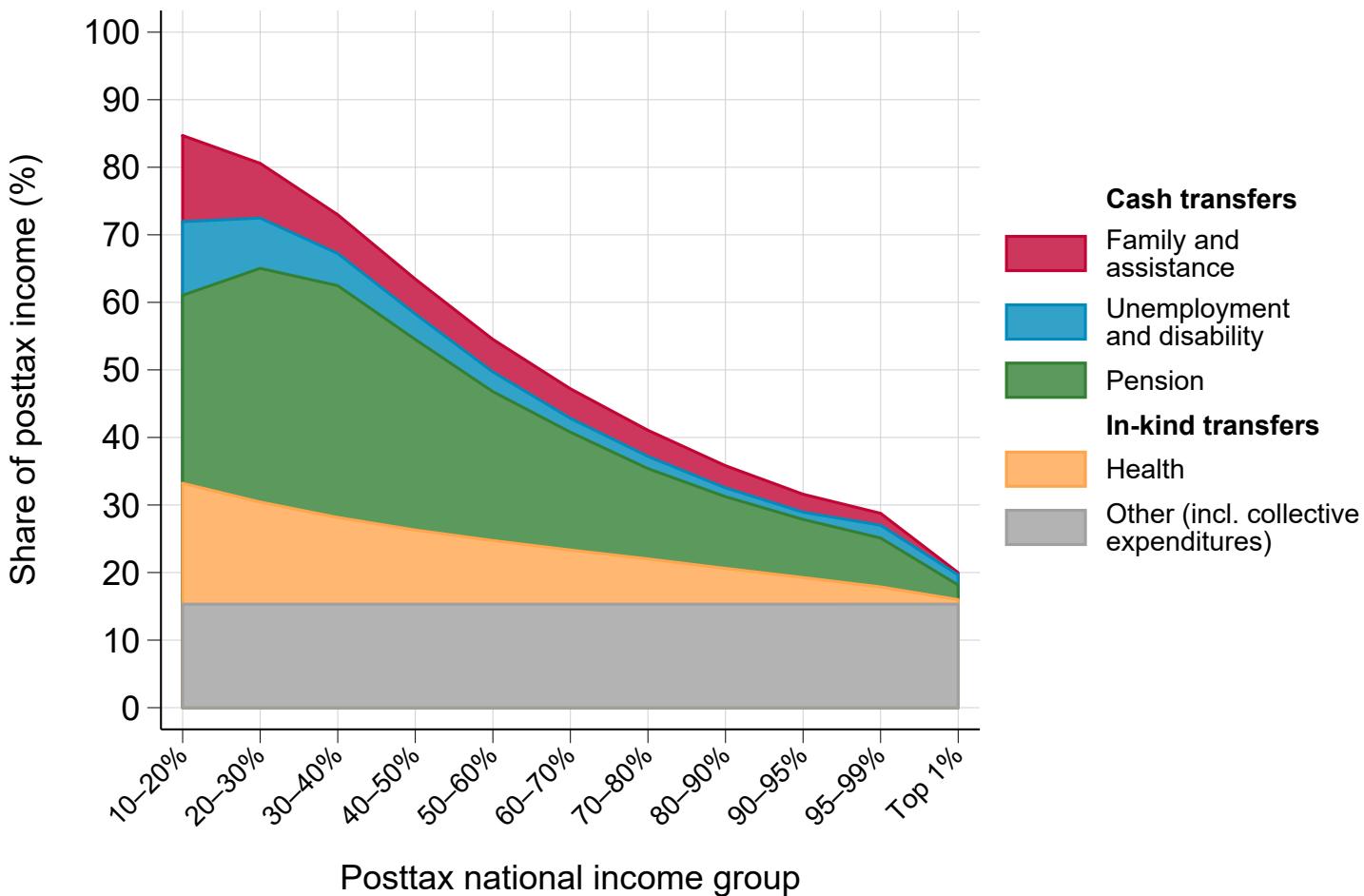
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.9.8**  
**Germany: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



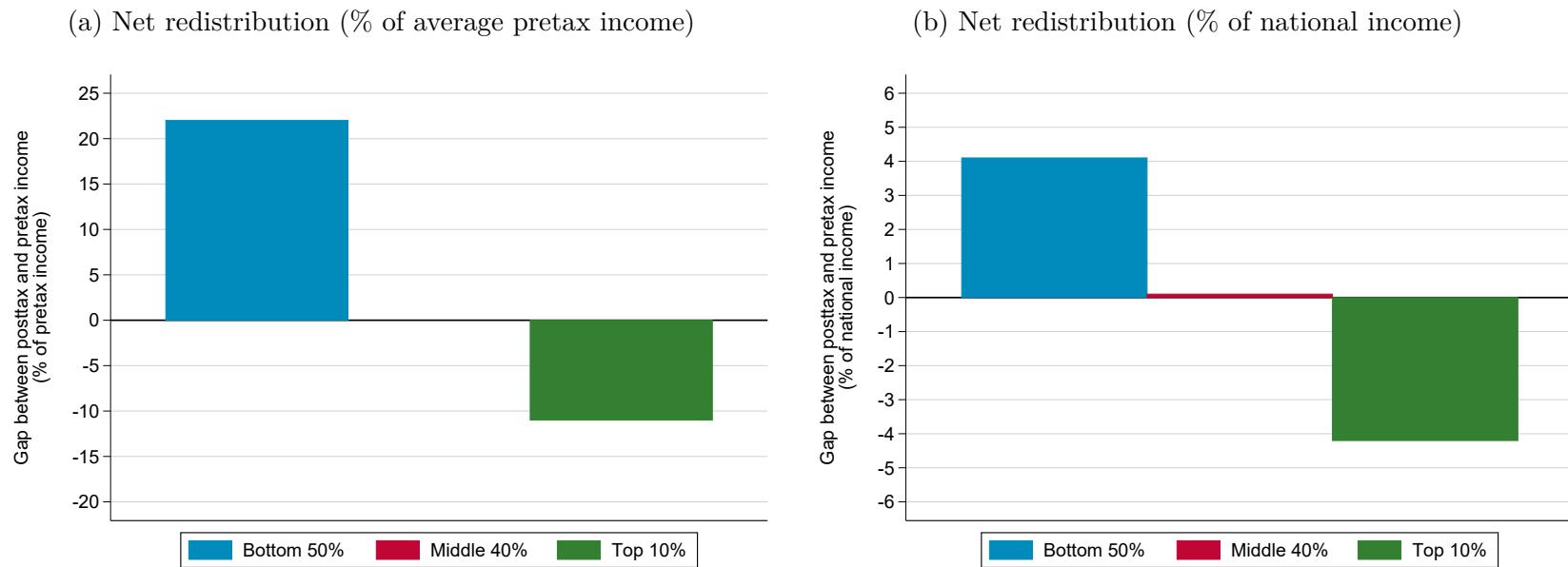
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.9.9**  
**Germany: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.9.10**  
**Germany: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.9.1**  
**Germany: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1978	x	x							
1980			x						x
1981	x	x							x
1982									x
1983	x	x	x						x
1984	x	x							x
1985									x
1986			x						x
1987	x	x							x
1988									x
1989	x	x	x						x
1990									x
1991	x	x		x	x	x	x	x	x
1992			x	x	x	x	x	x	x
1993				x	x	x	x	x	x
1994	x	x		x	x	x	x	x	x
1995	x	x	x	x	x	x	x	x	x
1996				x	x	x	x	x	x
1997				x	x	x	x	x	x
1998	x	x	x	x	x	x	x	x	x
1999				x	x	x	x	x	x
2000	x	x		x	x	x	x	x	x
2001	x	x	x	x	x	x	x	x	x
2002	x	x	x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.9.2**  
**Germany: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			82.8%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	83.8%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	-1.1%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	6.9%
(+)	Government primary income	National accounts	Proportional to pretax income	10.3%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	16.6%
(+)	Pension benefits	Survey + tax data	Observed	15.1%
(+)	Unemployment benefits	Survey + tax data	Observed	1.5%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			31.2%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	6.5%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	10.4%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	11.6%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.7%
(+)	Transfers			29%
	<i>Cash transfers</i>	Survey + tax data	Observed	5.5%
	<i>Public health expenditures</i>	National accounts	Lump sum	7.9%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	15.6%
(+)	Budget balance	National accounts	Proportional to posttax income	2.2%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.9.3**  
**Germany: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2004–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2004–2017); Employer contributions (OECD, 2004–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 75.2% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies increases the top 10% share of pretax income by 0.8 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1978–2015; SILC, 2008–2017); pretax income (LIS, 1978–2015; SILC, 2008–2017)	See section 1.3.	No estimation of pretax and posttax income needed.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1980–2013 (Bartels, 2017)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 6.4 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 4.4 pp. higher than in the raw survey. The top 1% share of posttax income is 2.1 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2010, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 34.9% of stocks, capture 17.4% of imputed rents, and account for 19.2% of consumption.  Undistributed corporate profits increase the top 10% share of income by 0.3 pp. on average; Imputed rents increase the top 10% share of income by 0.1 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.6 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.6 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.9.4**  
**The distribution of national income in Germany, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€39,200	100%	€39,200	100%	€39,200	100%
Bottom 50%	€14,900	19.0%	€15,800	20.1%	€18,100	23.1%
Bottom 20%	€6,200	3.2%	€7,100	3.6%	€10,400	5.3%
Next 30%	€20,700	15.8%	€21,600	16.5%	€23,300	17.9%
Middle 40%	€42,500	43.3%	€42,900	43.8%	€42,500	43.4%
Top 10%	€148,000	37.7%	€141,000	36.1%	€131,000	33.5%
Top 1%	€520,000	13.3%	€515,000	13.1%	€467,000	11.9%
Top 0.1%	€1,910,000	4.9%	€2,120,000	5.4%	€1,920,000	4.9%
Top 0.01%	€7,070,000	1.8%	€9,070,000	2.3%	€8,160,000	2.1%
Top 0.001%	€26,340,000	0.7%	€39,030,000	1.0%	€35,100,000	0.9%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

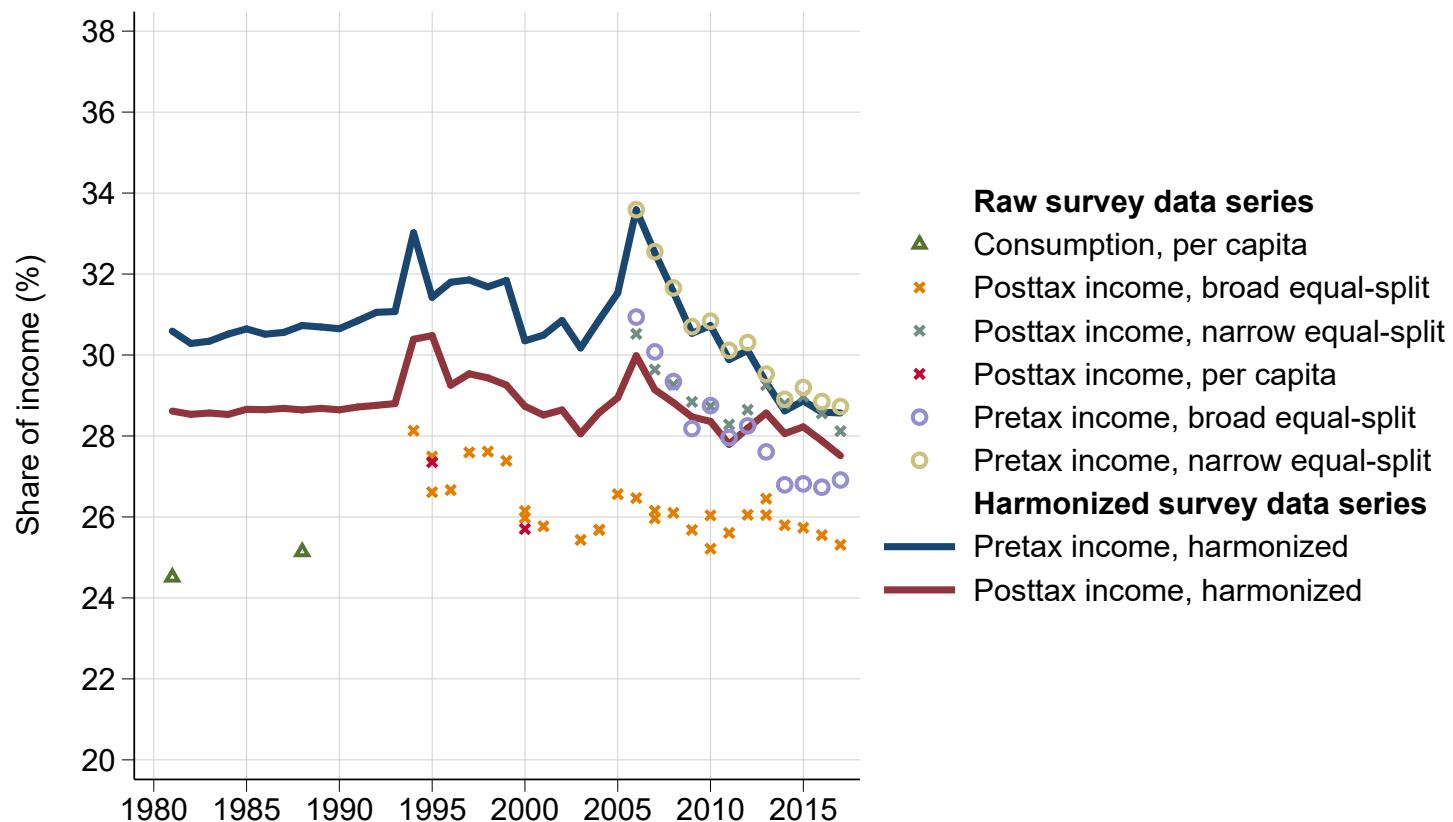
**Table A.3.9.5**  
**The distribution of national income growth in Germany, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	0.8%	0.7%	0.8%	0.7%	0.8%	0.7%
Bottom 50%	0.1%	0.3%	0.0%	-0.1%	0.2%	0.3%
Bottom 20%	-0.5%	-0.5%	-0.5%	-1.6%	0.0%	-0.4%
Next 30%	0.2%	0.5%	0.2%	0.3%	0.3%	0.5%
Middle 40%	0.5%	0.7%	0.5%	0.4%	0.5%	0.4%
Top 10%	1.6%	1.0%	1.8%	1.6%	1.7%	1.4%
Top 1%	1.6%	0.5%	2.4%	1.8%	2.3%	1.7%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

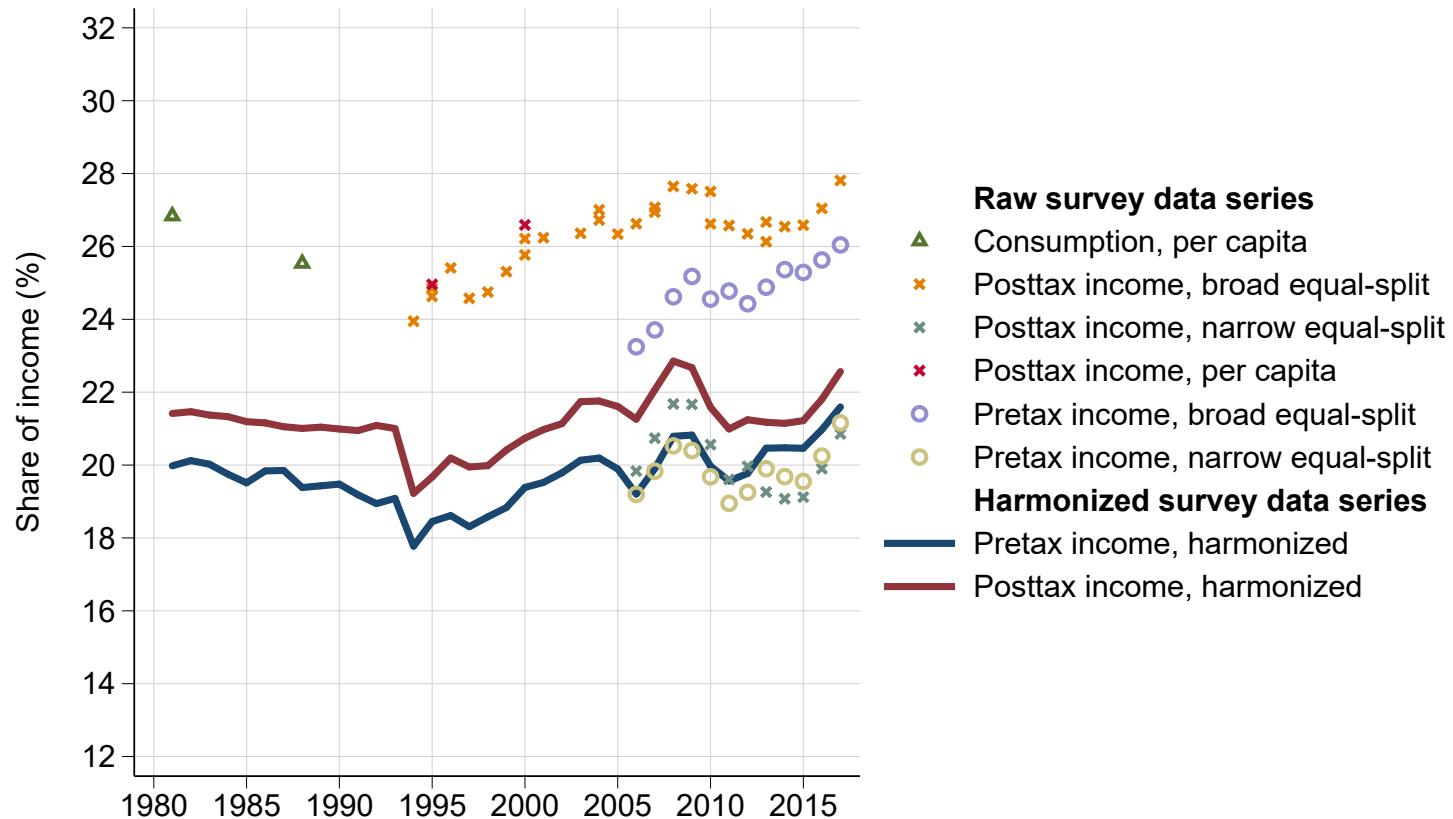
### 3.10 Greece

**Figure A.3.10.1**  
**Greece: harmonization of survey data**  
**Top 10% pretax income share**



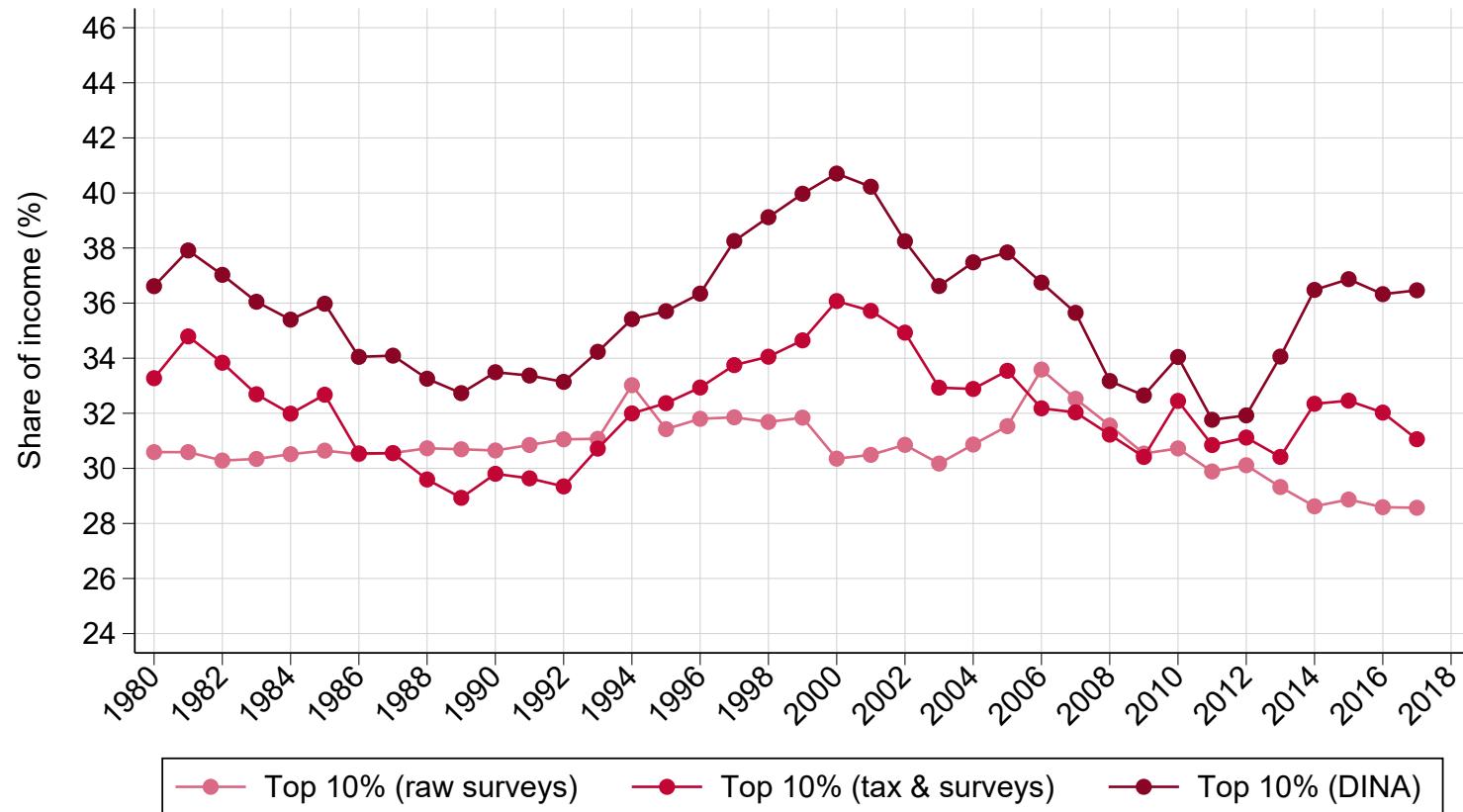
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.10.2**  
**Greece: harmonization of survey data**  
**Bottom 50% pretax income share**



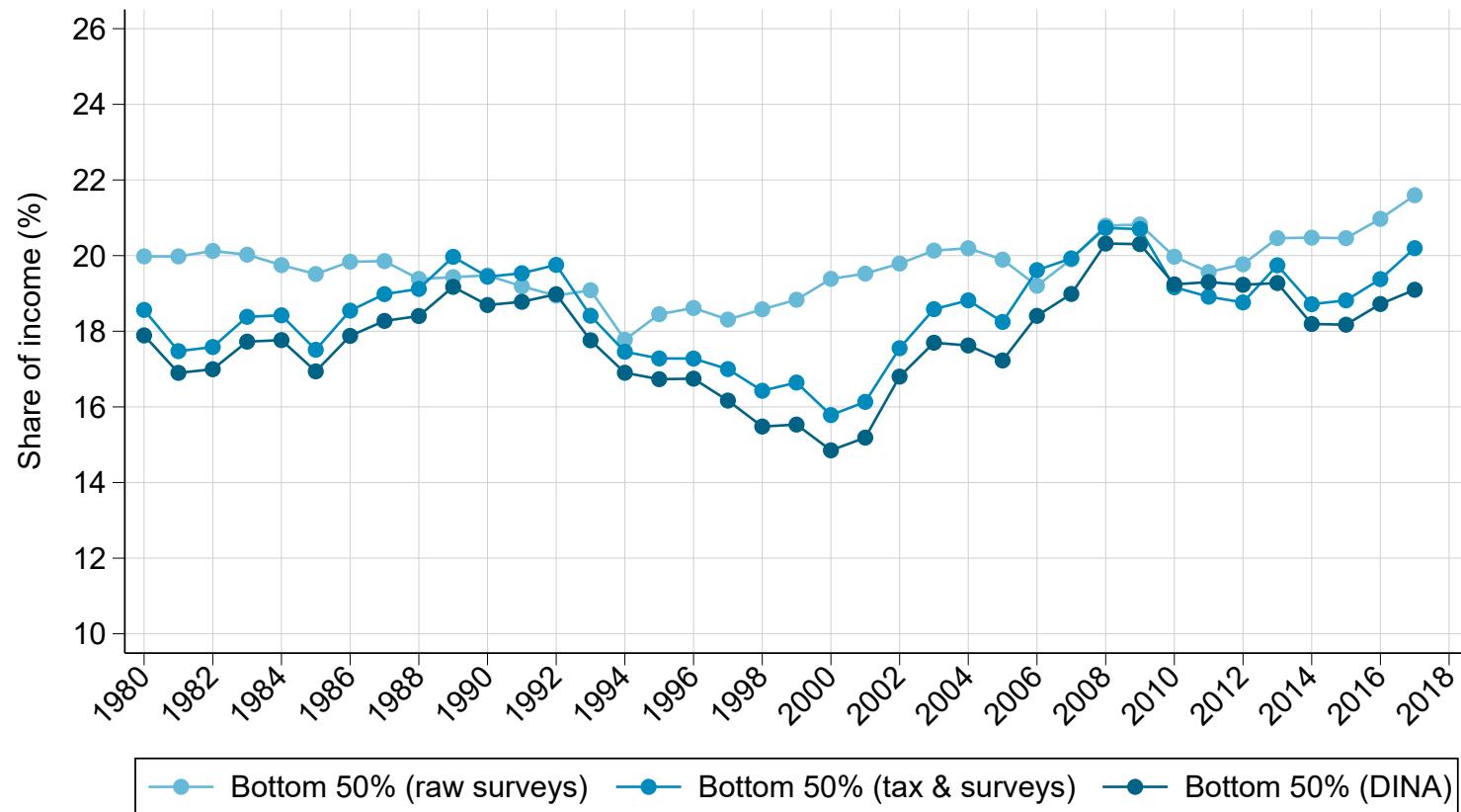
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.10.3**  
**Greece: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



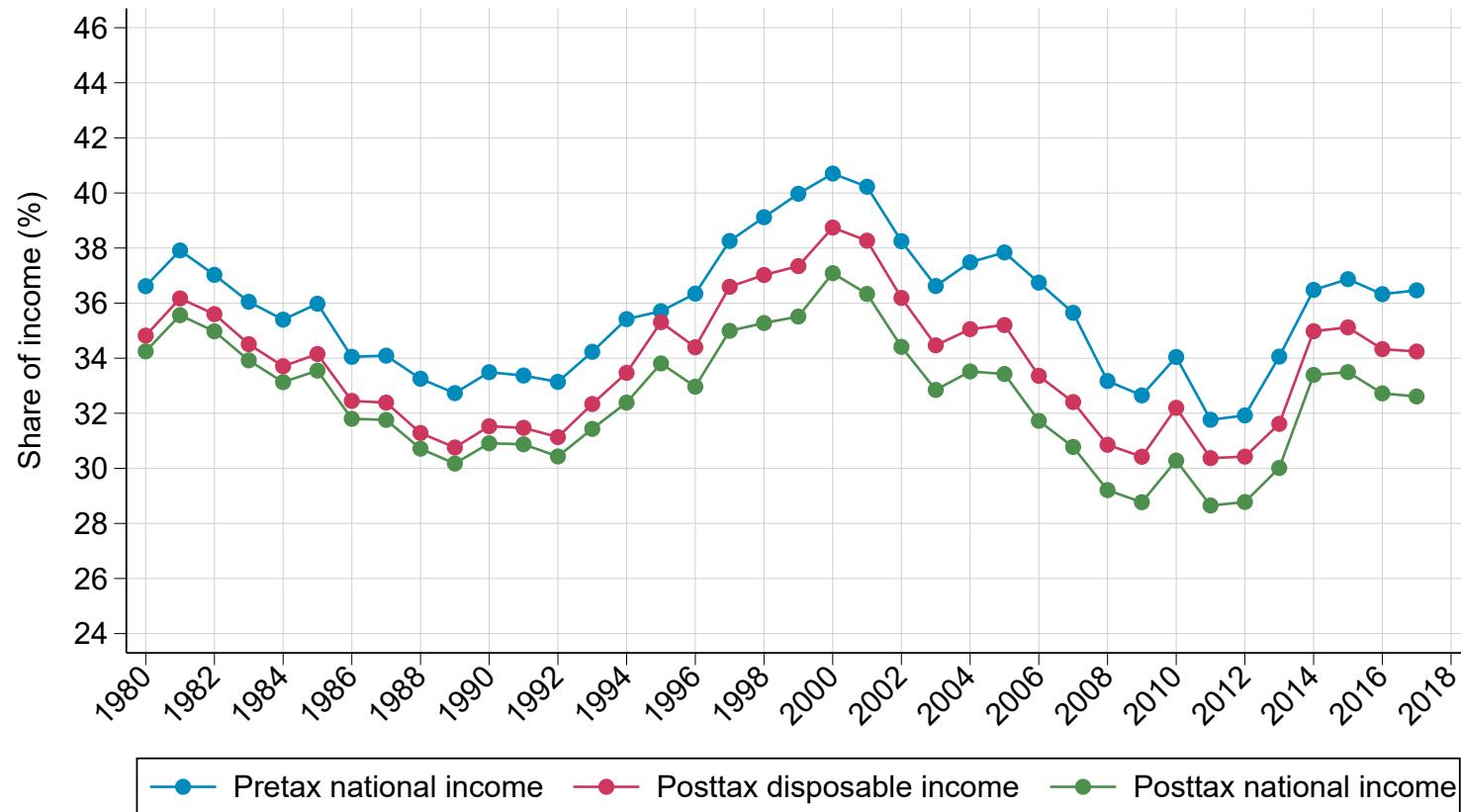
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.10.4**  
**Greece: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



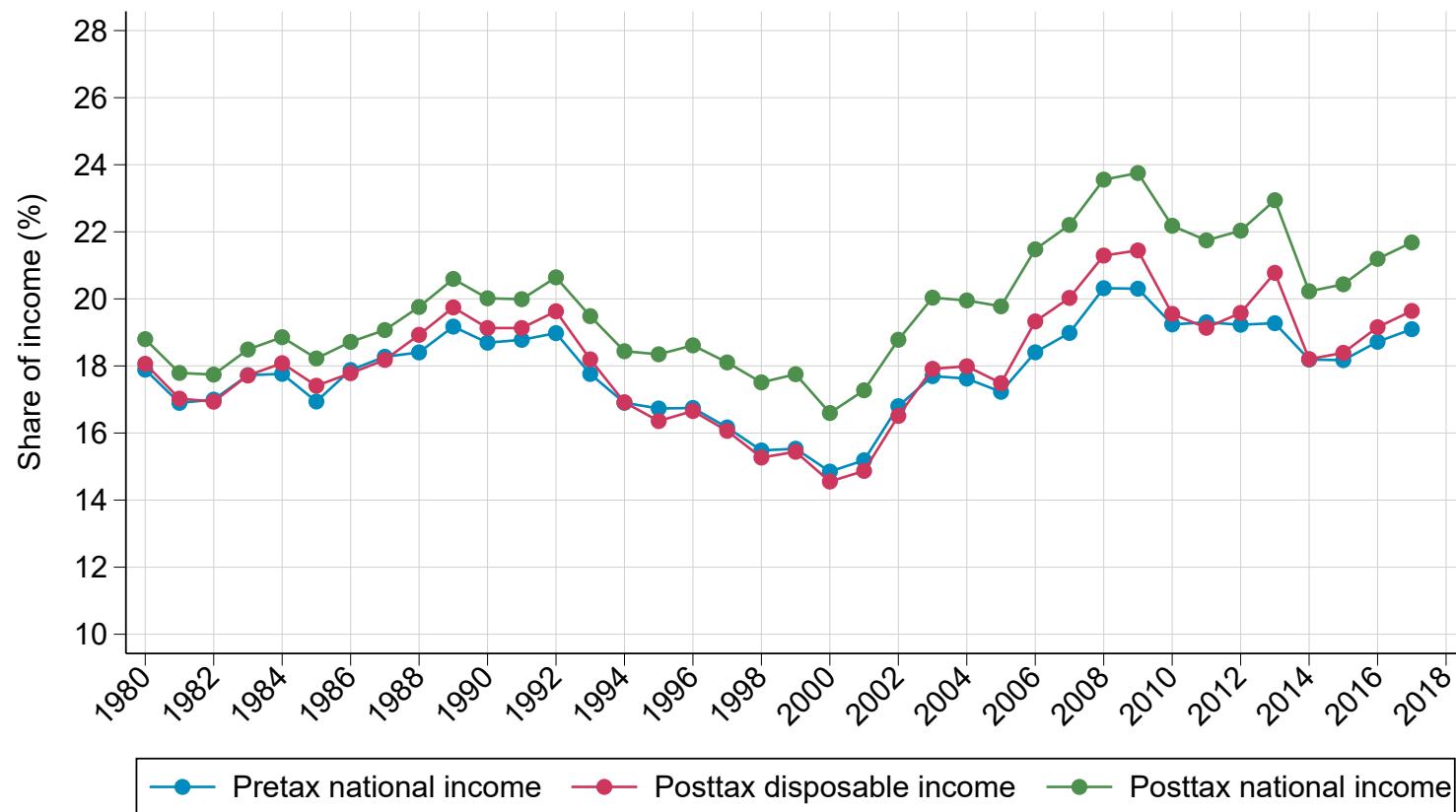
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.10.5**  
**Greece: from pretax national income to posttax national income**  
**Top 10% income share**



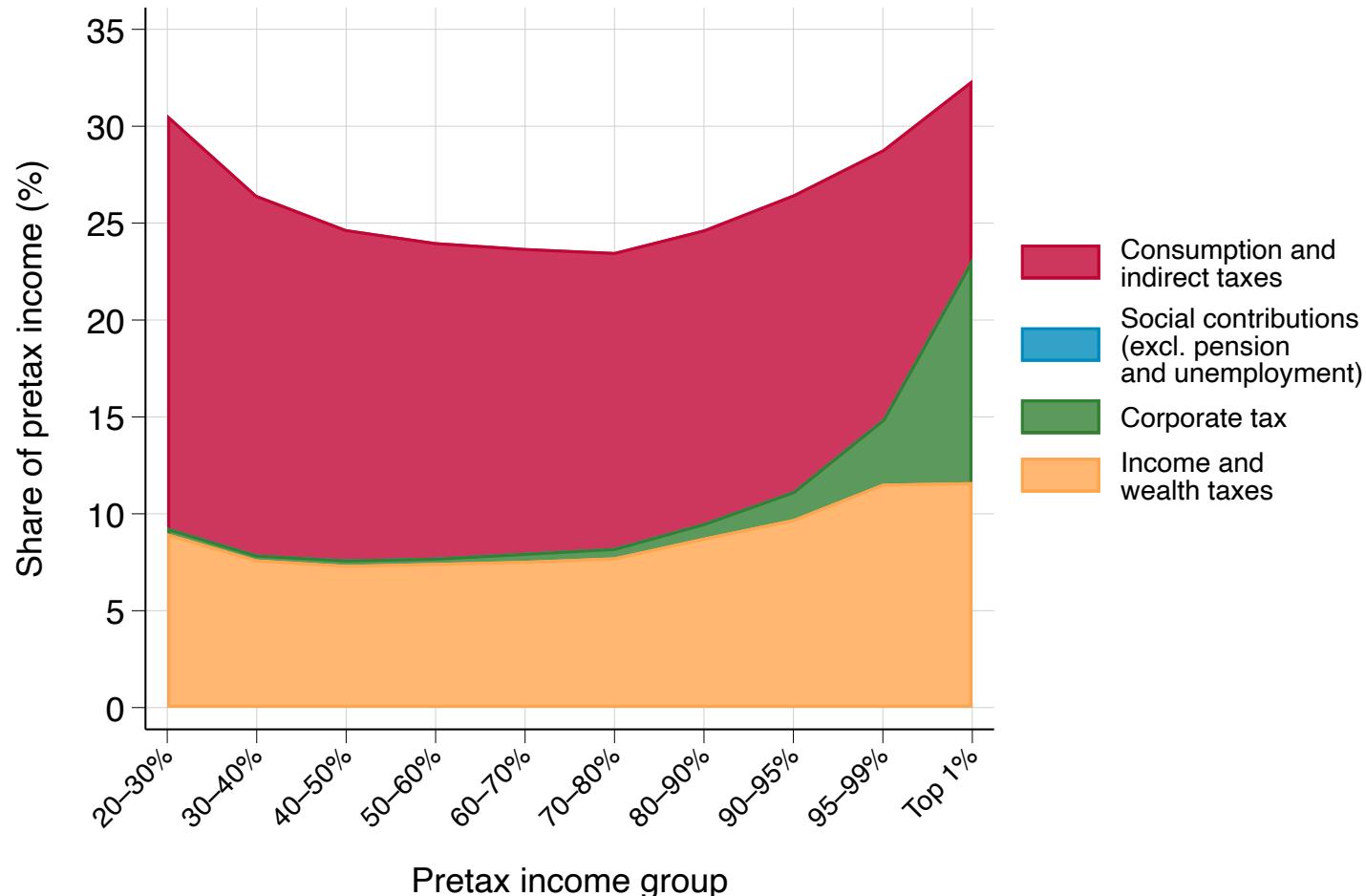
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.10.6**  
Greece: from pretax national income to posttax national income  
**Bottom 50% income share**



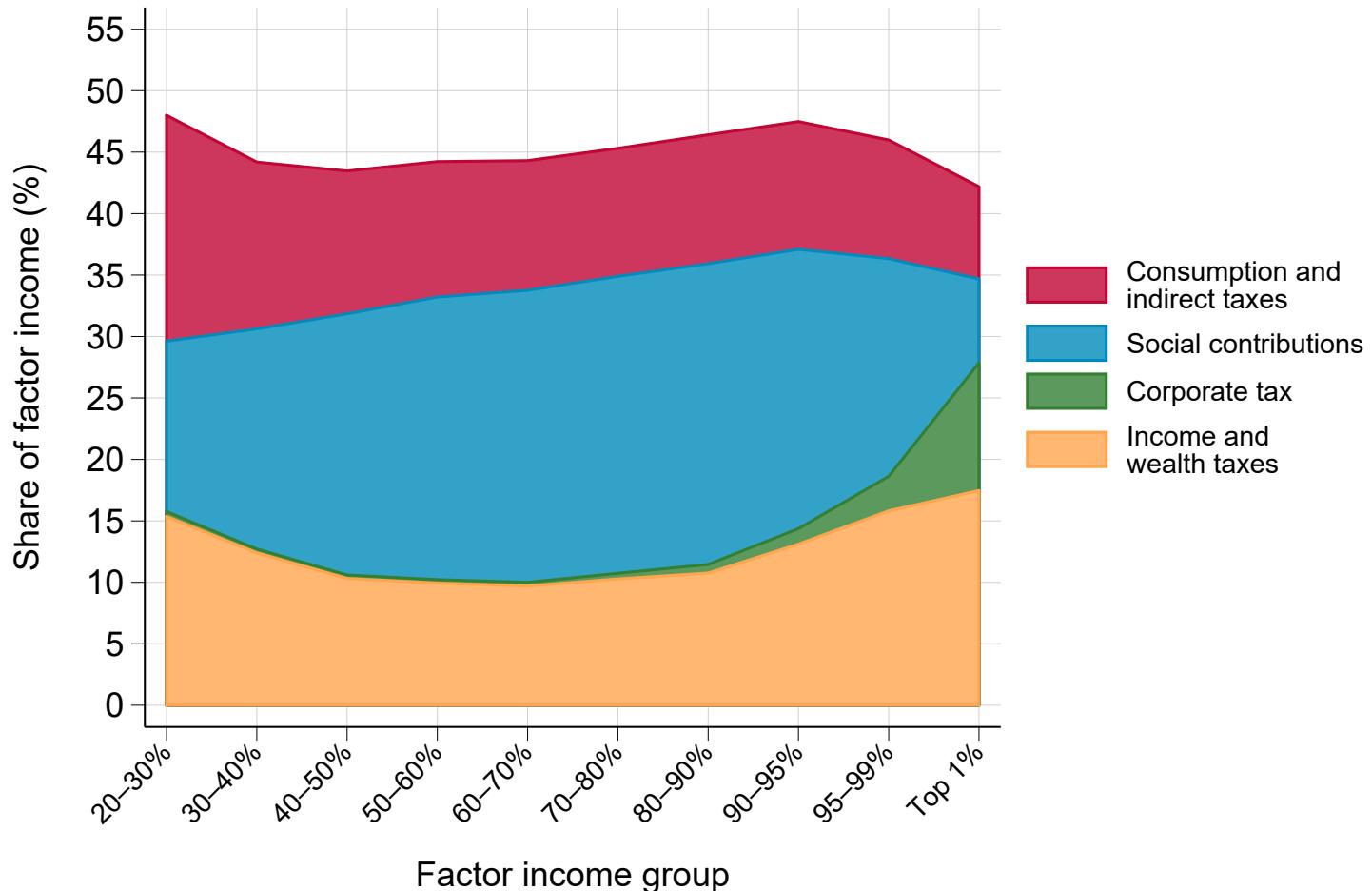
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.10.7**  
**Greece: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



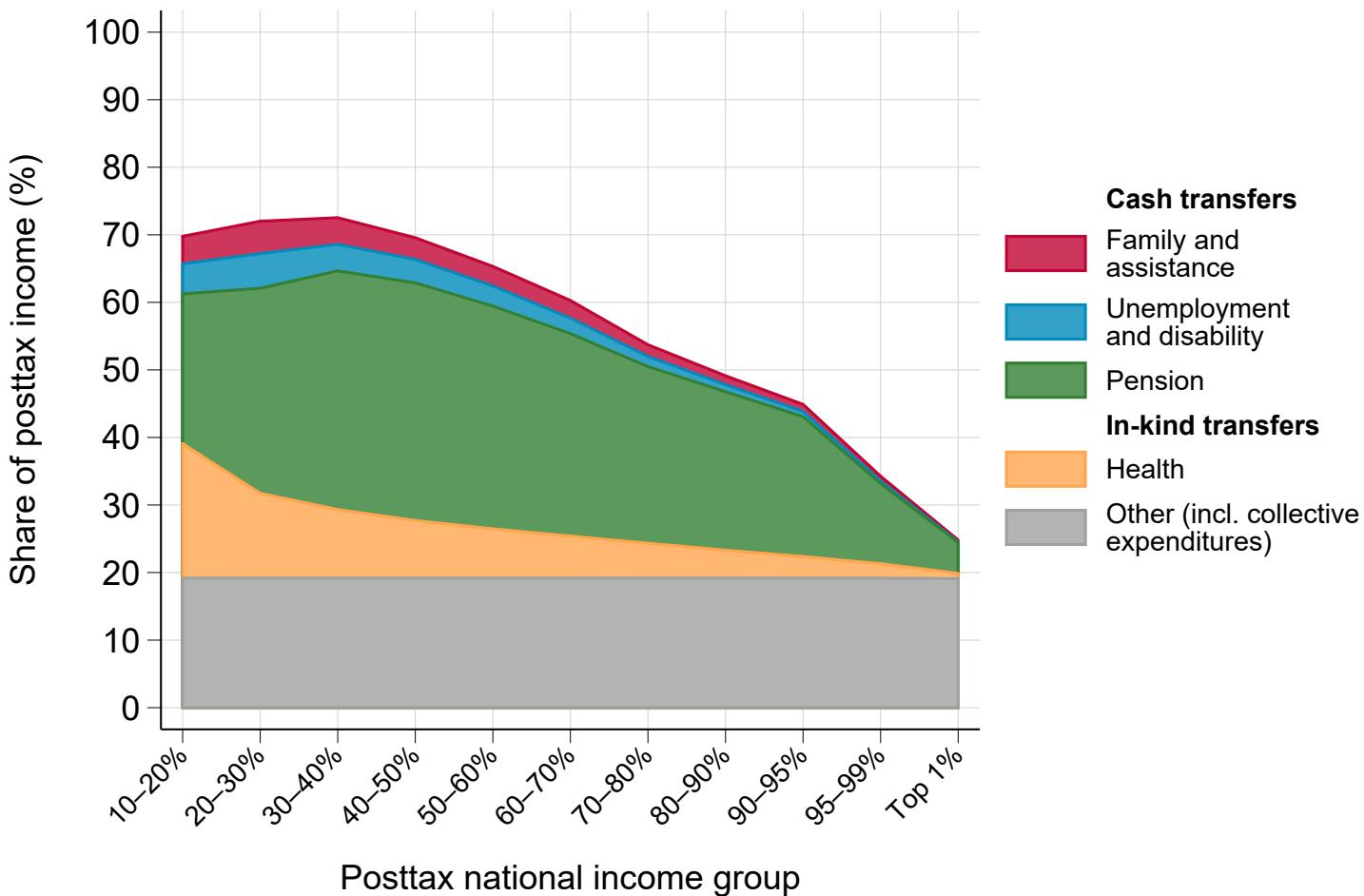
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.10.8**  
**Greece: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



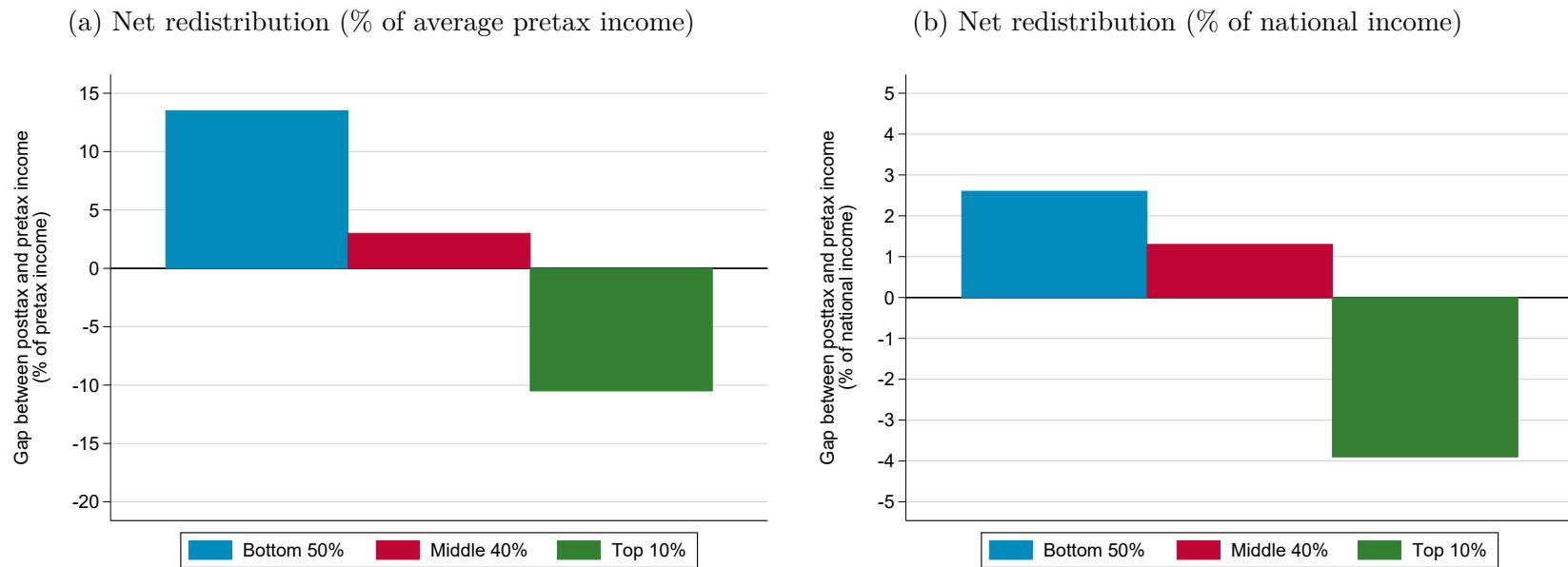
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.10.9**  
**Greece: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.10.10**  
**Greece: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.10.1**  
**Greece: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980			x						x
1981	x		x						x
1982			x						x
1983			x						x
1984			x						x
1985			x						x
1986			x						x
1987			x						x
1988	x		x						x
1989			x						x
1990			x						x
1991			x						x
1992			x						
1993			x						
1994	x	x	x						
1995	x	x	x	x	x	x	x	x	x
1996	x	x	x	x	x	x	x	x	x
1997	x	x	x	x	x	x	x	x	x
1998	x	x	x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001	x	x	x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x	x	x	x	x	x	x	x
2017	x	x	x	x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

Table A.3.10.2

## Greece: methodology used to distribute factor income, pretax income, and posttax income

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			76.1%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	72.5%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	3.6%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	11.6%
(+)	Government primary income	National accounts	Proportional to pretax income	12.3%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	21.4%
(+)	Pension benefits	Survey + tax data	Observed	19.9%
(+)	Unemployment benefits	Survey + tax data	Observed	1.5%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			25.5%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-3.4%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	7.3%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	17.2%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	4.5%
(+)	Transfers			28.2%
	<i>Cash transfers</i>	Survey + tax data	Observed	2.7%
	<i>Public health expenditures</i>	National accounts	Lump sum	6.4%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	19.2%
(+)	Budget balance	National accounts	Proportional to posttax income	-2.7%

Notes: The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.10.3**  
**Greece: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (pretax, 2006–2017; posttax, 2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2006–2017); Employer contributions (EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that all social contributions, and also, on average, 41.4% of income taxes, are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 1.2 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010; Statistical Yearbook, 1981–1988); posttax income (ECHP, 1994–2001; LIS, 1995–2013; SILC, 2003–2017; PovcalNet, 1995–2000); pretax income (SILC, 2006–2017)	See section 1.3.	Pretax and posttax incomes partially estimated from consumption. On average, the top 10% share is 3.1 pp. higher for posttax income than consumption and 5.3 pp. for pretax income than consumption.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	2004–2011 (Chrissis and Koutentakis, 2017)	See section 1.4.2.	Using the same income concept as the tax data, we find that the top 1% share is 0.4 pp. higher in the tax data than the survey data.
	Application of the correction to all survey distributions.		See section 1.4.3.	The use of tax data does not lead to notable increase in the top 1% share of pretax income. It does not lead to notable increase in the top 1% share of posttax income.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCs, 2009, 2014, 2018 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)		We estimate that the top 10% of pretax income earners own, on average, 24.0% of stocks, capture 16.7% of imputed rents, and account for 22.2% of consumption.
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 2.8 pp. on average; Imputed rents decrease the top 10% share of income by 0.5 pp. on average; The corporate tax increase the top 10% share of pretax income by 1.1 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.1 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.2 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.10.4**  
**The distribution of national income in Greece, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€22,600	100%	€22,600	100%	€22,600	100%
Bottom 50%	€8,600	19.1%	€8,900	19.6%	€9,800	21.7%
Bottom 20%	€2,200	2.0%	€2,800	2.5%	€4,100	3.7%
Next 30%	€12,900	17.1%	€12,900	17.2%	€13,600	18.0%
Middle 40%	€25,100	44.4%	€26,000	46.1%	€25,800	45.7%
Top 10%	€82,400	36.5%	€77,300	34.2%	€73,700	32.6%
Top 1%	€309,000	13.7%	€256,000	11.3%	€241,000	10.7%
Top 0.1%	€1,270,000	5.6%	€932,000	4.1%	€871,000	3.9%
Top 0.01%	€5,390,000	2.4%	€3,480,000	1.5%	€3,250,000	1.4%
Top 0.001%	€22,910,000	1.0%	€13,120,000	0.6%	€12,240,000	0.5%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

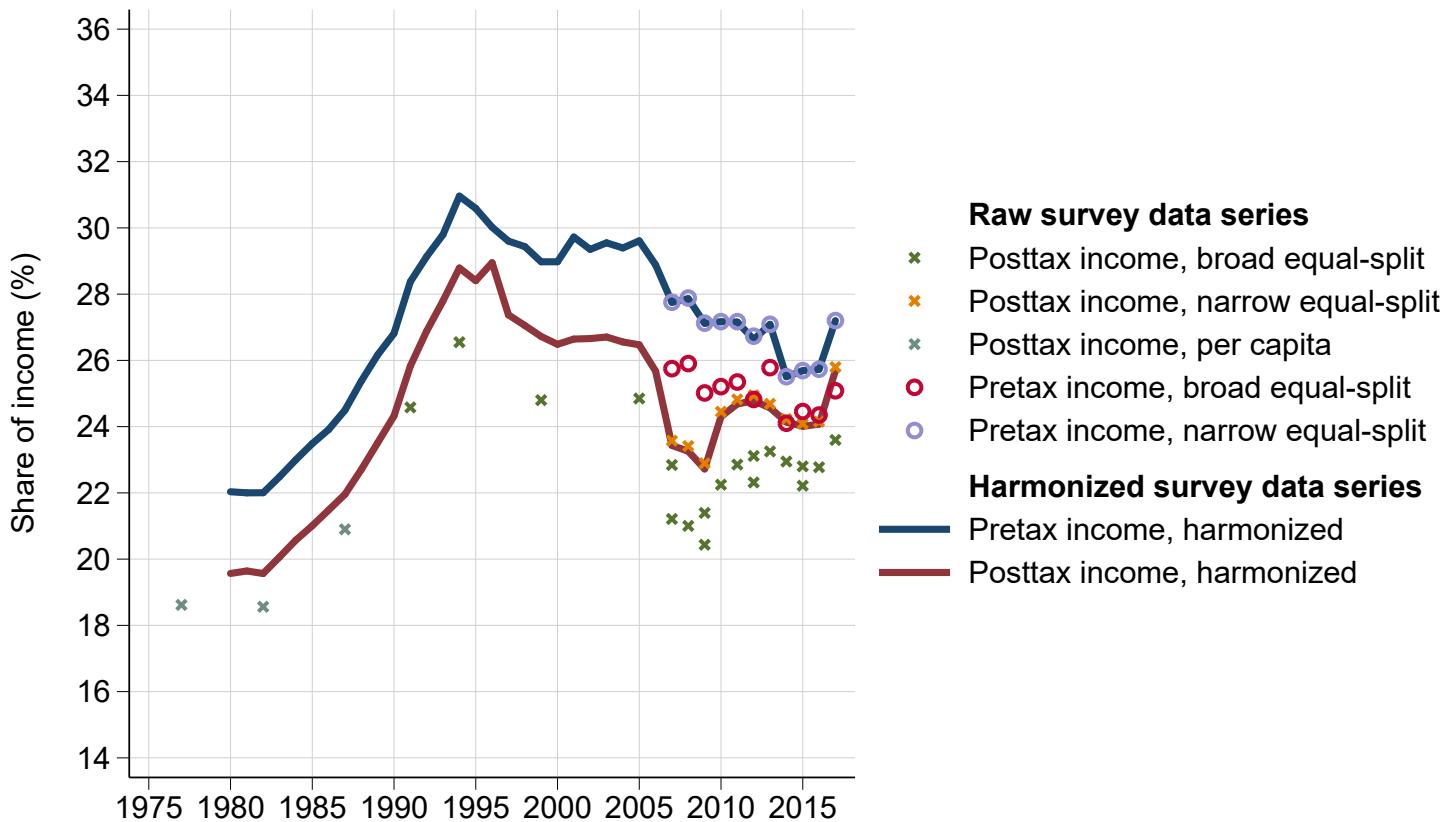
**Table A.3.10.5**  
**The distribution of national income growth in Greece, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	-0.1%	-3.4%	-0.1%	-3.4%	-0.1%	-3.4%
Bottom 50%	0.0%	-3.4%	0.1%	-3.6%	0.3%	-3.6%
Bottom 20%	-1.1%	-8.0%	0.0%	-5.3%	0.6%	-4.9%
Next 30%	0.2%	-2.6%	0.1%	-3.3%	0.2%	-3.4%
Middle 40%	-0.2%	-3.6%	-0.2%	-3.7%	-0.2%	-3.7%
Top 10%	-0.1%	-3.2%	-0.2%	-2.9%	-0.3%	-2.9%
Top 1%	0.6%	-1.4%	0.5%	-1.0%	0.4%	-1.0%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

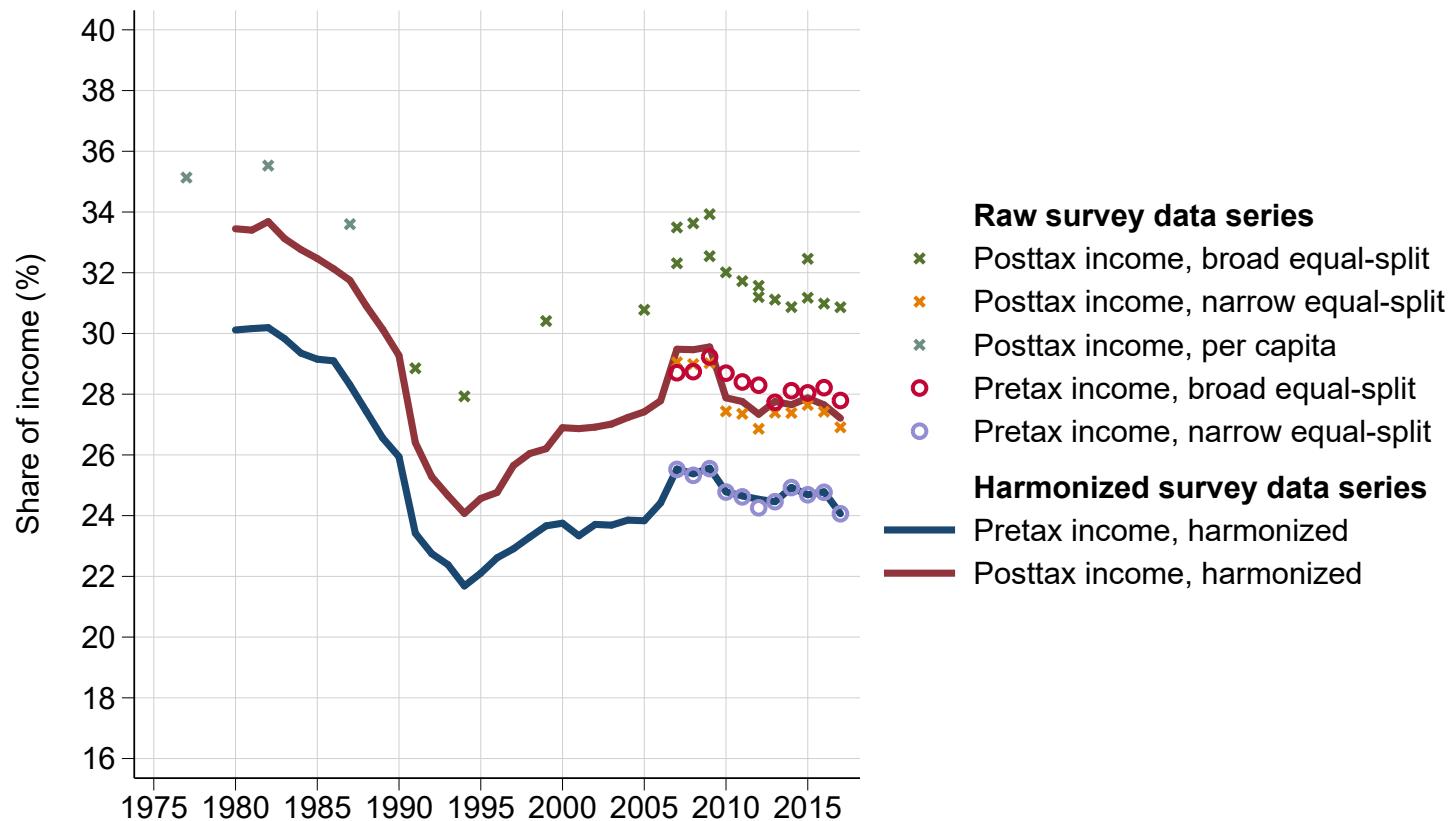
### 3.11 Hungary

**Figure A.3.11.1**  
Hungary: harmonization of survey data  
Top 10% pretax income share



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.11.2**  
**Hungary: harmonization of survey data**  
**Bottom 50% pretax income share**



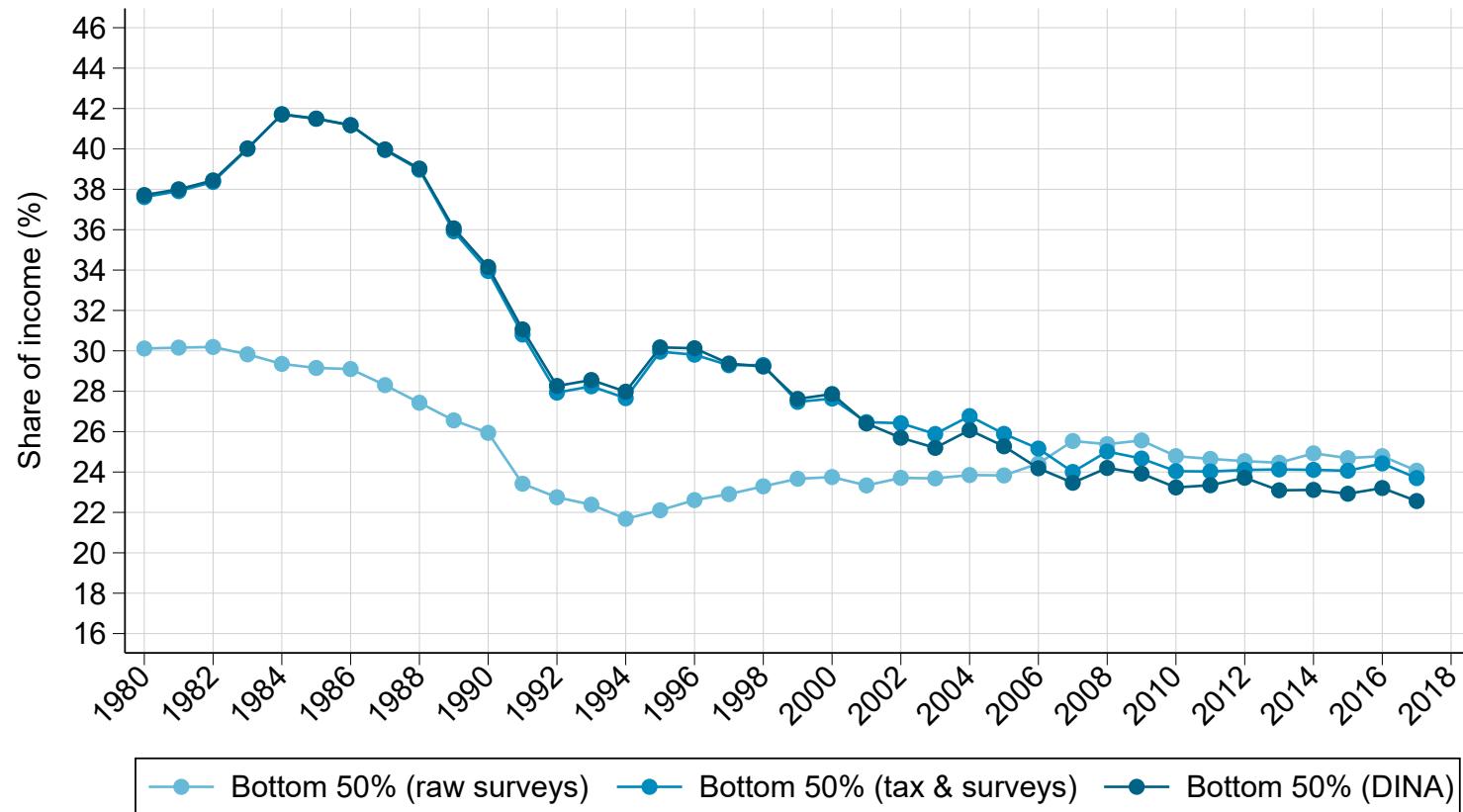
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.11.3**  
**Hungary: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



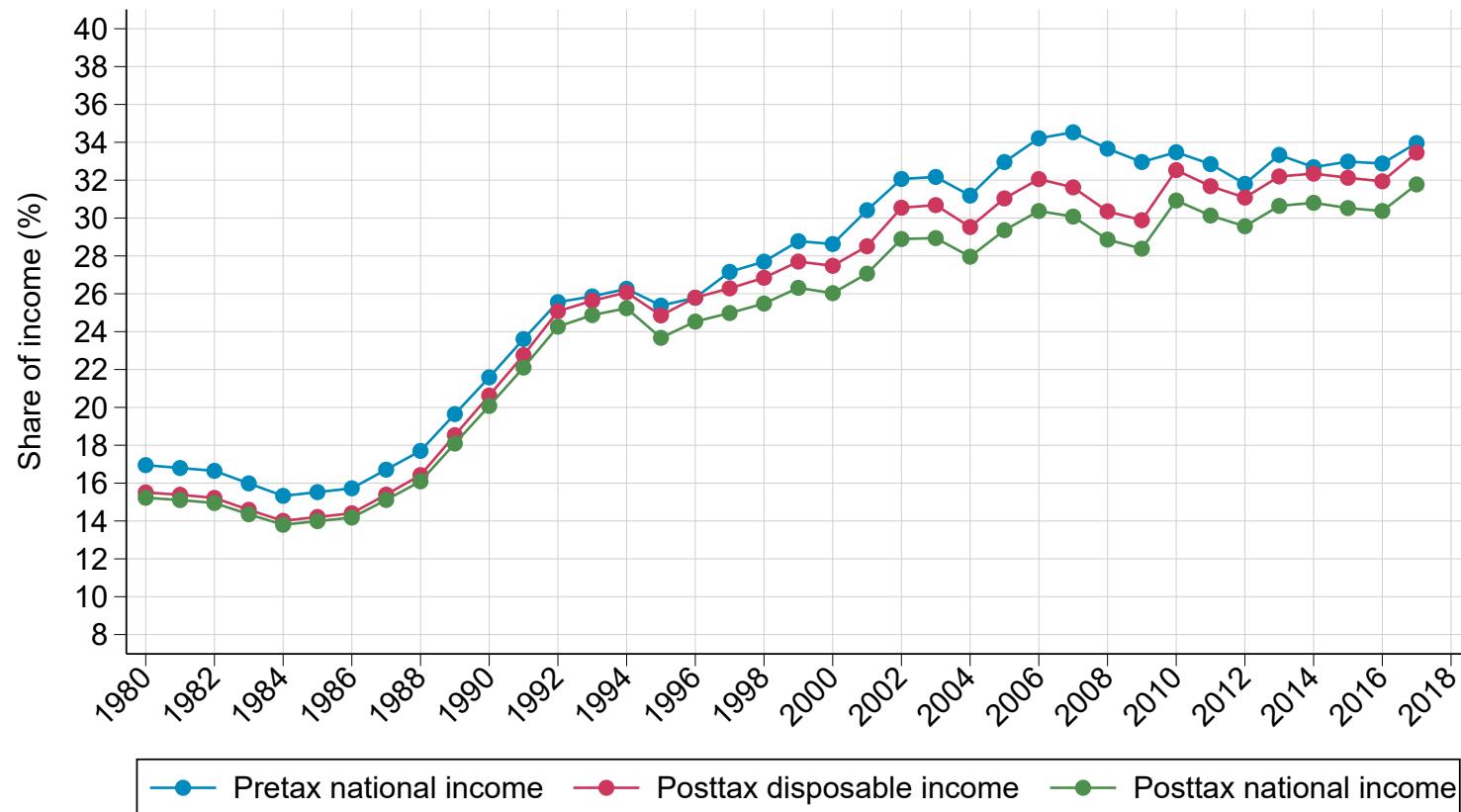
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.11.4**  
**Hungary: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



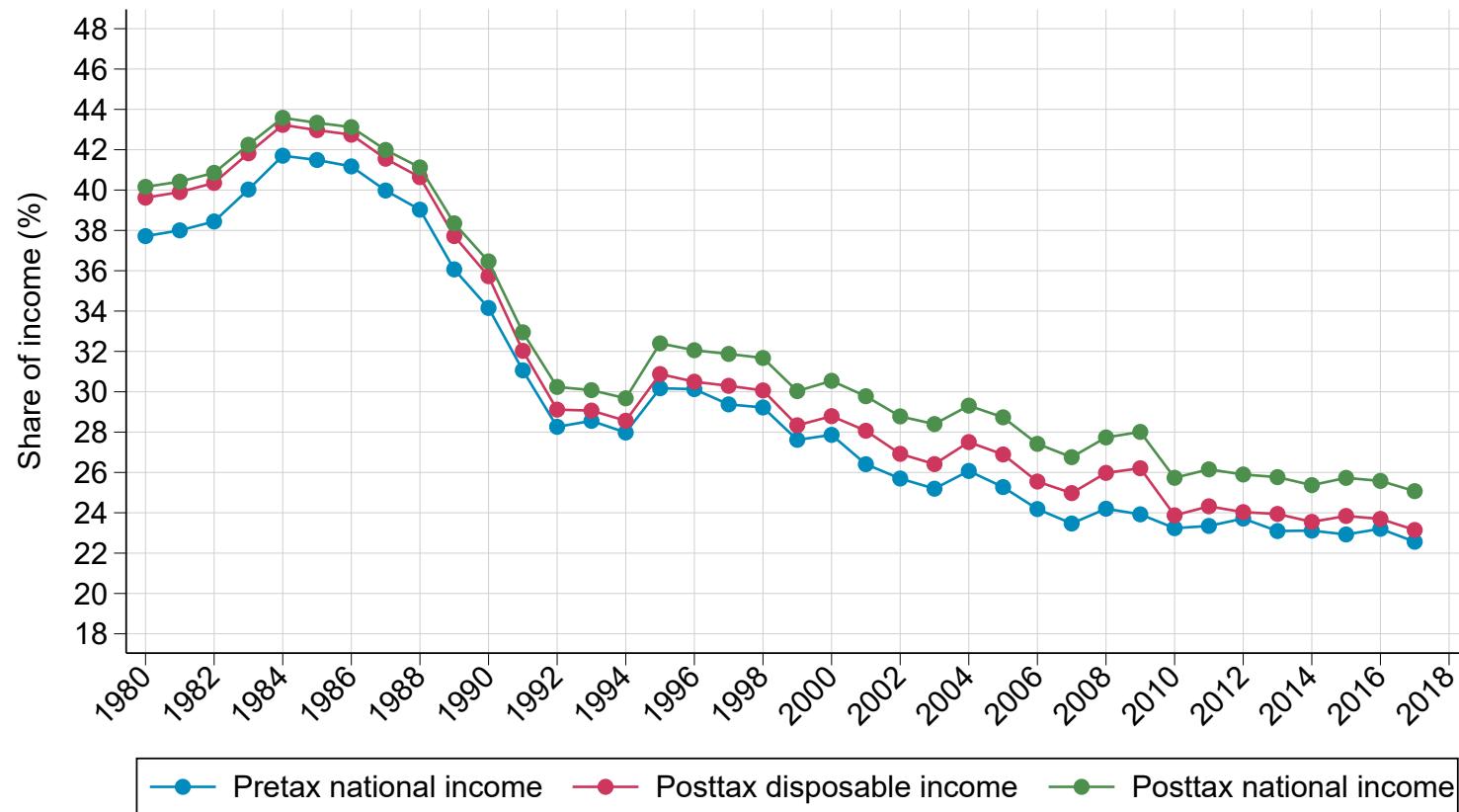
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.11.5**  
**Hungary: from pretax national income to posttax national income**  
**Top 10% income share**



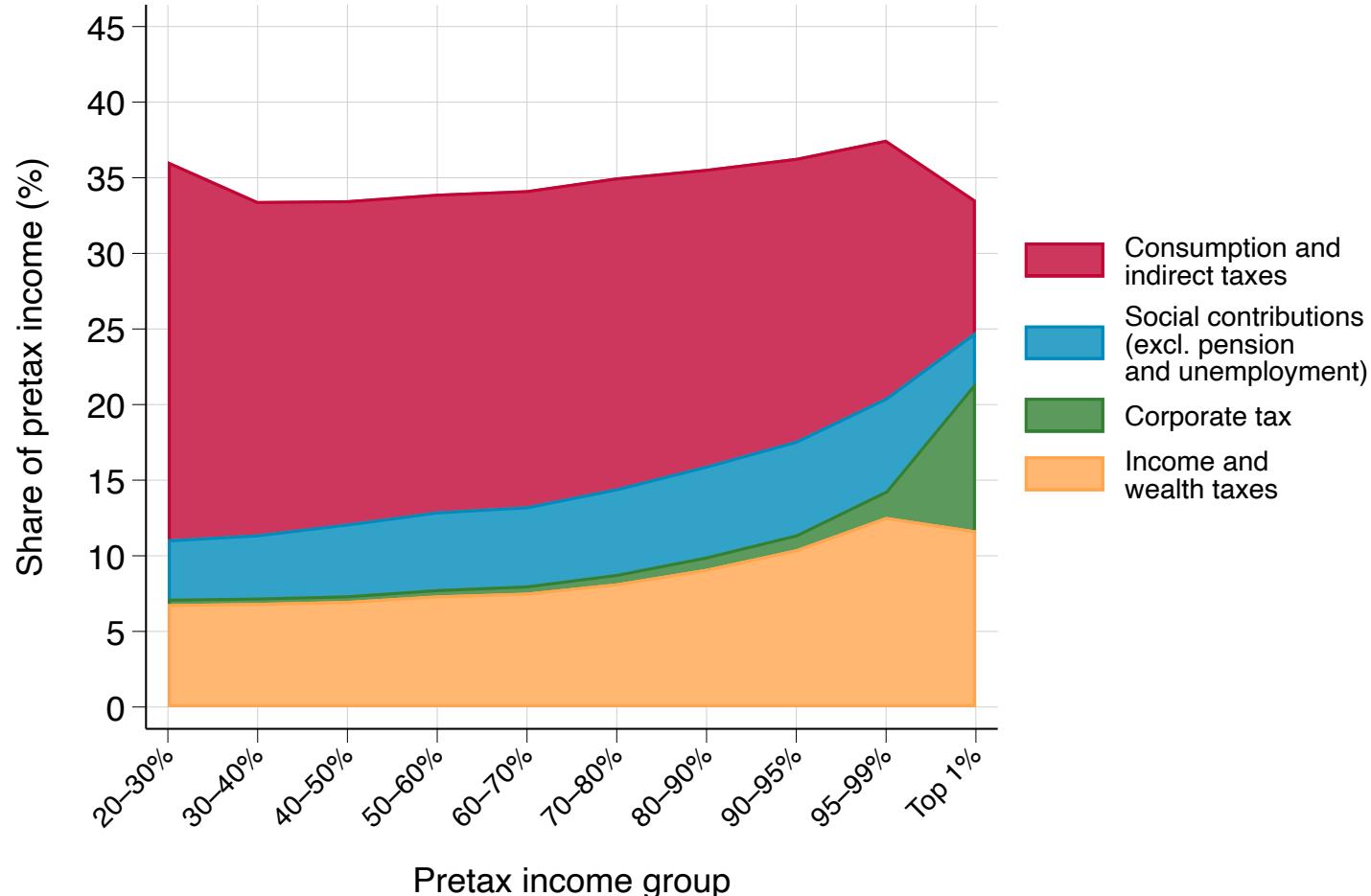
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.11.6**  
**Hungary: from pretax national income to posttax national income**  
**Bottom 50% income share**



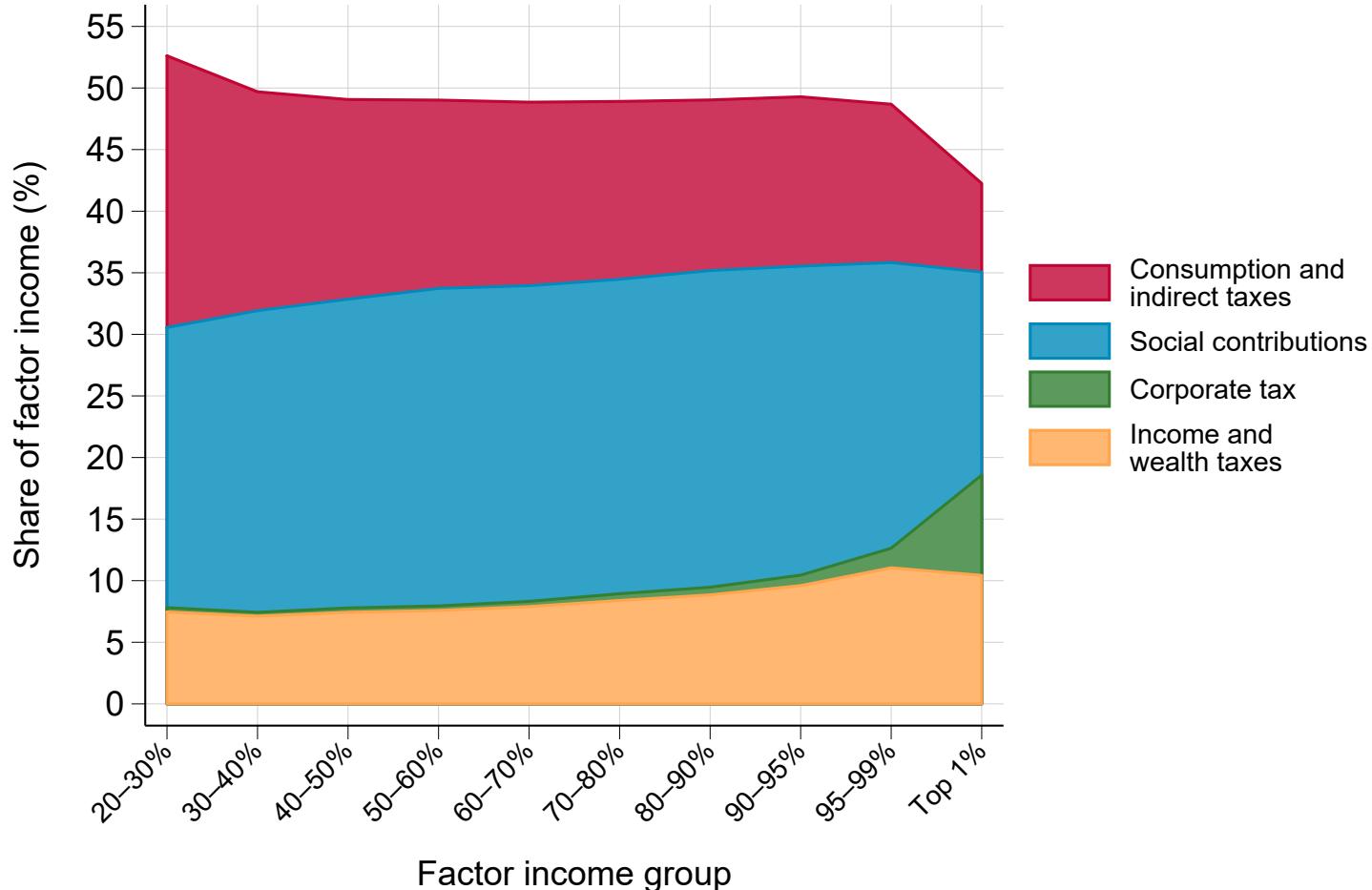
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.11.7**  
**Hungary: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



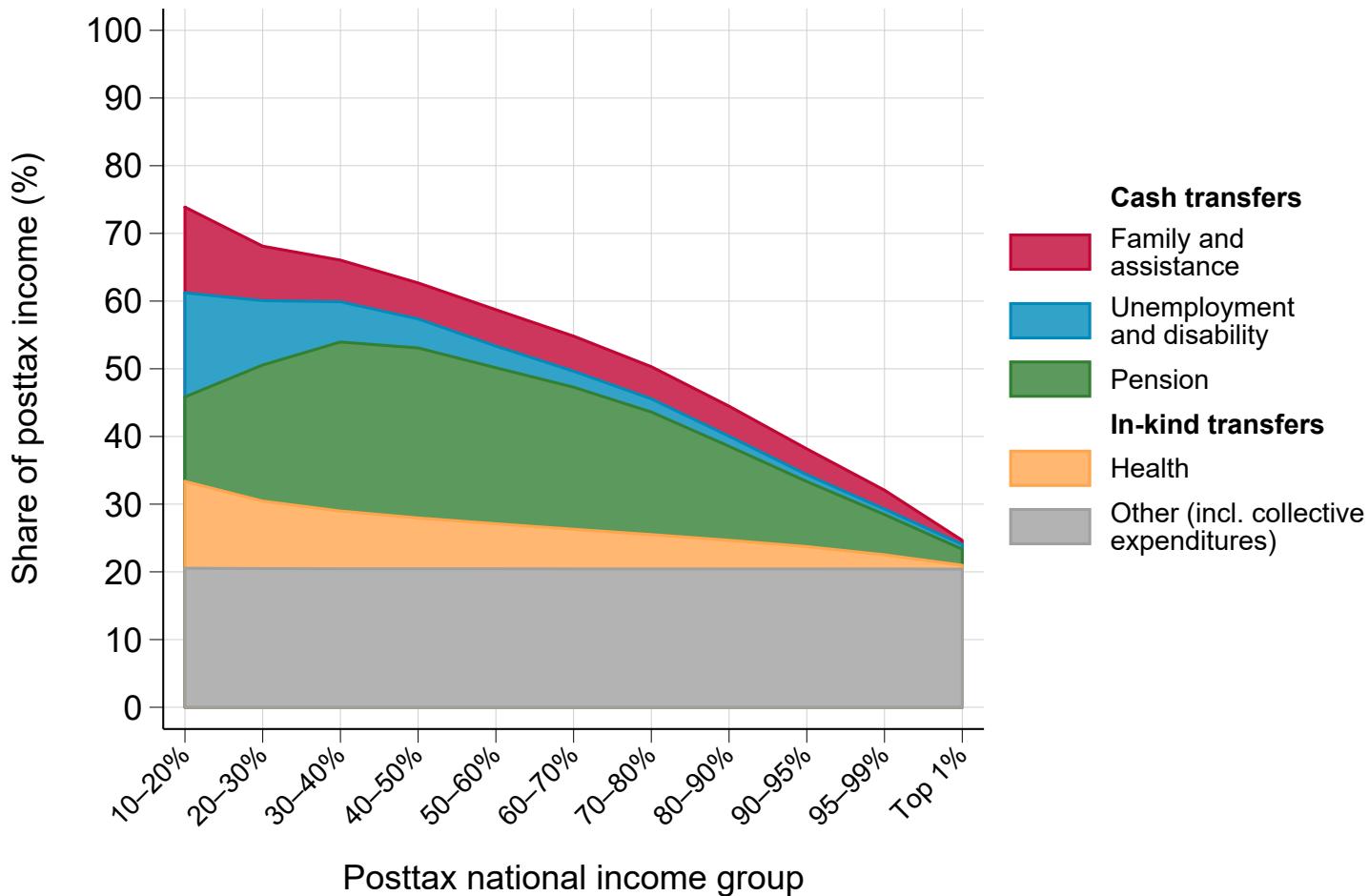
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.11.8**  
**Hungary: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

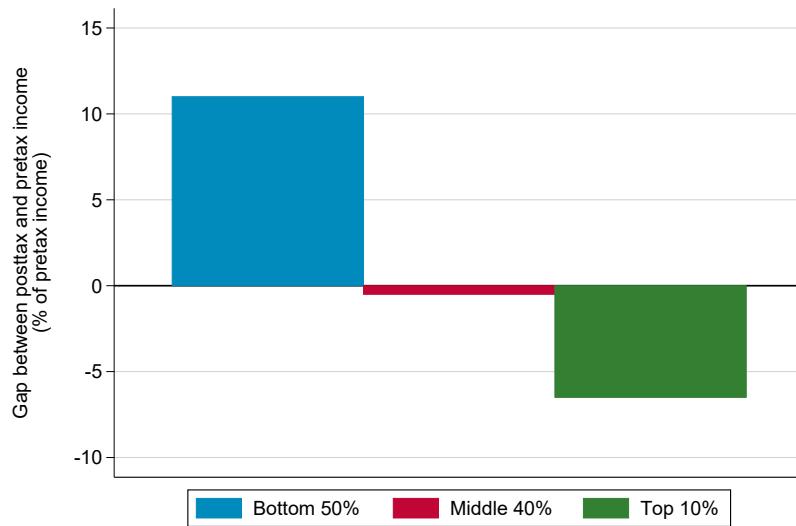
**Figure A.3.11.9**  
**Hungary: distribution of transfers**



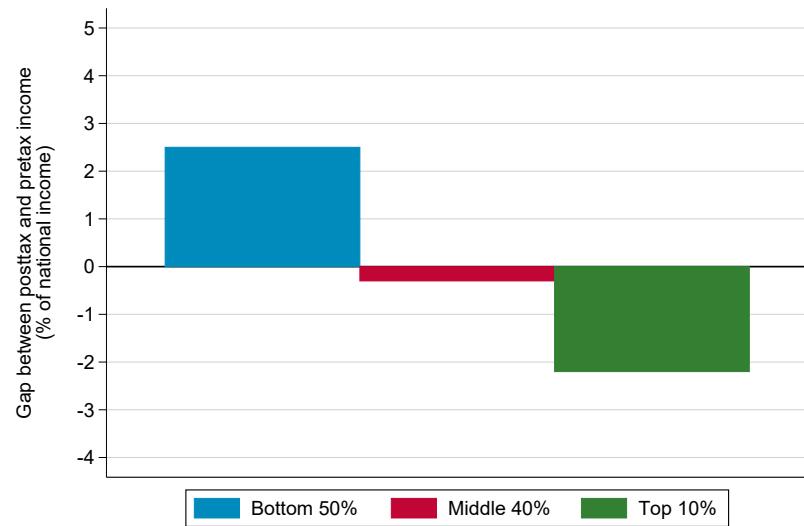
*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.11.10**  
**Hungary: net redistribution operated by the tax-and-transfer system**

(a) Net redistribution (% of average pretax income)



(b) Net redistribution (% of national income)



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.11.1**  
**Hungary: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1977	x								
1980			x						
1981									
1982	x		x						
1983									
1984			x						
1985									
1986			x						
1987	x								
1988			x						
1989									
1990									
1991	x	x			x				x
1992			x		x				x
1993			x		x				x
1994	x	x	x		x				x
1995			x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000			x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004			x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006			x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x		x	x	x	x	x	x
2010	x	x		x	x	x	x	x	x
2011	x	x		x	x	x	x	x	x
2012	x	x		x	x	x	x	x	x
2013	x	x		x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.11.2**  
**Hungary: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			74.9%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	72.8%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	2.1%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	8.2%
(+)	Government primary income	National accounts	Proportional to pretax income	16.9%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	15.2%
(+)	Pension benefits	Survey + tax data	Observed	14.5%
(+)	Unemployment benefits	Survey + tax data	Observed	.7%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			31.7%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	2.1%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	6.8%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	20.7%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2%
(+)	Transfers			30.5%
	<i>Cash transfers</i>	Survey + tax data	Observed	4.5%
	<i>Public health expenditures</i>	National accounts	Lump sum	5.8%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	20.1%
(+)	Budget balance	National accounts	Proportional to posttax income	1.2%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.11.3**  
**Hungary: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.  Imputation of social contributions.	EU-SILC (2004–2017)  Employee contributions (OECD, 2004–2017); Employer contributions (OECD, 2004–2005, EU-SILC, 2006–2017)	See section 1.2.1.  See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 87.0% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.3 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (LIS, 1991–2015; SILC, 2007–2017; Atkinson and Micklewright 1992, 1977–1987); pretax income (SILC, 2007–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.5 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1980–2008 (Mavridis and Mosberger, 2017)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 1.8 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 1.6 pp. higher than in the raw survey. The top 1% share of posttax income is 1.3 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 30.6% of stocks, capture 14.9% of imputed rents, and account for 18.7% of consumption.  Undistributed corporate profits increase the top 10% share of income by 0.9 pp. on average; Imputed rents decrease the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.4 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.11.4**  
**The distribution of national income in Hungary, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€19,800	100%	€19,800	100%	€19,800	100%
Bottom 50%	€9,000	22.6%	€9,200	23.1%	€9,900	25.1%
Bottom 20%	€3,300	3.3%	€4,000	4.0%	€5,100	5.1%
Next 30%	€12,700	19.3%	€12,700	19.2%	€13,200	19.9%
Middle 40%	€21,600	43.5%	€21,500	43.4%	€21,400	43.2%
Top 10%	€67,400	34.0%	€66,400	33.5%	€63,000	31.8%
Top 1%	€253,000	12.7%	€237,000	11.9%	€221,000	11.1%
Top 0.1%	€991,000	5.0%	€893,000	4.5%	€830,000	4.2%
Top 0.01%	€3,930,000	2.0%	€3,420,000	1.7%	€3,180,000	1.6%
Top 0.001%	€15,620,000	0.8%	€13,170,000	0.7%	€12,230,000	0.6%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

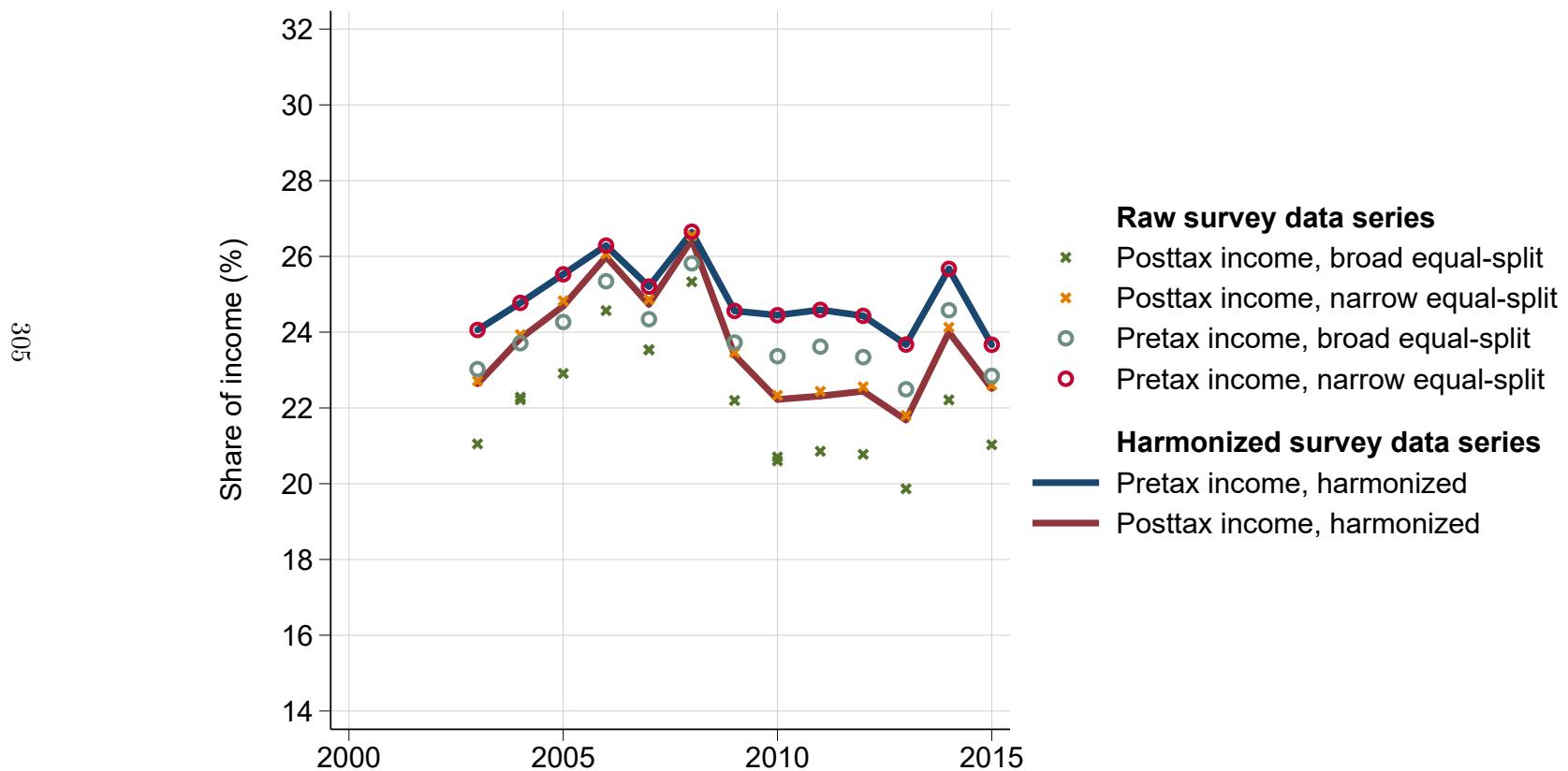
**Table A.3.11.5**  
**The distribution of national income growth in Hungary, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	0.9%	1.5%	0.9%	1.5%	0.9%	1.5%
Bottom 50%	-0.5%	1.1%	-0.6%	0.7%	-0.4%	0.9%
Bottom 20%	-2.6%	-2.4%	-2.3%	-1.2%	-1.7%	-0.5%
Next 30%	0.1%	1.9%	0.0%	1.2%	0.1%	1.2%
Middle 40%	0.8%	1.9%	0.8%	1.5%	0.8%	1.5%
Top 10%	2.8%	1.3%	3.0%	2.1%	2.9%	2.1%
Top 1%	5.2%	2.2%	5.4%	2.8%	5.3%	2.8%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

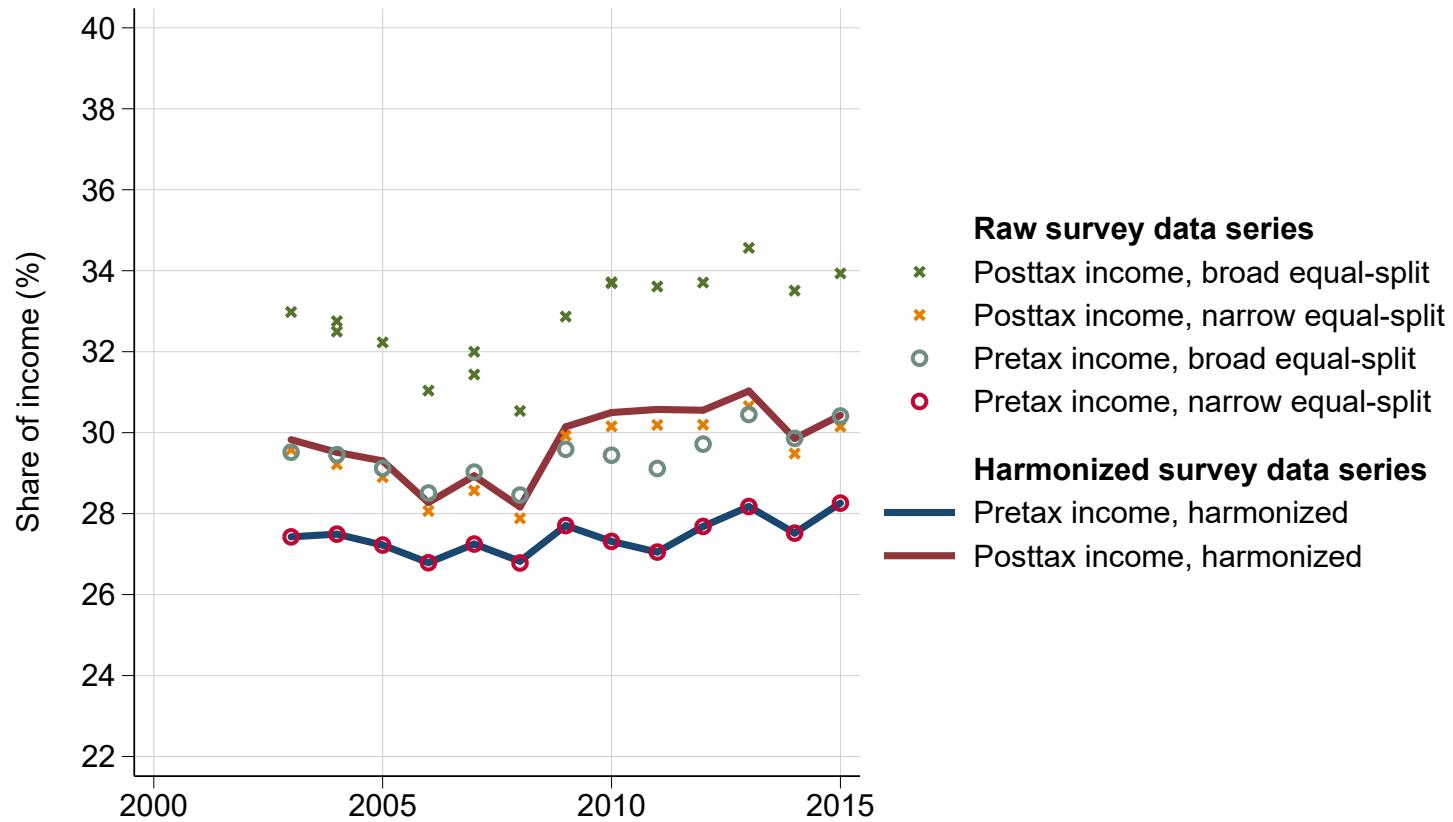
### 3.12 Iceland

**Figure A.3.12.1**  
**Iceland: harmonization of survey data**  
**Top 10% pretax income share**



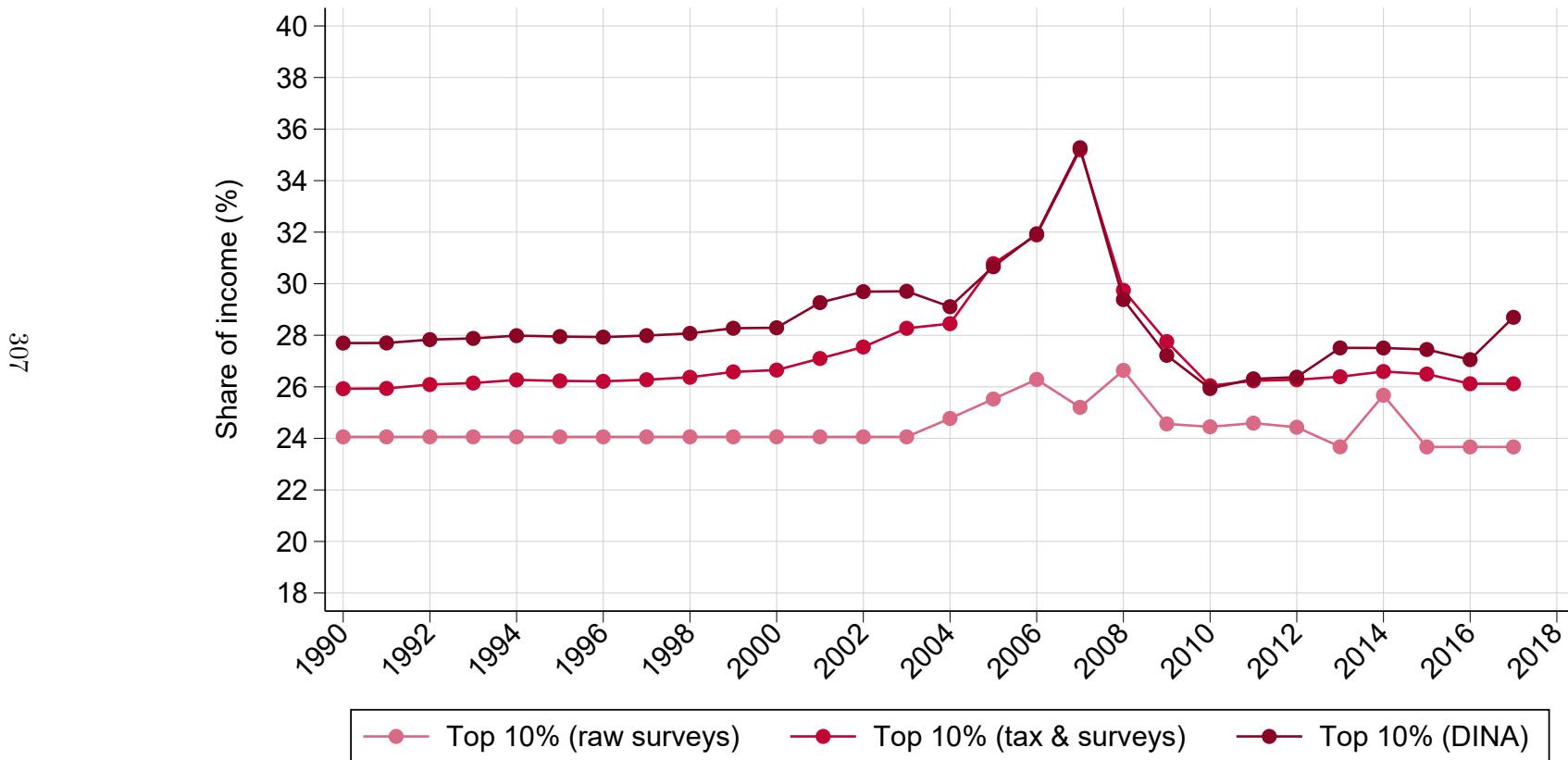
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.12.2**  
**Iceland: harmonization of survey data**  
**Bottom 50% pretax income share**



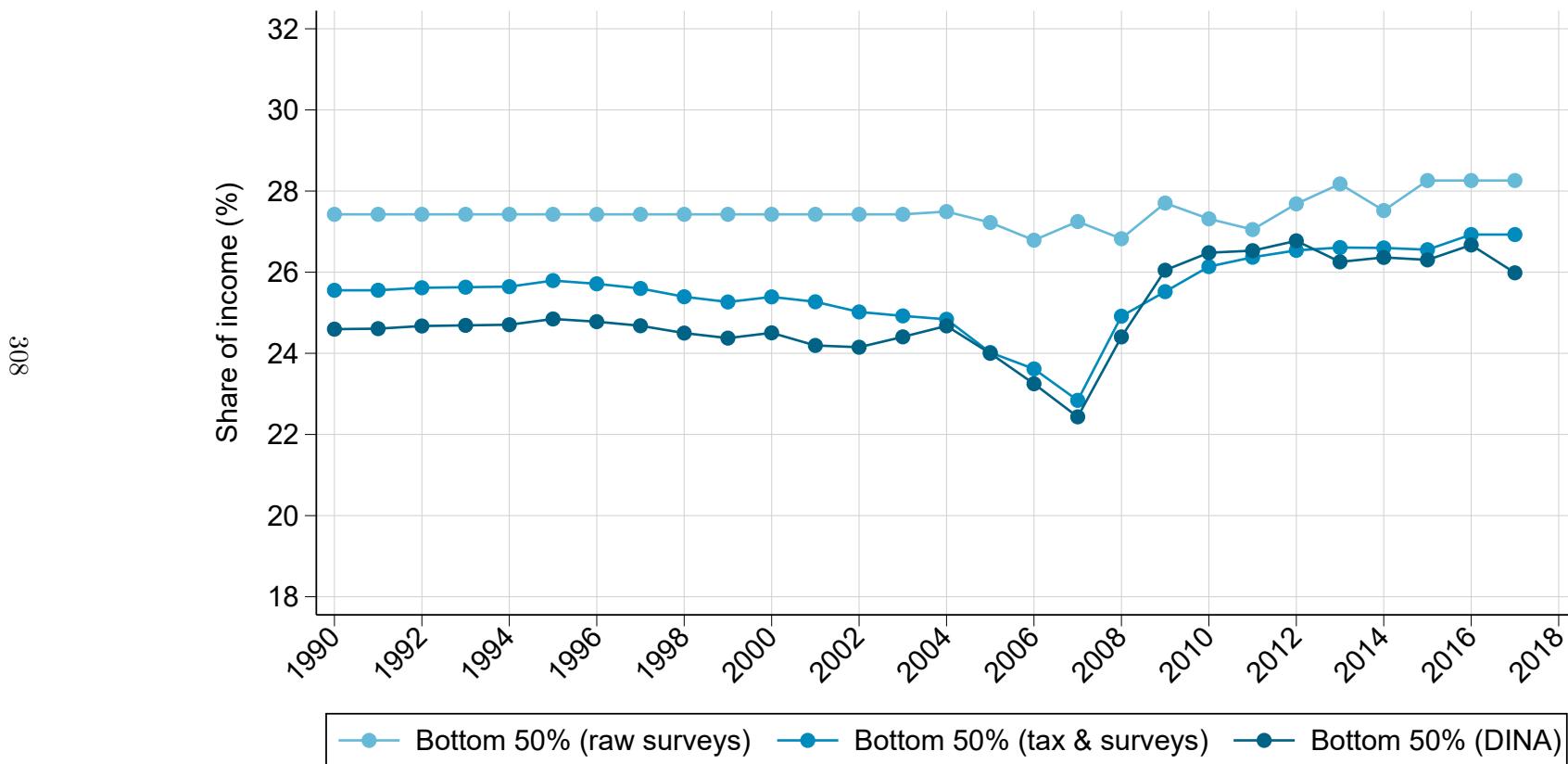
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.12.3**  
Iceland: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



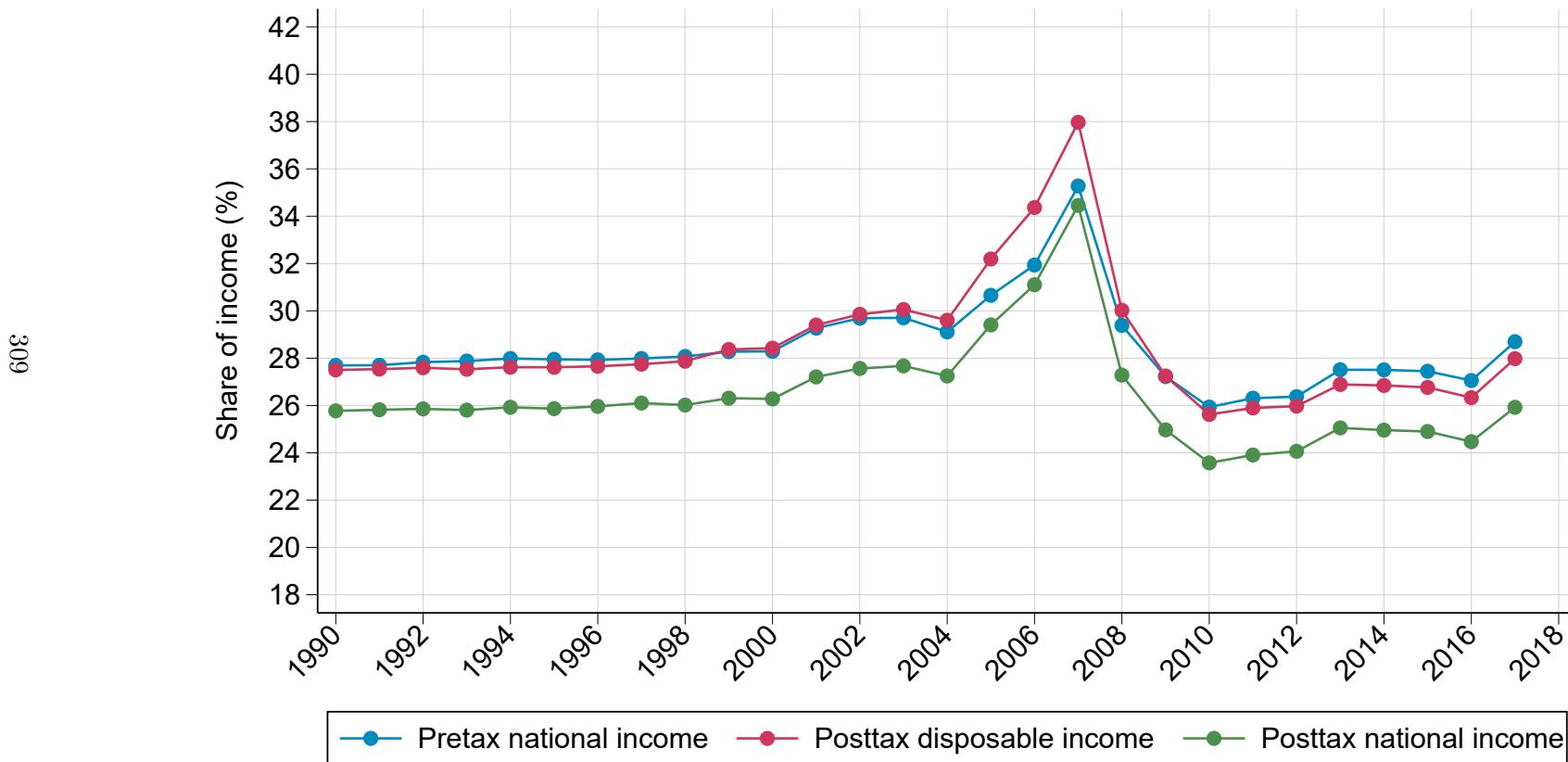
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.12.4**  
Iceland: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



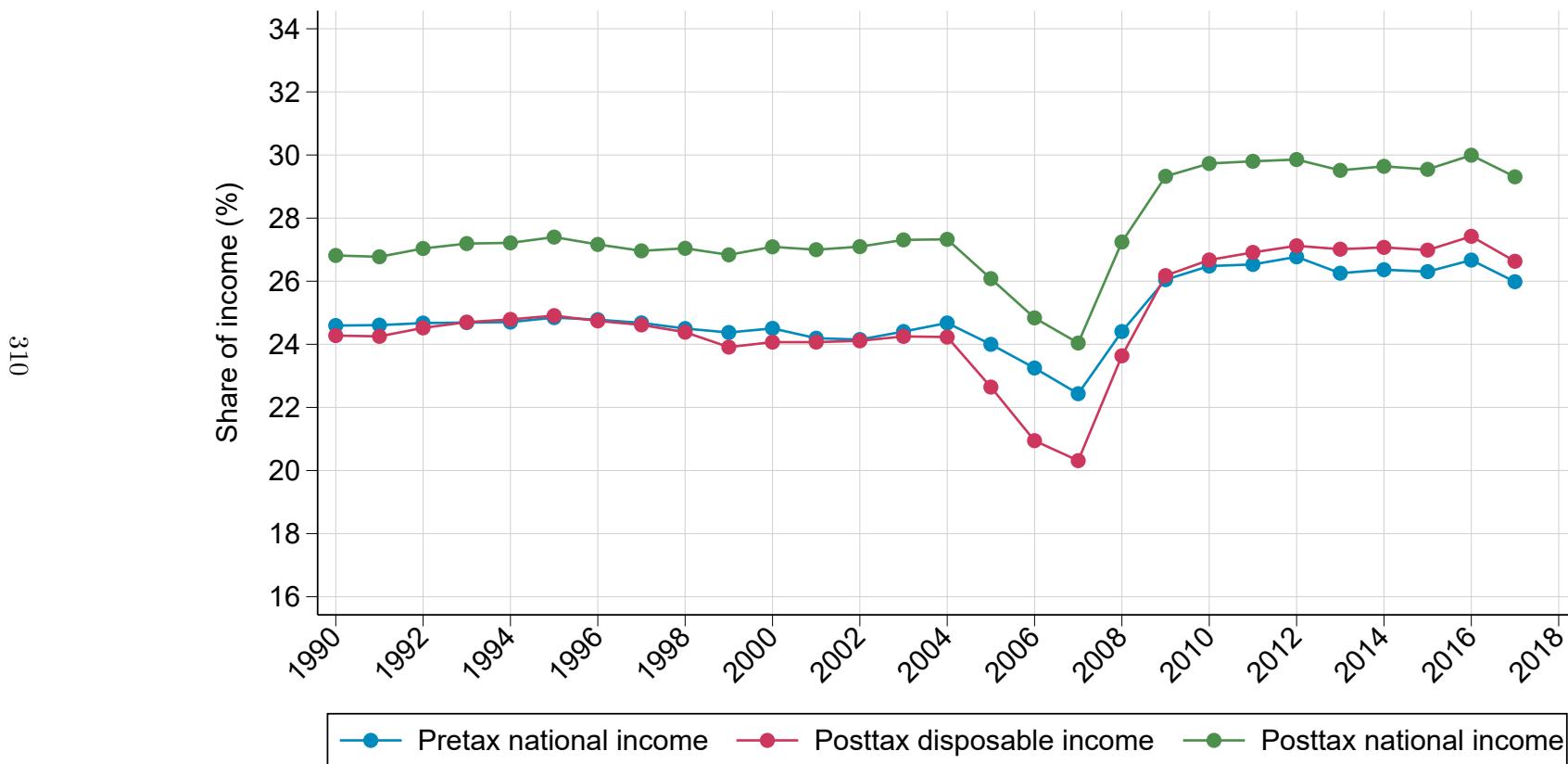
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.12.5**  
Iceland: from pretax national income to posttax national income  
**Top 10% income share**



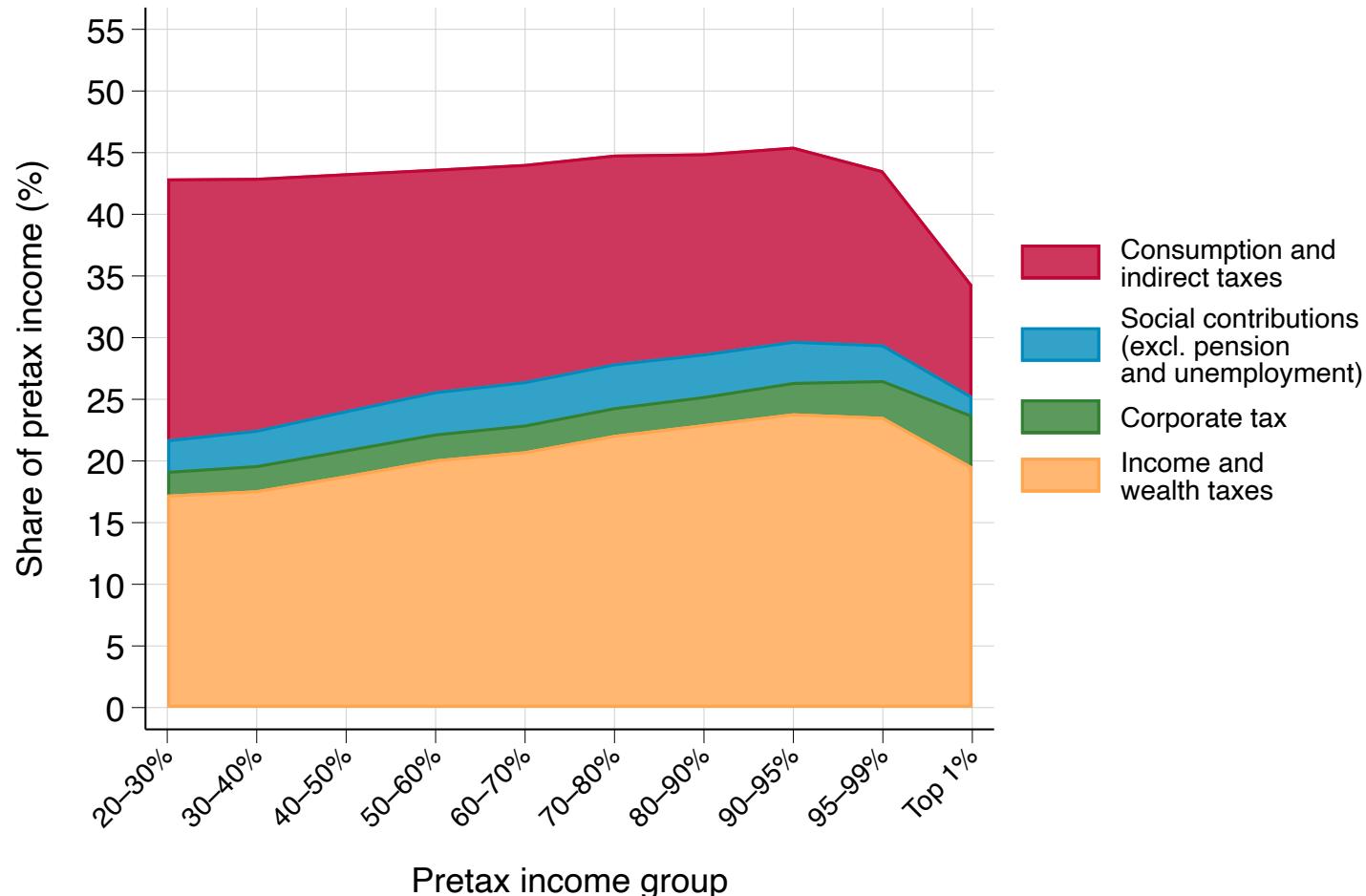
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.12.6**  
Iceland: from pretax national income to posttax national income  
**Bottom 50% income share**



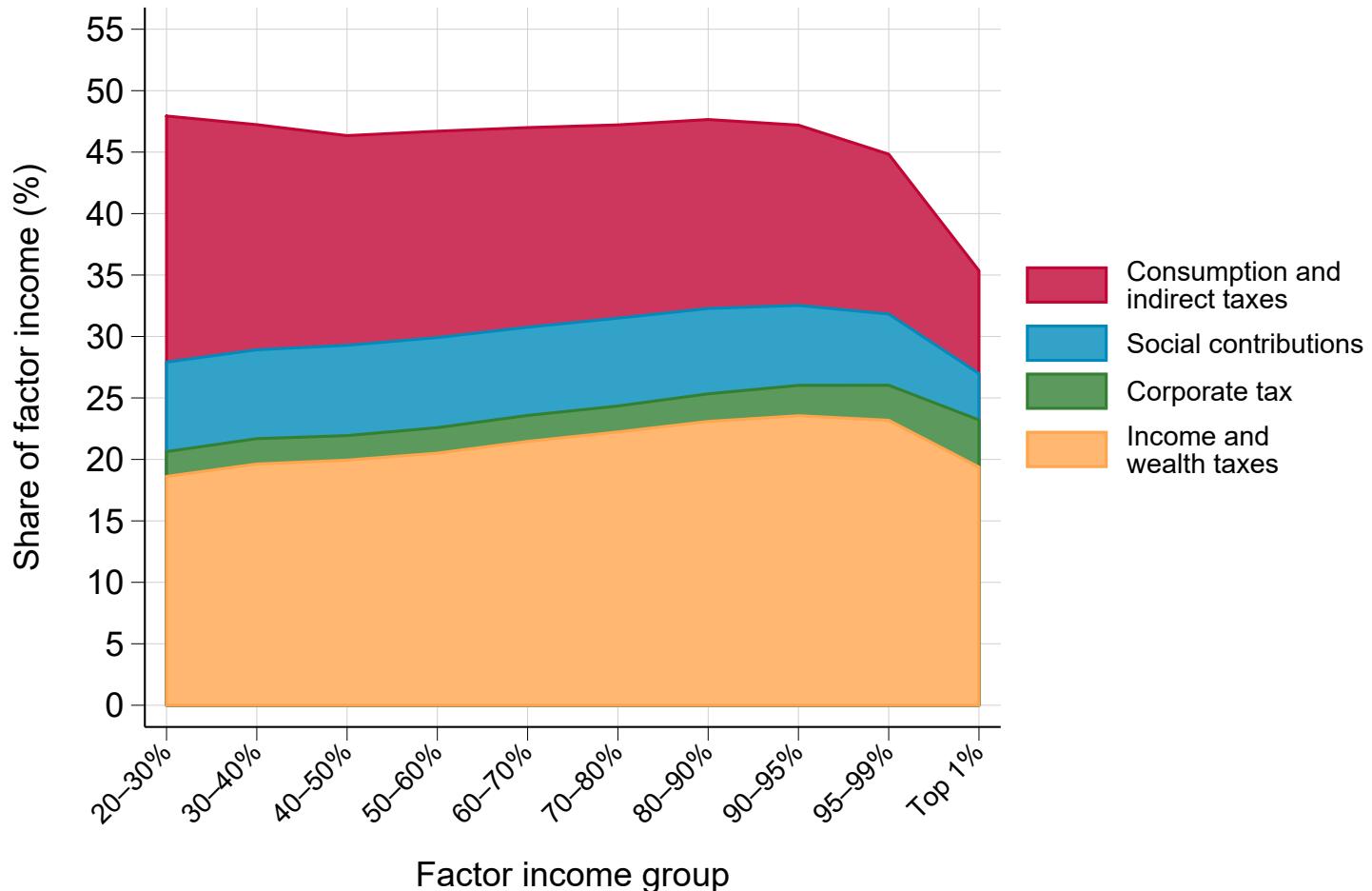
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.12.7**  
**Iceland: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



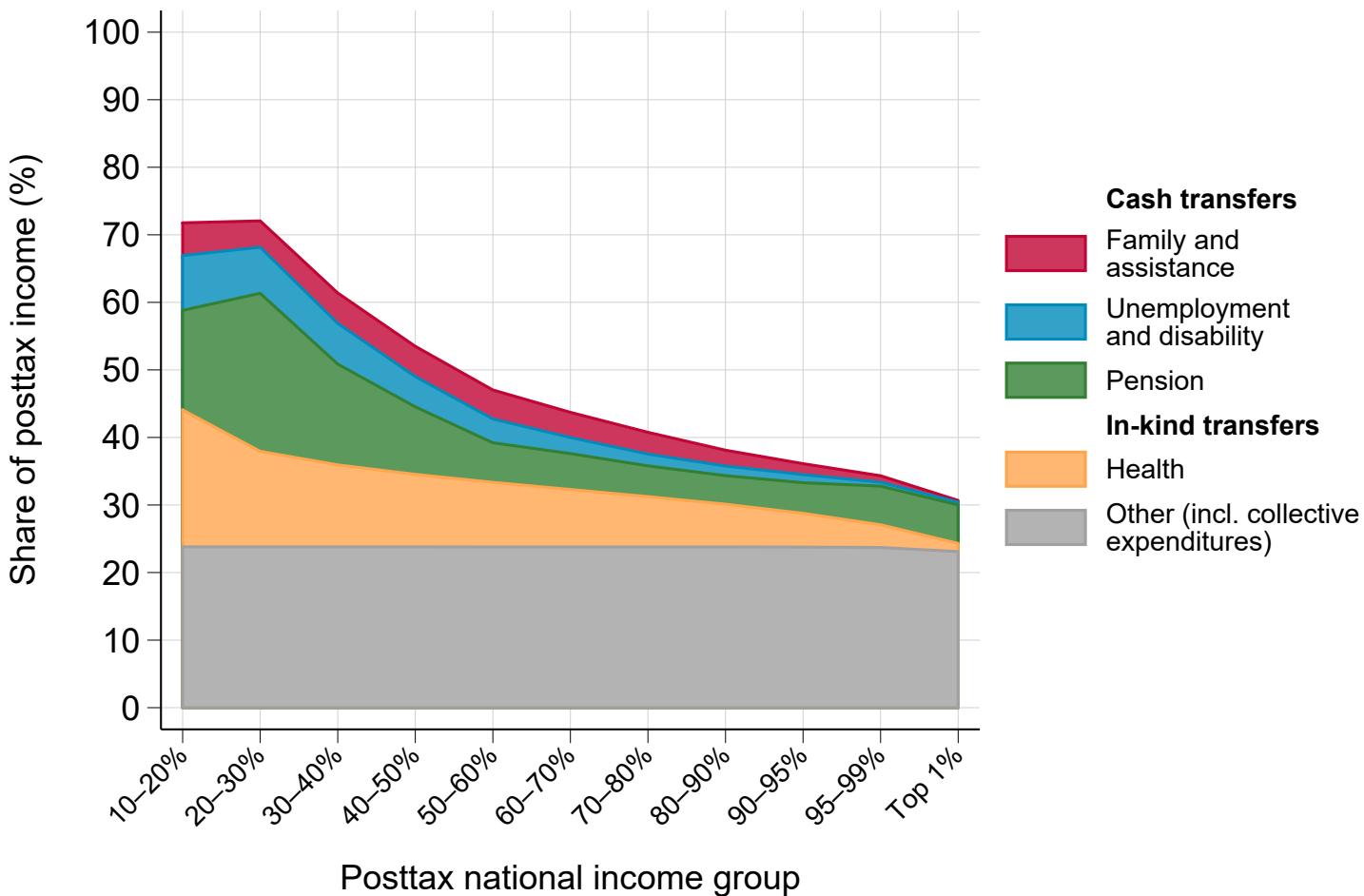
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.12.8**  
**Iceland: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



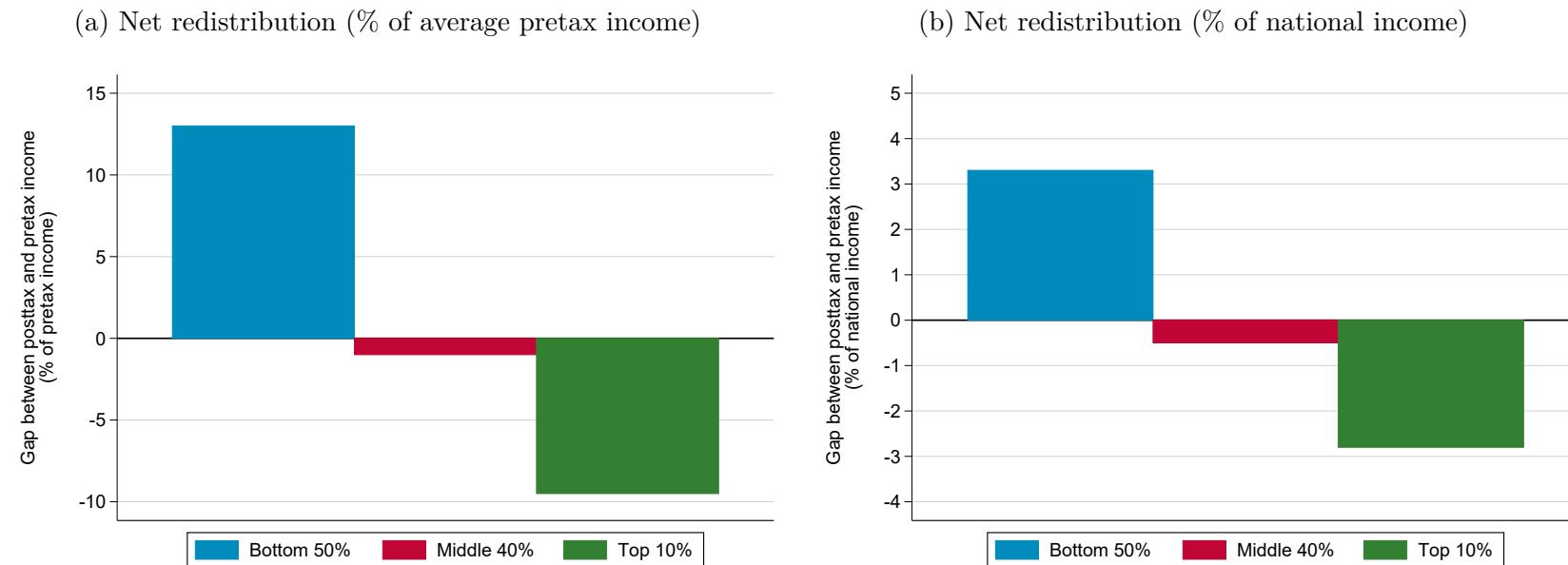
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.12.9**  
**Iceland: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.12.10**  
**Iceland: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.12.1**  
**Iceland: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									x
1981									x
1982									x
1983									x
1984									x
1985									x
1986									x
1987									x
1988									x
1989									x
1990			x						x
1991			x						x
1992			x						x
1993			x						x
1994			x						x
1995			x						x
1996			x						x
1997			x						x
1998			x						x
1999			x						x
2000			x	x		x	x	x	x
2001			x	x		x	x	x	x
2002			x	x		x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x		x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x			x		x		x
2016					x				x
2017					x				x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.12.2**  
**Iceland: methodology used to distribute factor income, pretax income, and posttax income**

Income concept	Source	Method	Share of income
<b>Factor national income</b>			100%
(+) Household primary income			76.5%
<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	74.1%
<i>Net imputed housing rents</i>	Survey + tax data	Observed	2.4%
(+) Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	11.4%
(+) Government primary income	National accounts	Proportional to pretax income	12.1%
<b>Pretax national income</b>			100%
(+) Factor national income			100%
(-) Contributory social contributions	Survey + tax data	Observed/simulated	12.5%
(+) Pension benefits	Survey + tax data	Observed	11.4%
(+) Unemployment benefits	Survey + tax data	Observed	1.1%
<b>Posttax national income</b>			100%
(+) Pretax national income			100%
(-) Taxes			40%
<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	4.7%
<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	15%
<i>Taxes on products</i>	National accounts	Proportional to consumption	16.3%
<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	3.8%
(+) Transfers			36.2%
<i>Cash transfers</i>	Survey + tax data	Observed	4.2%
<i>Public health expenditures</i>	National accounts	Lump sum	8.8%
<i>Other public expenditures</i>	National accounts	Proportional to posttax income	23.3%
(+) Budget balance	National accounts	Proportional to posttax income	3.8%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.12.3**  
**Iceland: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2015)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2015); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2015)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 64.1% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies increases the top 10% share of pretax income by 0.03 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (LIS, 2004–2010; SILC, 2003–2015); pretax income (SILC, 2003–2015)	See section 1.3.	No estimation of pretax and posttax income needed.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1990–2016 (Authors)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 4.1 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 1.4 pp. higher than in the raw survey. The top 1% share of posttax income is 1.3 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	EU-SILC, 2003–2015 (imputed rents)	Due to lack of data, we use the average European distribution for corporate stocks and imputed rents.  See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 16.4% of imputed rents, and account for 18.9% of consumption.  Undistributed corporate profits increase the top 10% share of income by 0.7 pp. on average; Imputed rents increase the top 10% share of income by 0.02 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.3 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.7 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.9 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.12.4**  
**The distribution of national income in Iceland, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€49,500	100%	€49,500	100%	€49,500	100%
Bottom 50%	€25,700	26.0%	€26,400	26.6%	€29,000	29.3%
Bottom 20%	€15,700	6.3%	€13,400	5.4%	€17,500	7.1%
Next 30%	€32,500	19.7%	€35,100	21.2%	€36,700	22.2%
Middle 40%	€56,100	45.3%	€56,200	45.4%	€55,500	44.8%
Top 10%	€142,000	28.7%	€139,000	28.0%	€128,000	25.9%
Top 1%	€401,000	8.1%	€400,000	8.1%	€359,000	7.3%
Top 0.1%	€1,210,000	2.4%	€1,250,000	2.5%	€1,110,000	2.2%
Top 0.01%	€3,750,000	0.8%	€4,030,000	0.8%	€3,580,000	0.7%
Top 0.001%	€11,720,000	0.2%	€13,110,000	0.3%	€11,610,000	0.2%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

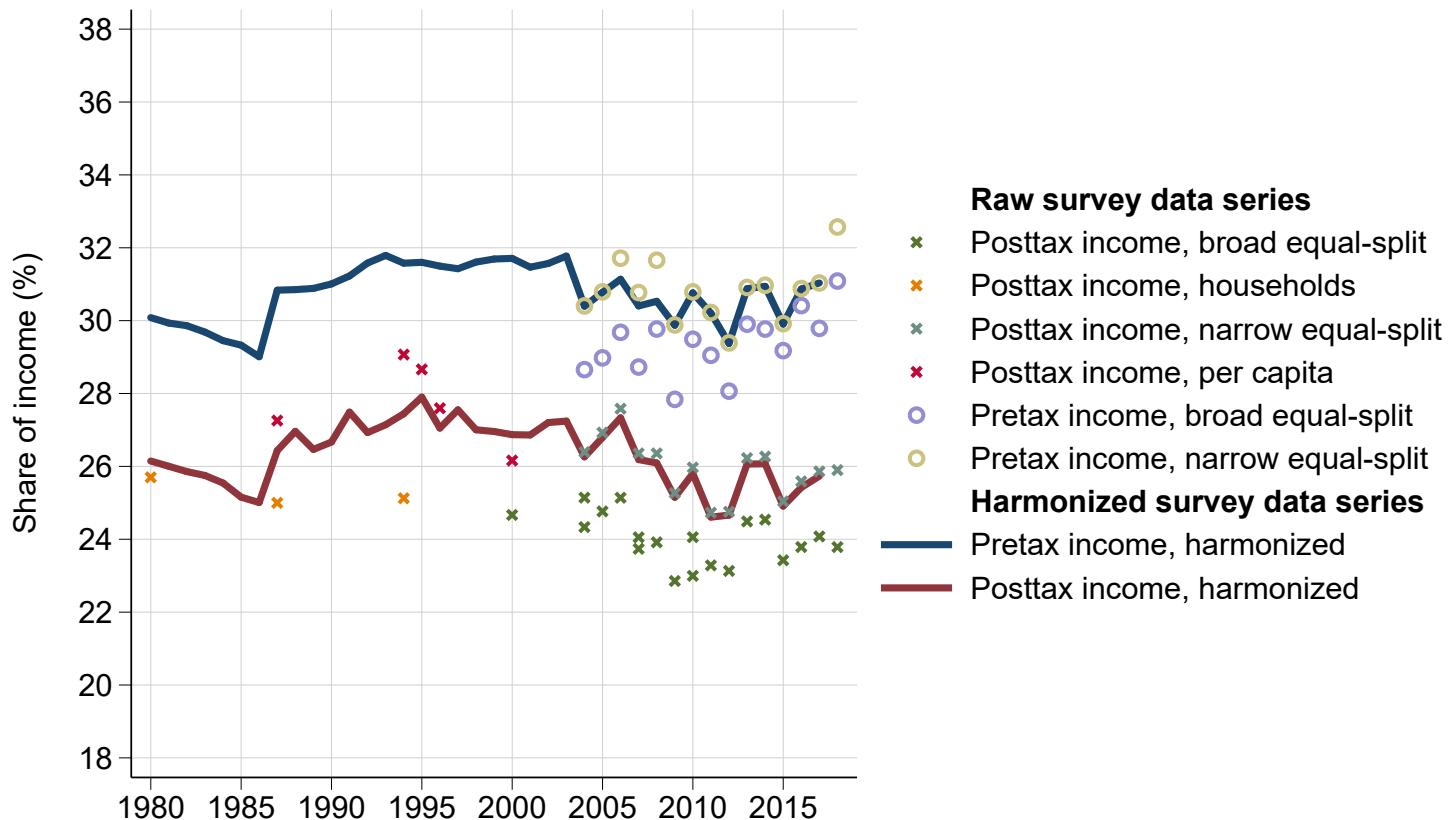
**Table A.3.12.5**  
**The distribution of national income growth in Iceland, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.6%	0.6%	1.6%	0.6%	1.6%	0.6%
Bottom 50%	1.8%	2.1%	1.9%	3.4%	1.9%	2.6%
Bottom 20%	2.0%	3.1%	2.4%	9.9%	2.3%	5.3%
Next 30%	1.7%	1.8%	1.8%	2.2%	1.8%	1.9%
Middle 40%	1.5%	1.3%	1.5%	1.4%	1.5%	1.4%
Top 10%	1.7%	-1.5%	1.7%	-2.4%	1.6%	-2.2%
Top 1%	2.5%	-5.2%	2.5%	-6.8%	2.4%	-6.7%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

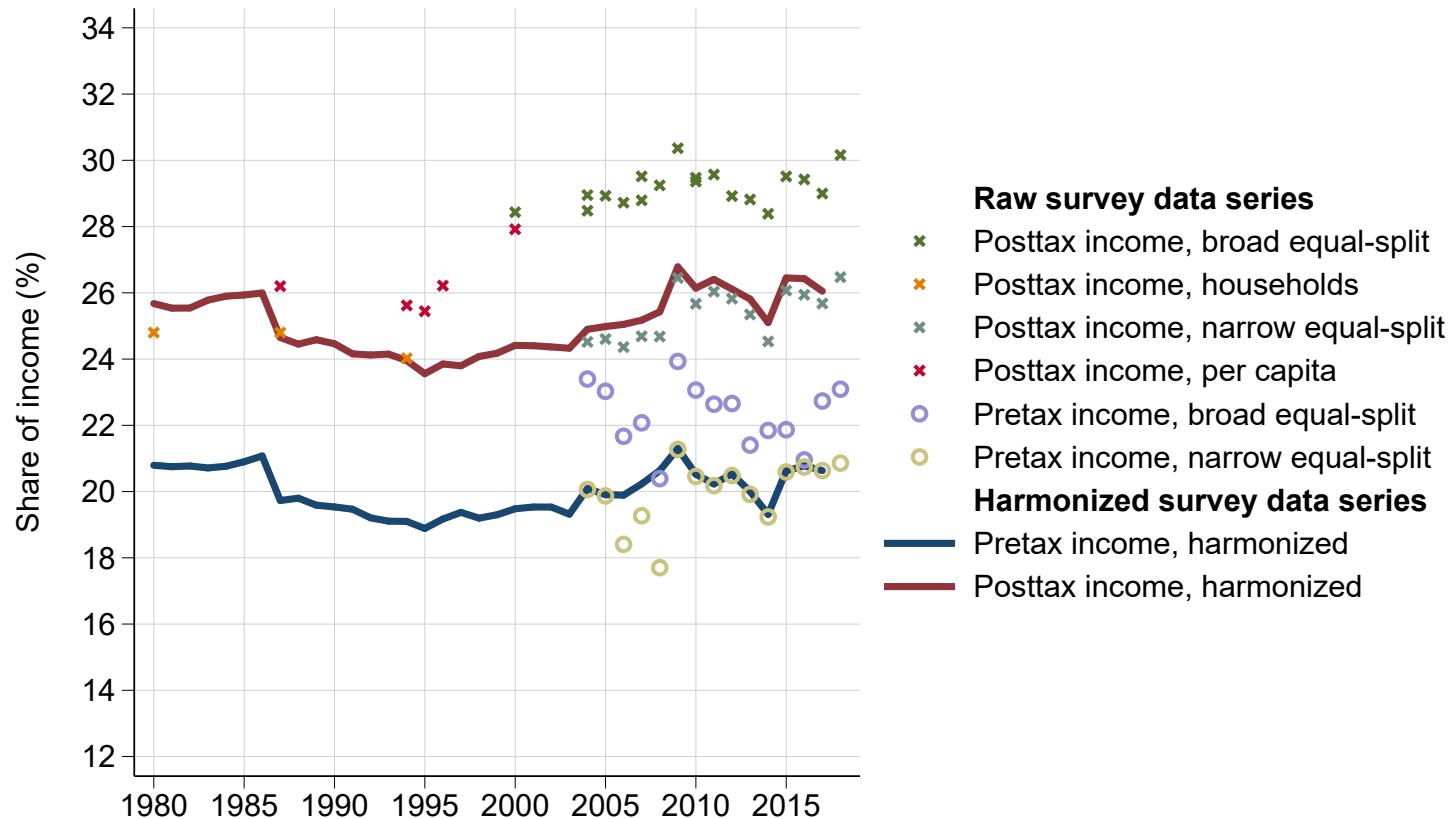
### 3.13 Ireland

**Figure A.3.13.1**  
**Ireland: harmonization of survey data**  
**Top 10% pretax income share**



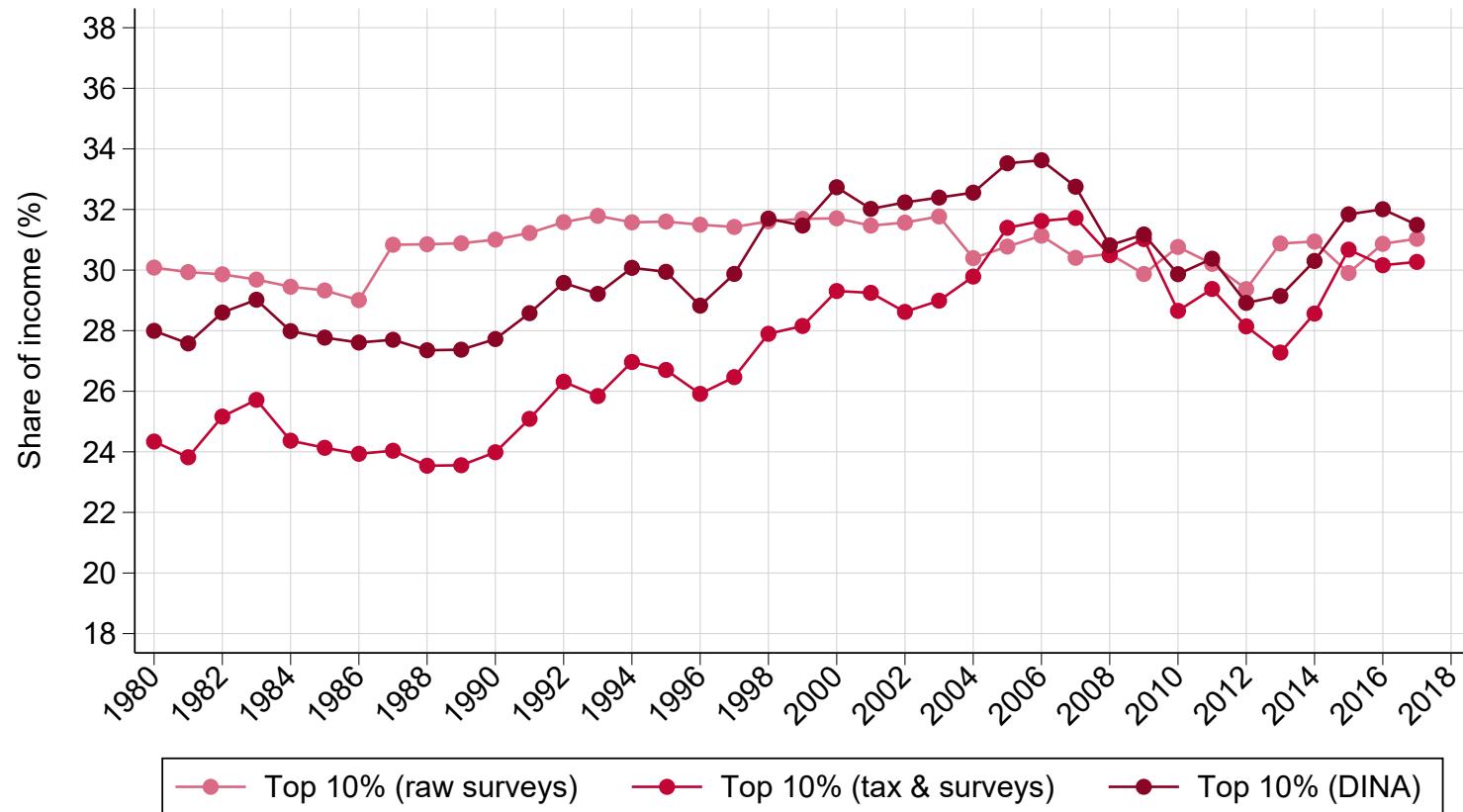
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.13.2**  
**Ireland: harmonization of survey data**  
**Bottom 50% pretax income share**



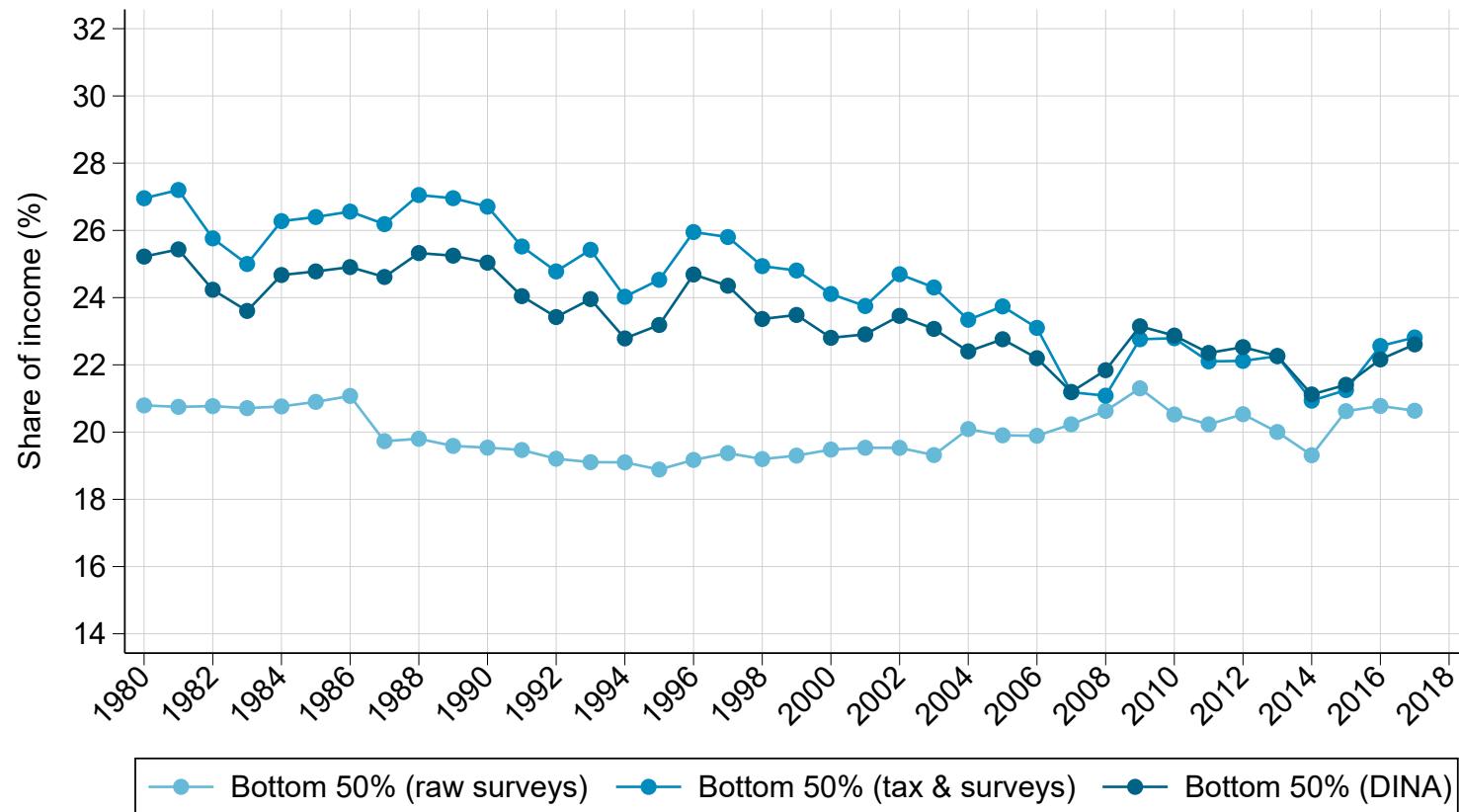
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.13.3**  
**Ireland: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

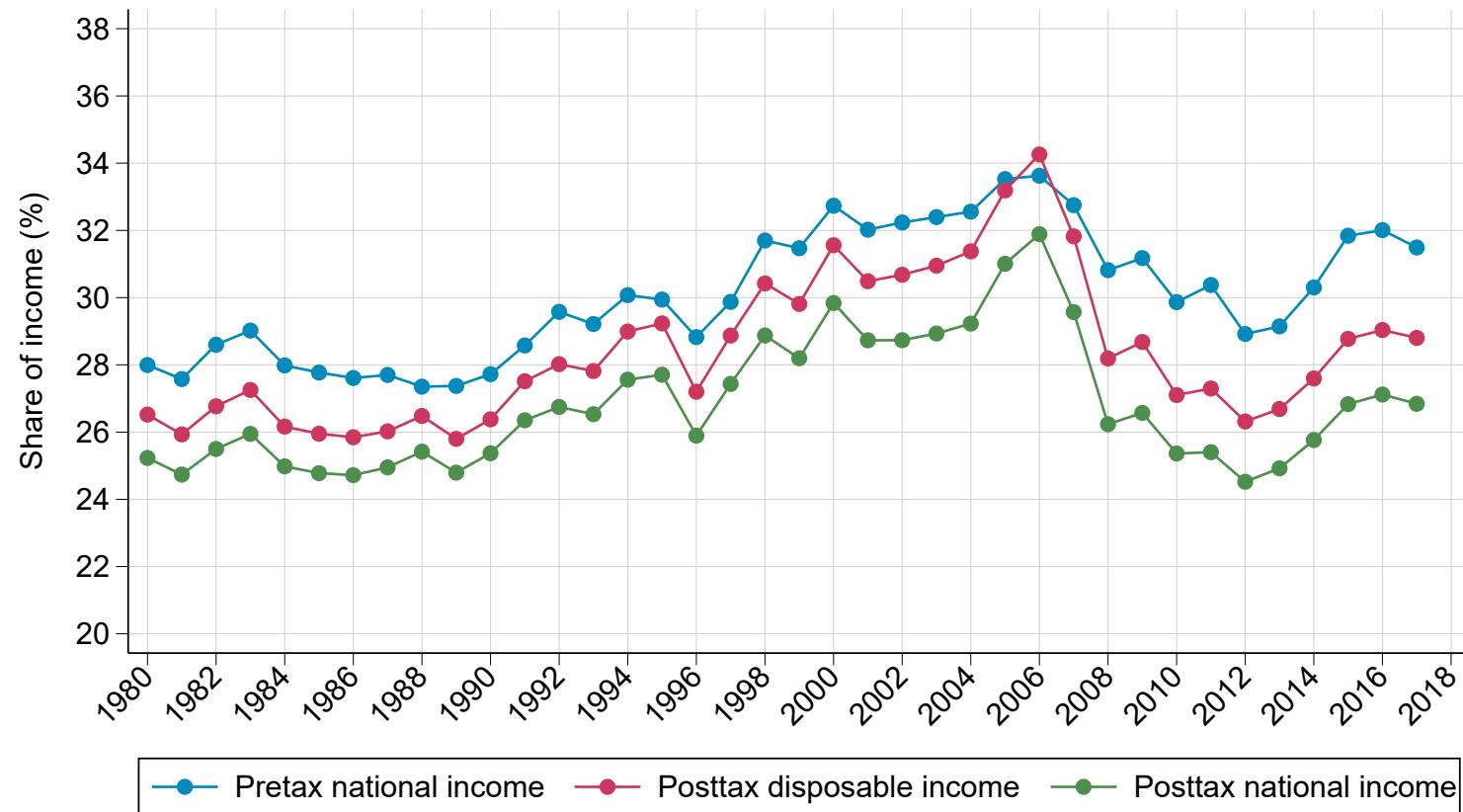
**Figure A.3.13.4**  
**Ireland: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

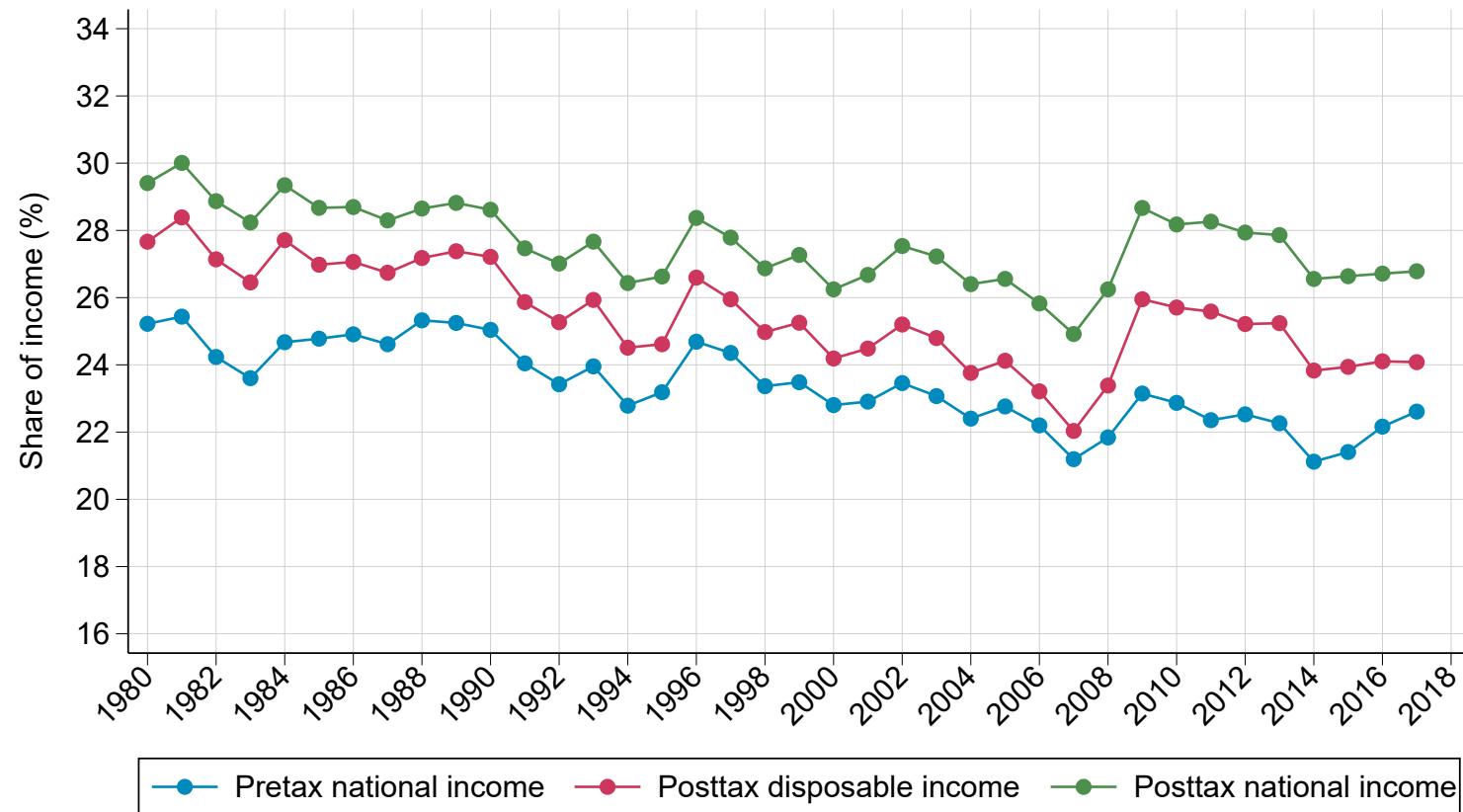
**Figure A.3.13.5**  
Ireland: from pretax national income to posttax national income  
**Top 10% income share**

323



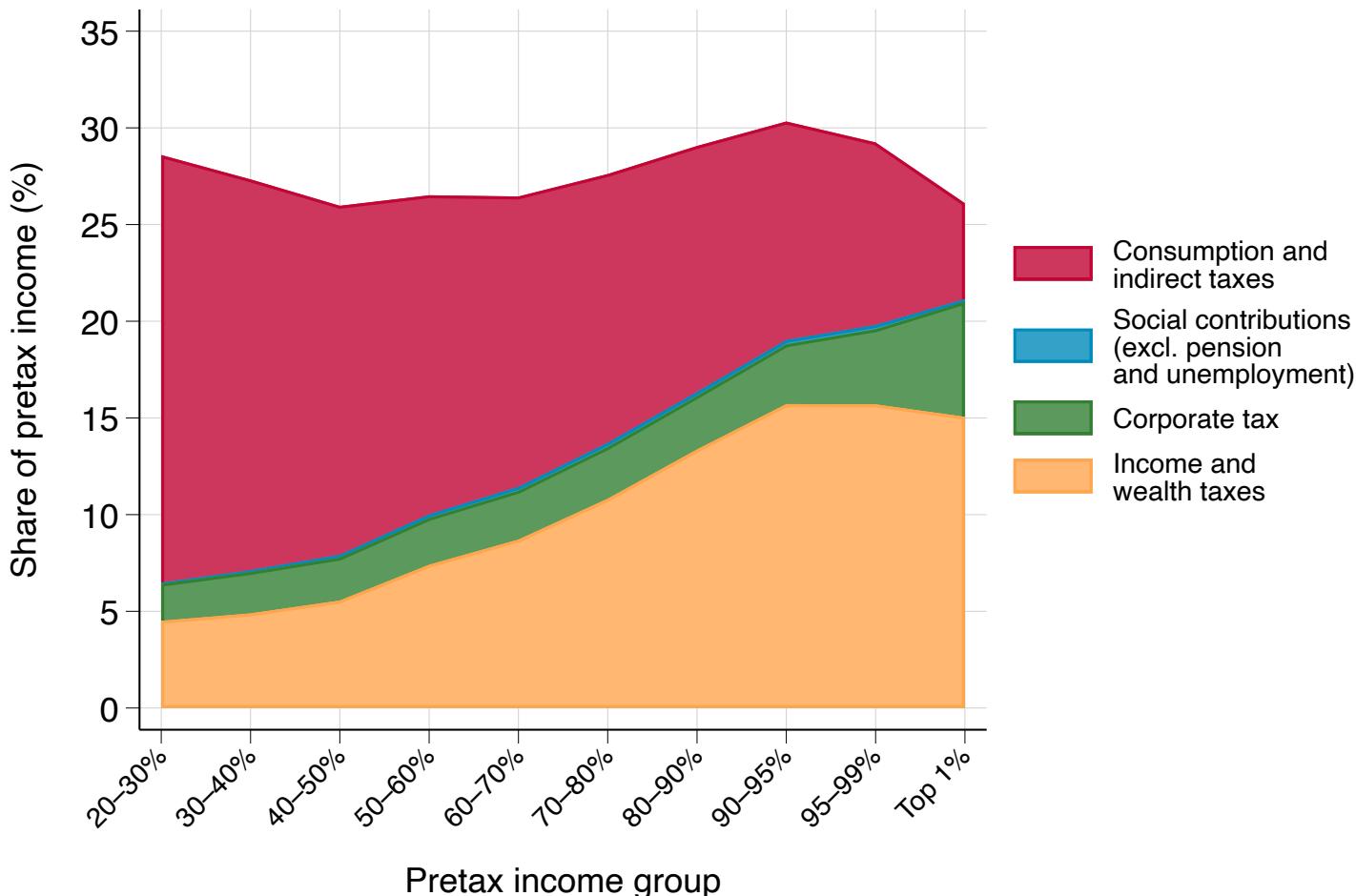
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.13.6**  
**Ireland: from pretax national income to posttax national income**  
**Bottom 50% income share**



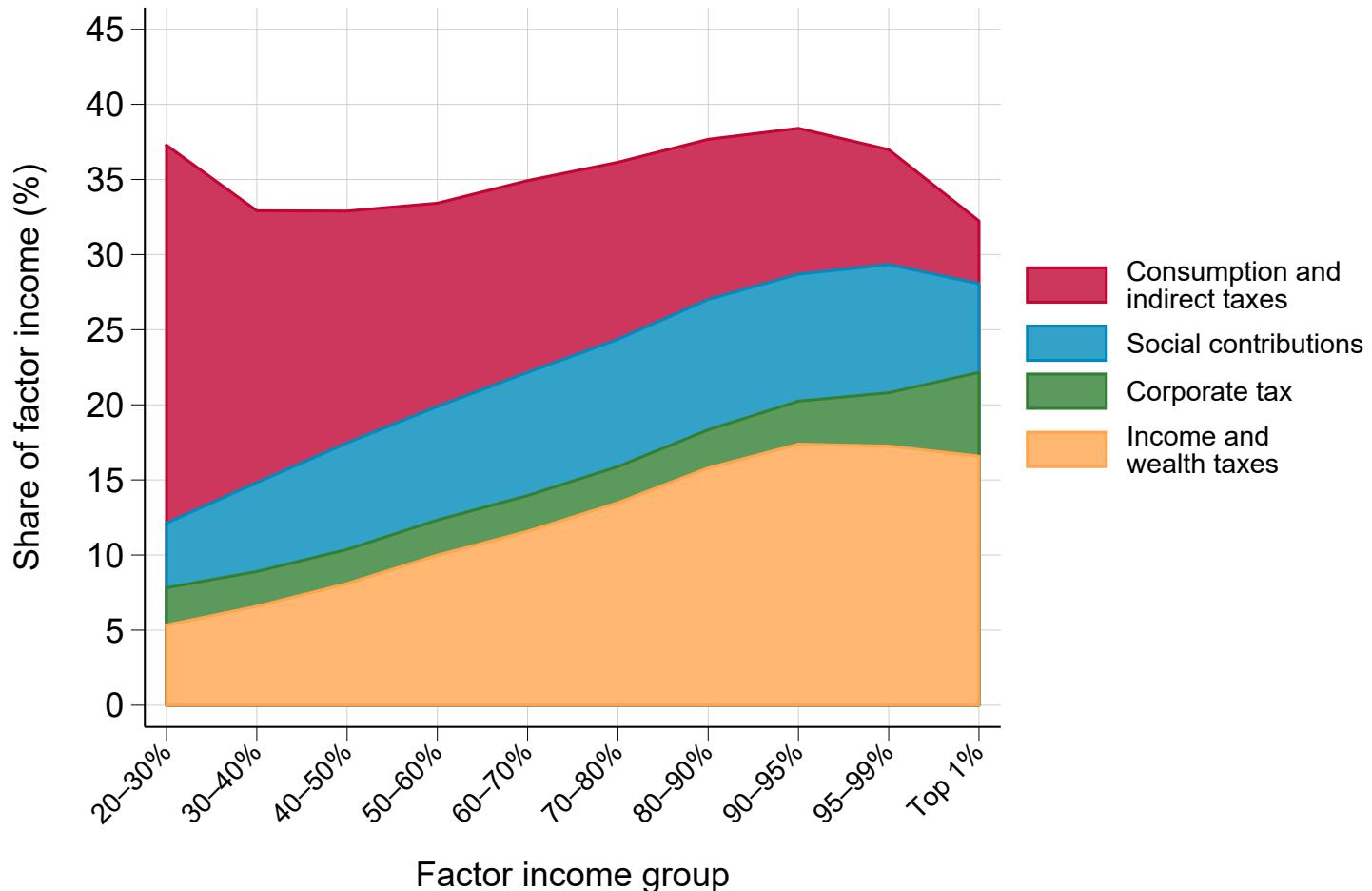
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.13.7**  
**Ireland: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



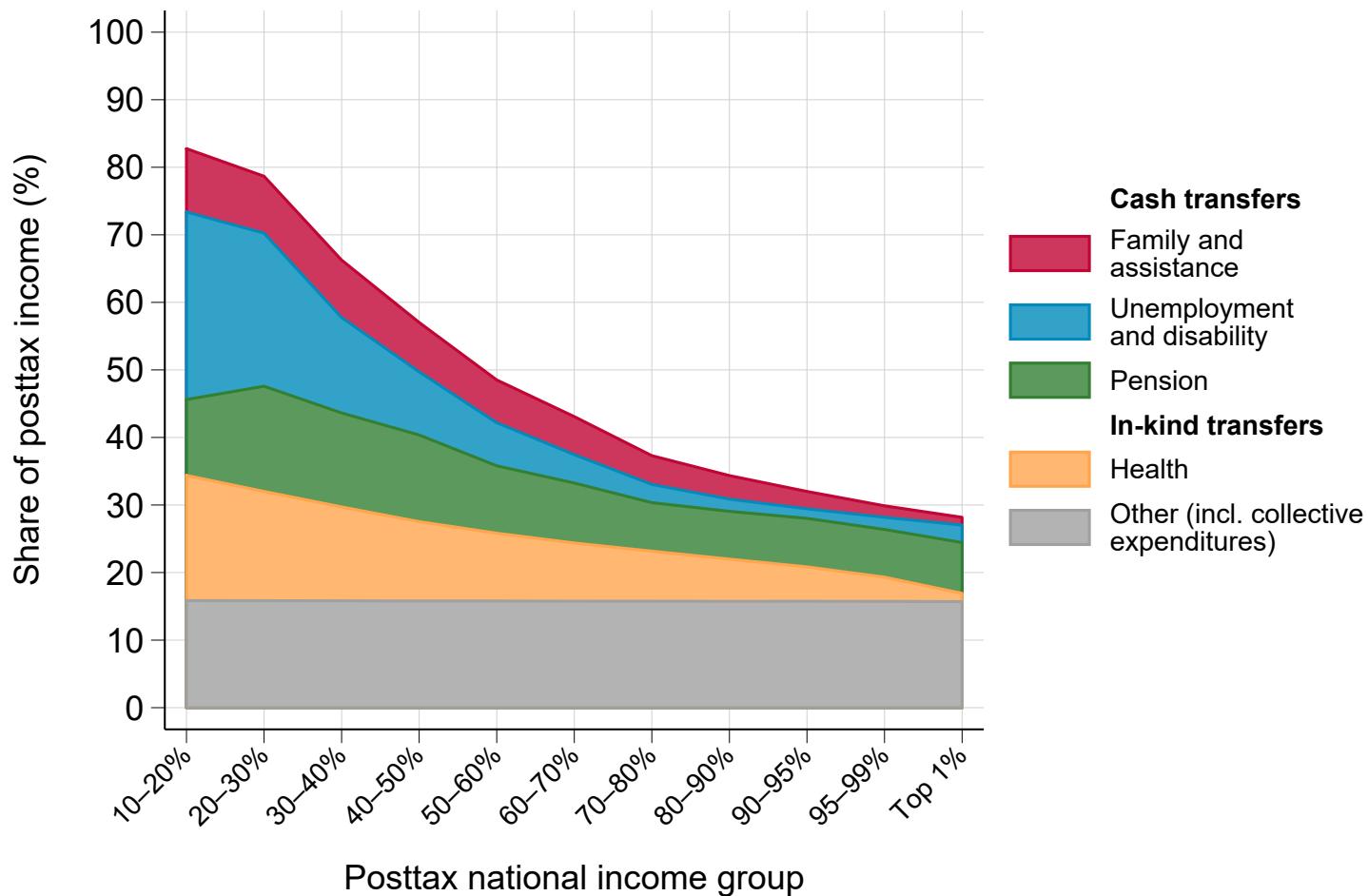
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.13.8**  
**Ireland: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



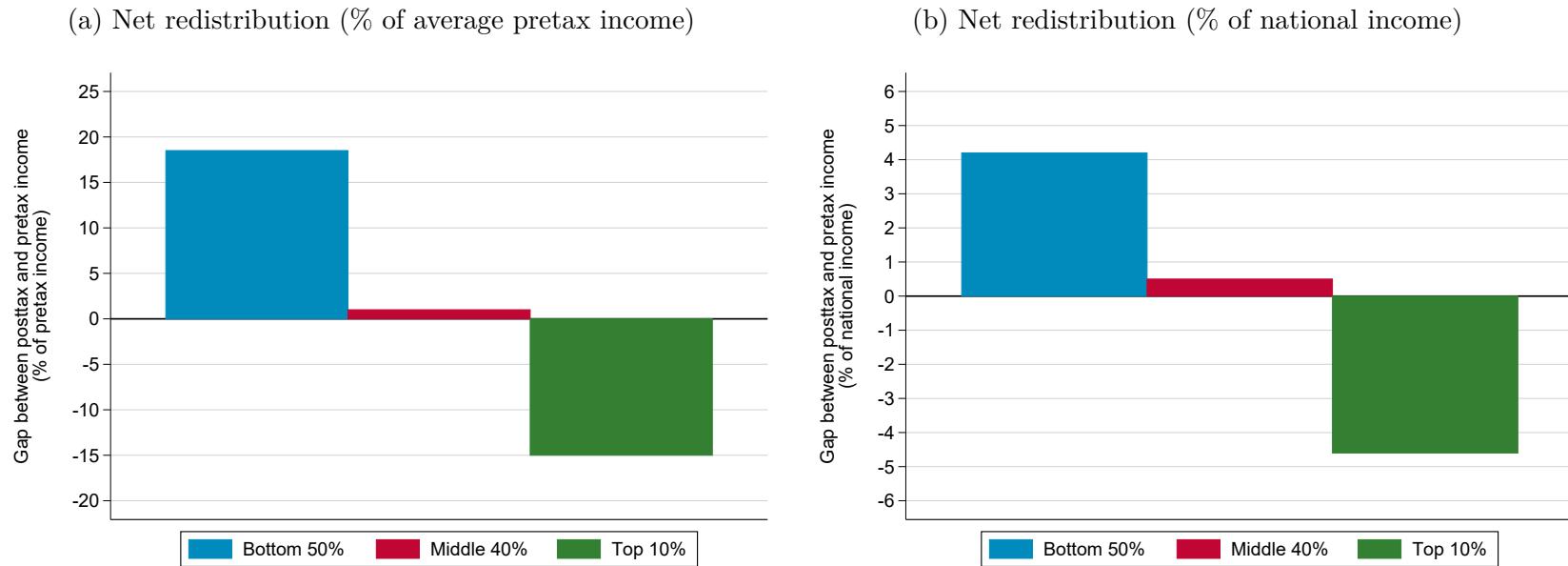
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.13.9**  
**Ireland: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.13.10**  
**Ireland: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.13.1**  
**Ireland: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980	x		x						x
1981			x						x
1982			x						x
1983			x						x
1984			x						x
1985			x						x
1986			x						x
1987	x		x						x
1988			x						x
1989			x						x
1990			x						x
1991			x						x
1992			x						x
1993			x						x
1994	x		x						x
1995	x		x	x		x	x	x	x
1996	x		x	x		x	x	x	x
1997			x	x		x	x	x	x
1998			x	x		x	x	x	x
1999			x	x		x	x	x	x
2000	x	x	x	x		x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

Table A.3.13.2

## Ireland: methodology used to distribute factor income, pretax income, and posttax income

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			71.1%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	67%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	4.2%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	17.6%
(+)	Government primary income	National accounts	Proportional to pretax income	11.3%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	15.5%
(+)	Pension benefits	Survey + tax data	Observed	11%
(+)	Unemployment benefits	Survey + tax data	Observed	4.5%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			27.8%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-3.6%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	13.5%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	13.9%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	3.9%
(+)	Transfers			30.8%
	<i>Cash transfers</i>	Survey + tax data	Observed	6.5%
	<i>Public health expenditures</i>	National accounts	Lump sum	9.2%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	15.1%
(+)	Budget balance	National accounts	Proportional to posttax income	-3%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.13.3**  
**Ireland: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2004–2018)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2004–2018); Employer contributions (OECD, 2004–2006, EU-SILC, 2007–2018)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 97.9% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.9 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 2000–2010; SILC, 2004–2018; PovcalNet, 1987–2000; Nolan & Maître 2000, 1980–1994); pretax income (SILC, 2004–2018)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 4.7 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1980–2015 (Jäntti et al., 2007)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 2.3 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 0.9 pp. higher than in the raw survey. The top 1% share of posttax income is 0.2 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2013, 2018 (corporate stocks); EU-SILC, 2007–2018 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 28.8% of stocks, capture 14.5% of imputed rents, and account for 15.6% of consumption.  Undistributed corporate profits increase the top 10% share of income by 2.3 pp. on average; Imputed rents decrease the top 10% share of income by 0.4 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.8 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.6 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.13.4**  
**The distribution of national income in Ireland, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€40,100	100%	€40,100	100%	€40,100	100%
Bottom 50%	€18,100	22.6%	€19,300	24.1%	€21,500	26.8%
Bottom 20%	€11,000	5.5%	€11,500	5.7%	€14,500	7.2%
Next 30%	€22,900	17.1%	€24,600	18.4%	€26,200	19.6%
Middle 40%	€46,000	45.9%	€47,300	47.1%	€46,500	46.4%
Top 10%	€126,000	31.5%	€116,000	28.8%	€108,000	26.8%
Top 1%	€398,000	9.9%	€313,000	7.8%	€285,000	7.1%
Top 0.1%	€1,440,000	3.6%	€917,000	2.3%	€825,000	2.1%
Top 0.01%	€5,460,000	1.4%	€2,760,000	0.7%	€2,480,000	0.6%
Top 0.001%	€20,880,000	0.5%	€8,410,000	0.2%	€7,540,000	0.2%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

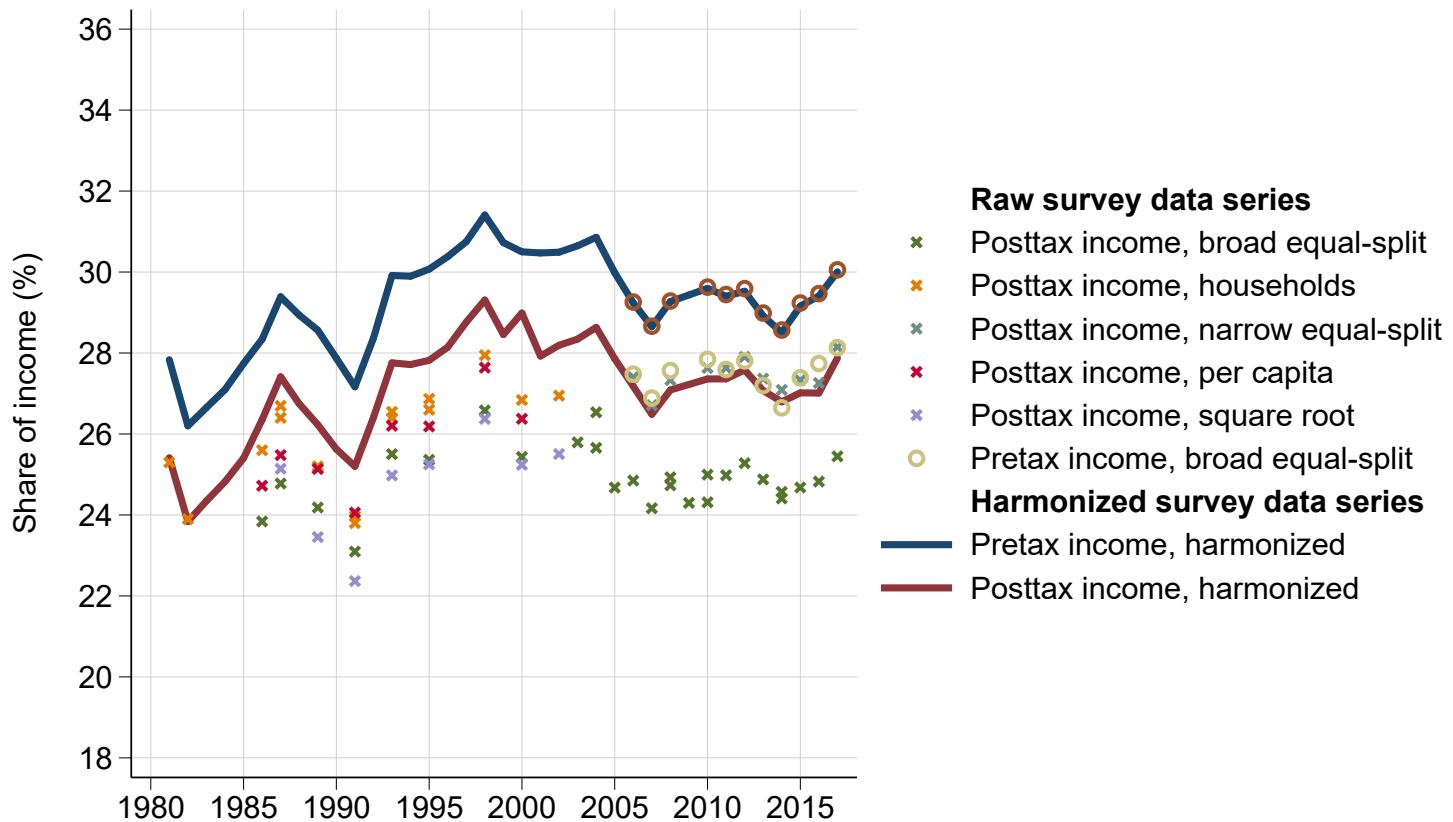
**Table A.3.13.5**  
**The distribution of national income growth in Ireland, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.9%	-0.5%	1.9%	-0.5%	1.9%	-0.5%
Bottom 50%	1.6%	0.2%	1.5%	0.4%	1.6%	0.3%
Bottom 20%	2.0%	0.9%	1.7%	1.7%	1.9%	1.0%
Next 30%	1.5%	0.0%	1.4%	0.1%	1.5%	0.0%
Middle 40%	1.8%	-0.5%	2.0%	-0.3%	1.9%	-0.3%
Top 10%	2.2%	-0.9%	2.1%	-1.5%	2.0%	-1.4%
Top 1%	2.7%	-1.0%	2.3%	-2.6%	2.2%	-2.6%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

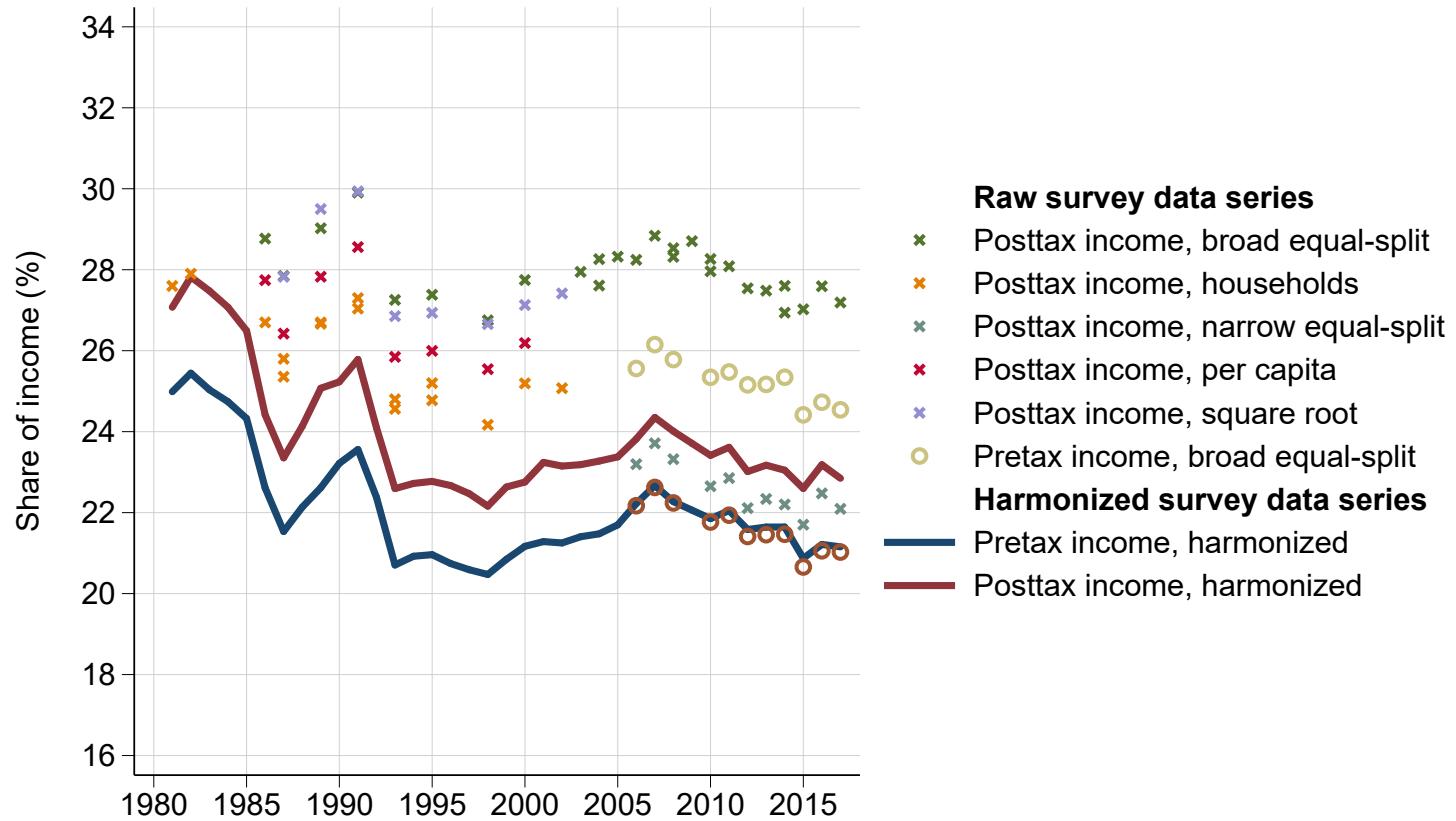
### 3.14 Italy

Figure A.3.14.1  
Italy: harmonization of survey data  
Top 10% pretax income share



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

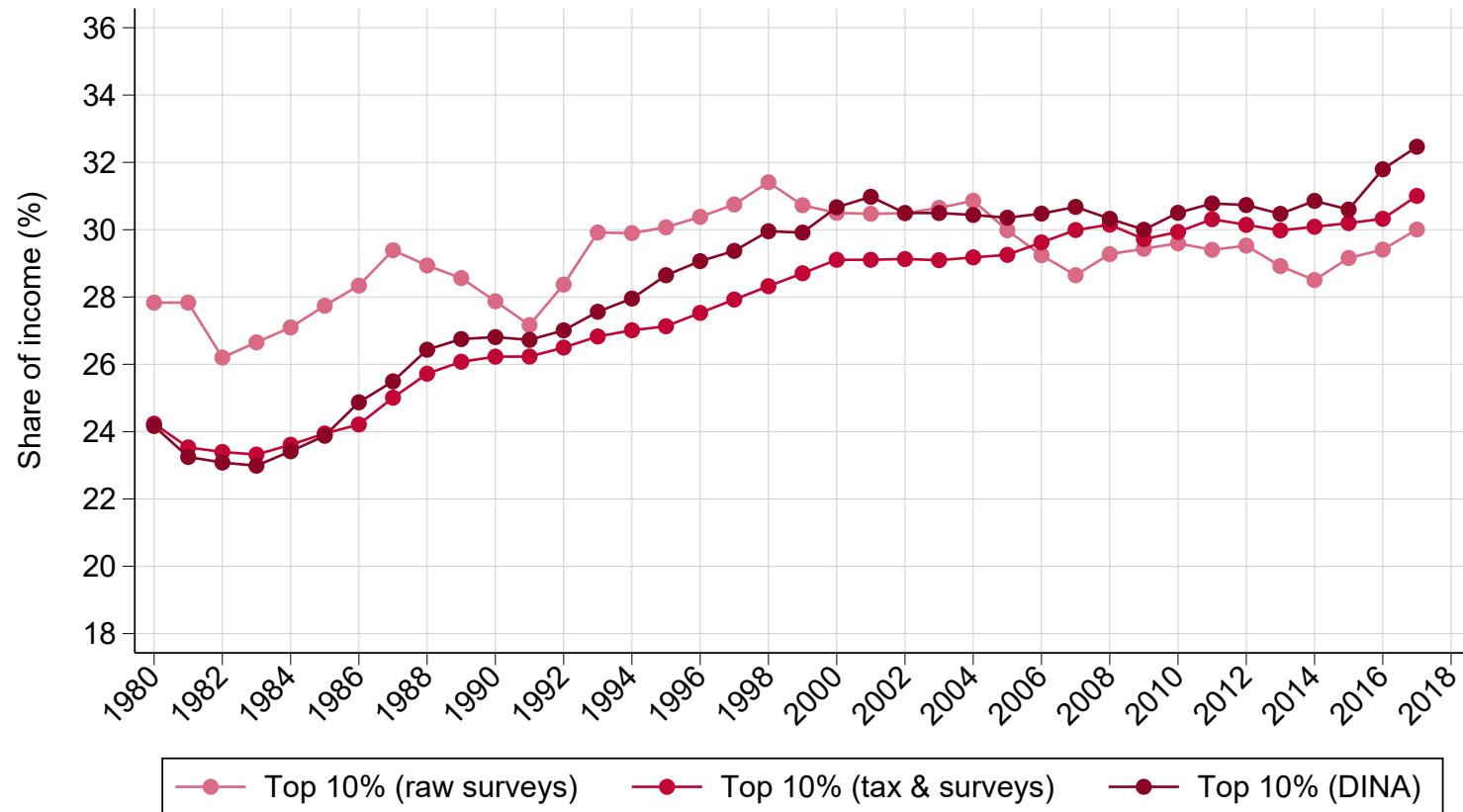
**Figure A.3.14.2**  
**Italy: harmonization of survey data**  
**Bottom 50% pretax income share**



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

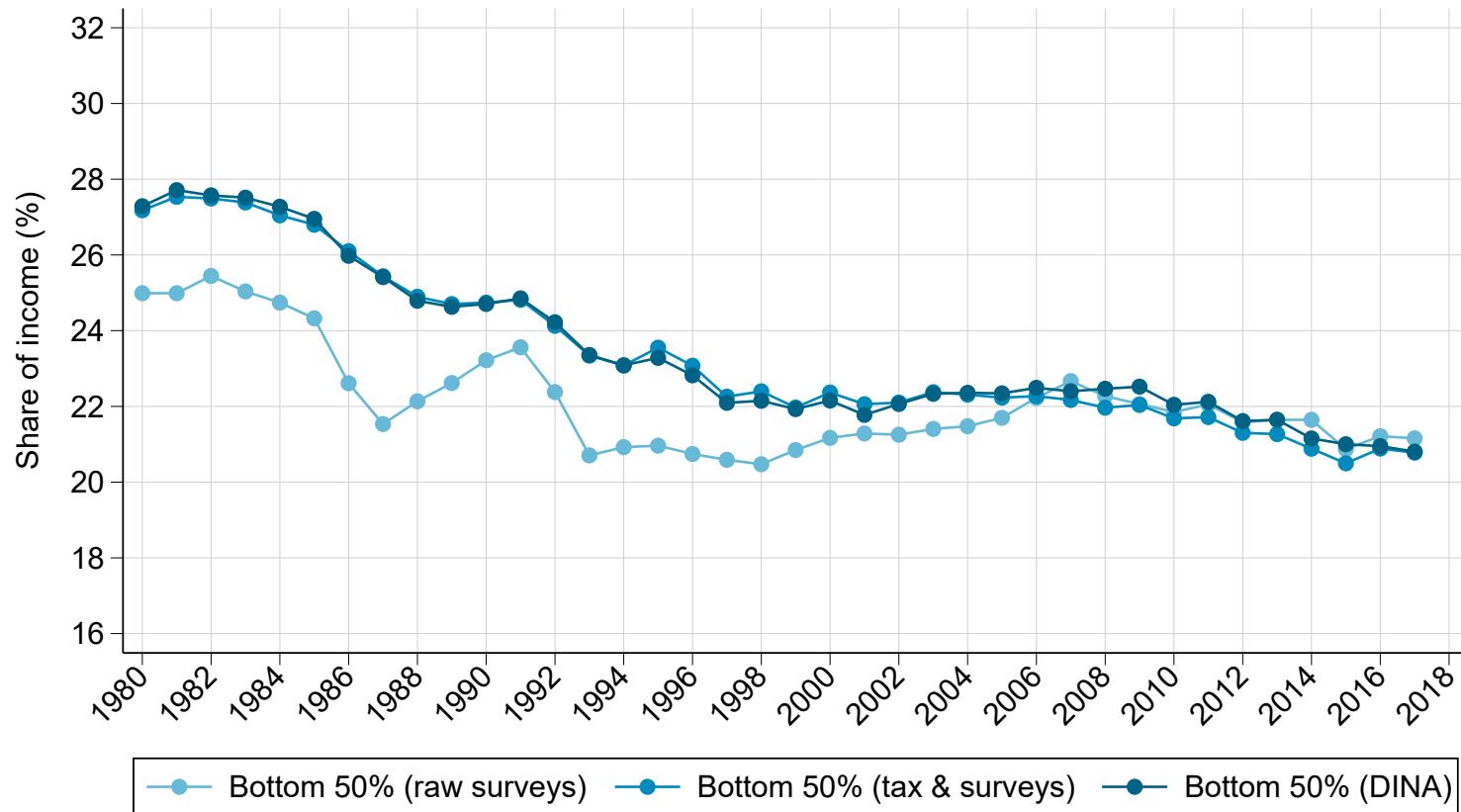
**Figure A.3.14.3**  
**Italy: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**

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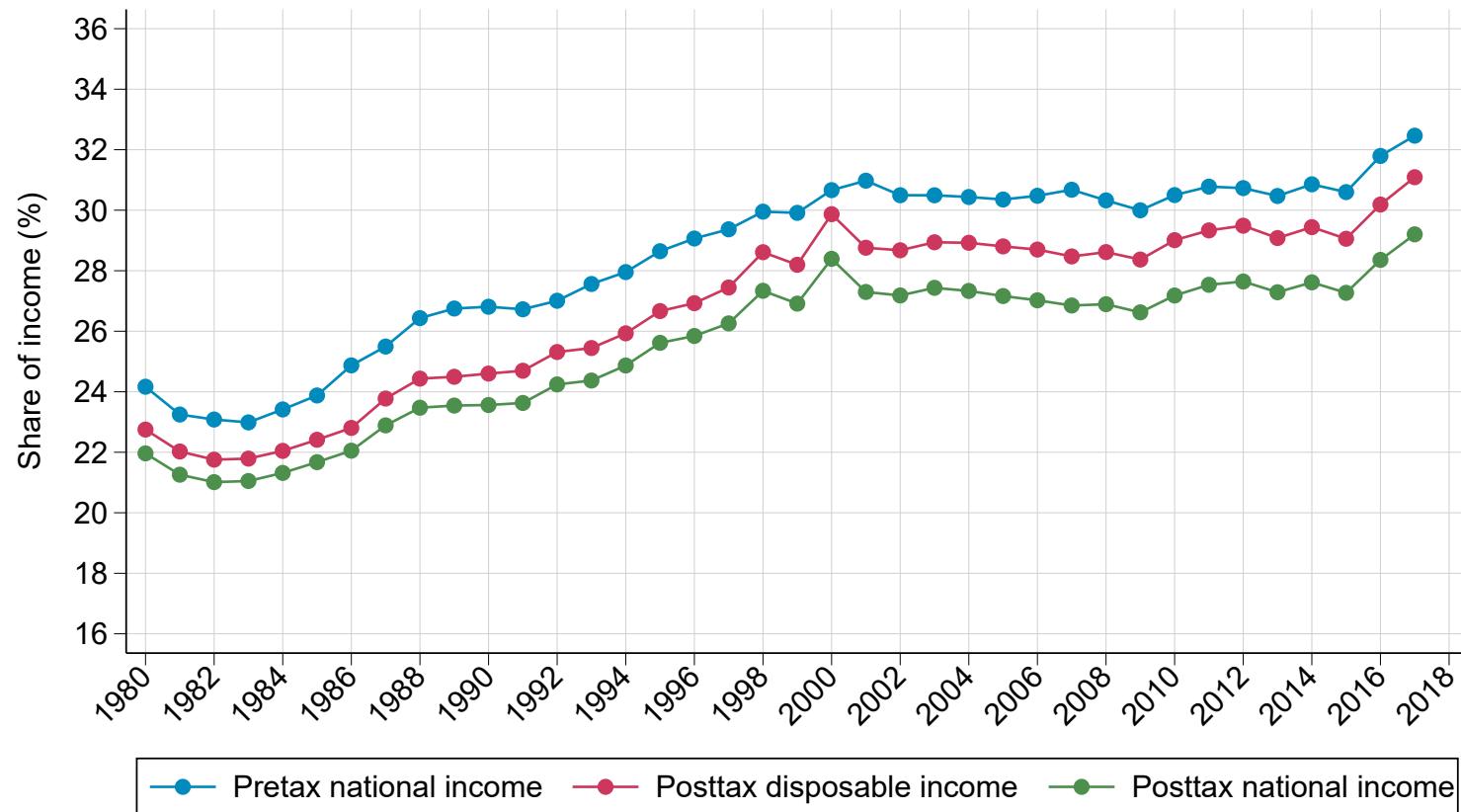
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.14.4**  
Italy: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



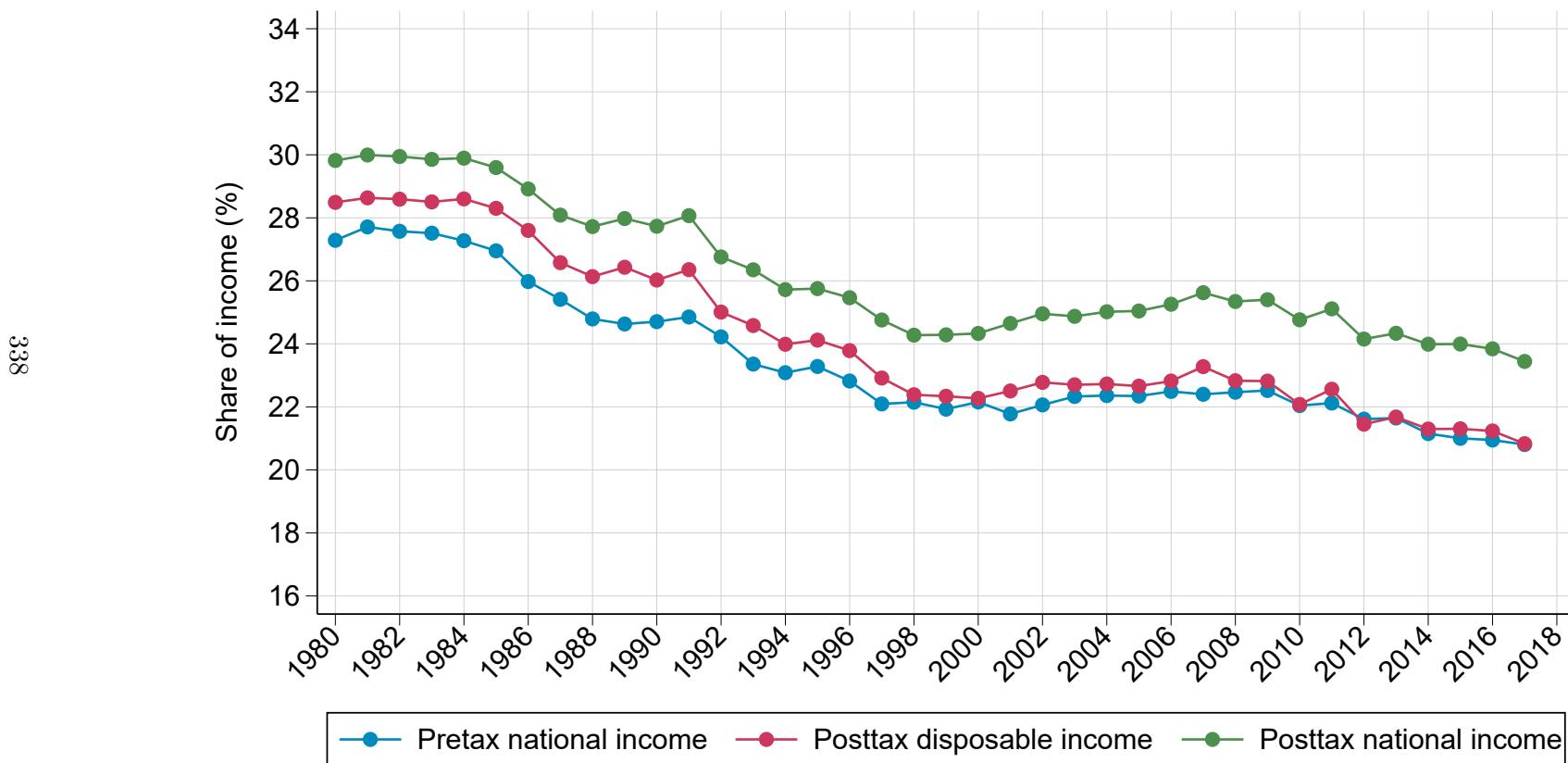
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.14.5**  
**Italy: from pretax national income to posttax national income**  
**Top 10% income share**



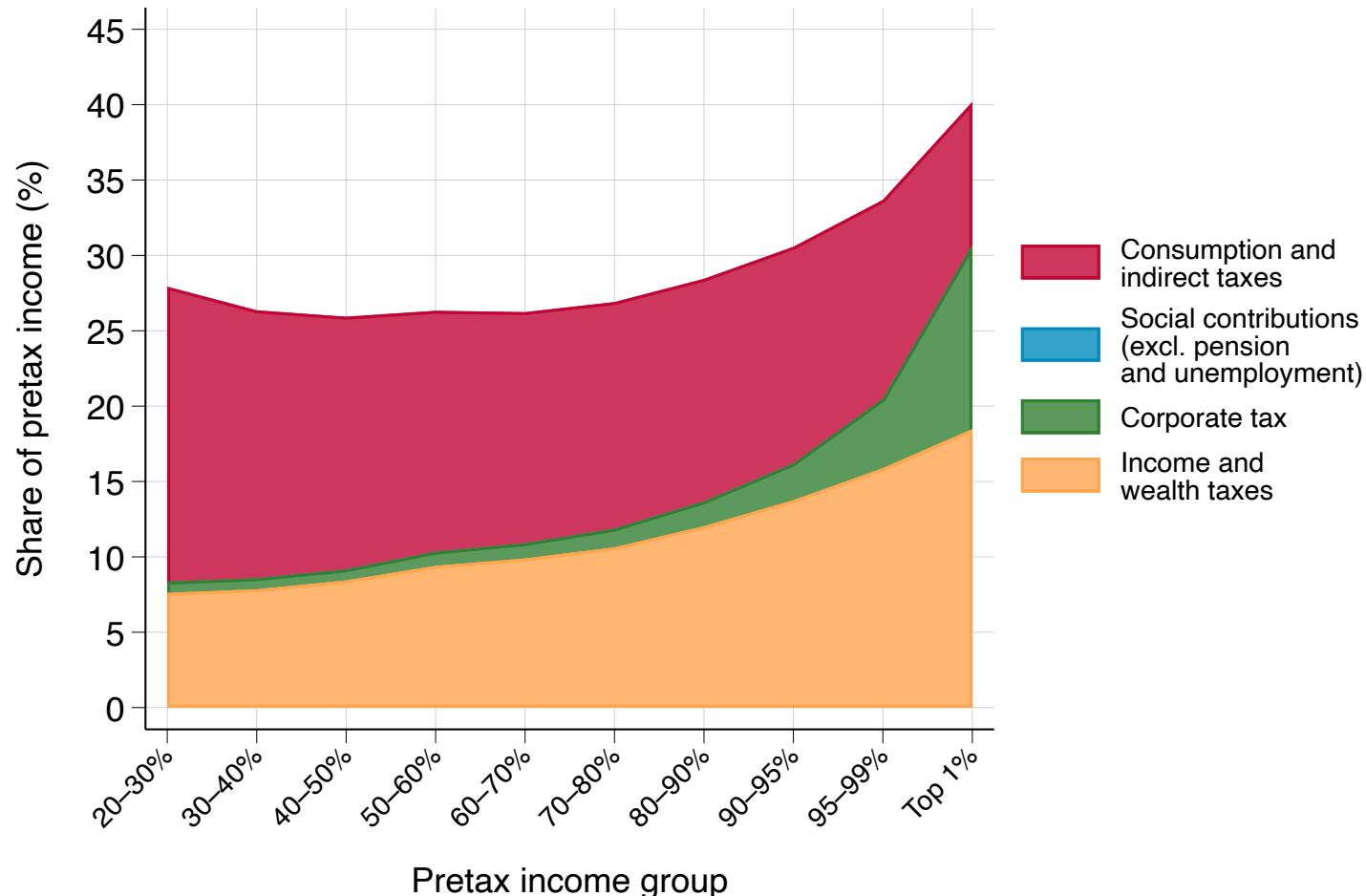
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.14.6**  
**Italy: from pretax national income to posttax national income**  
**Bottom 50% income share**



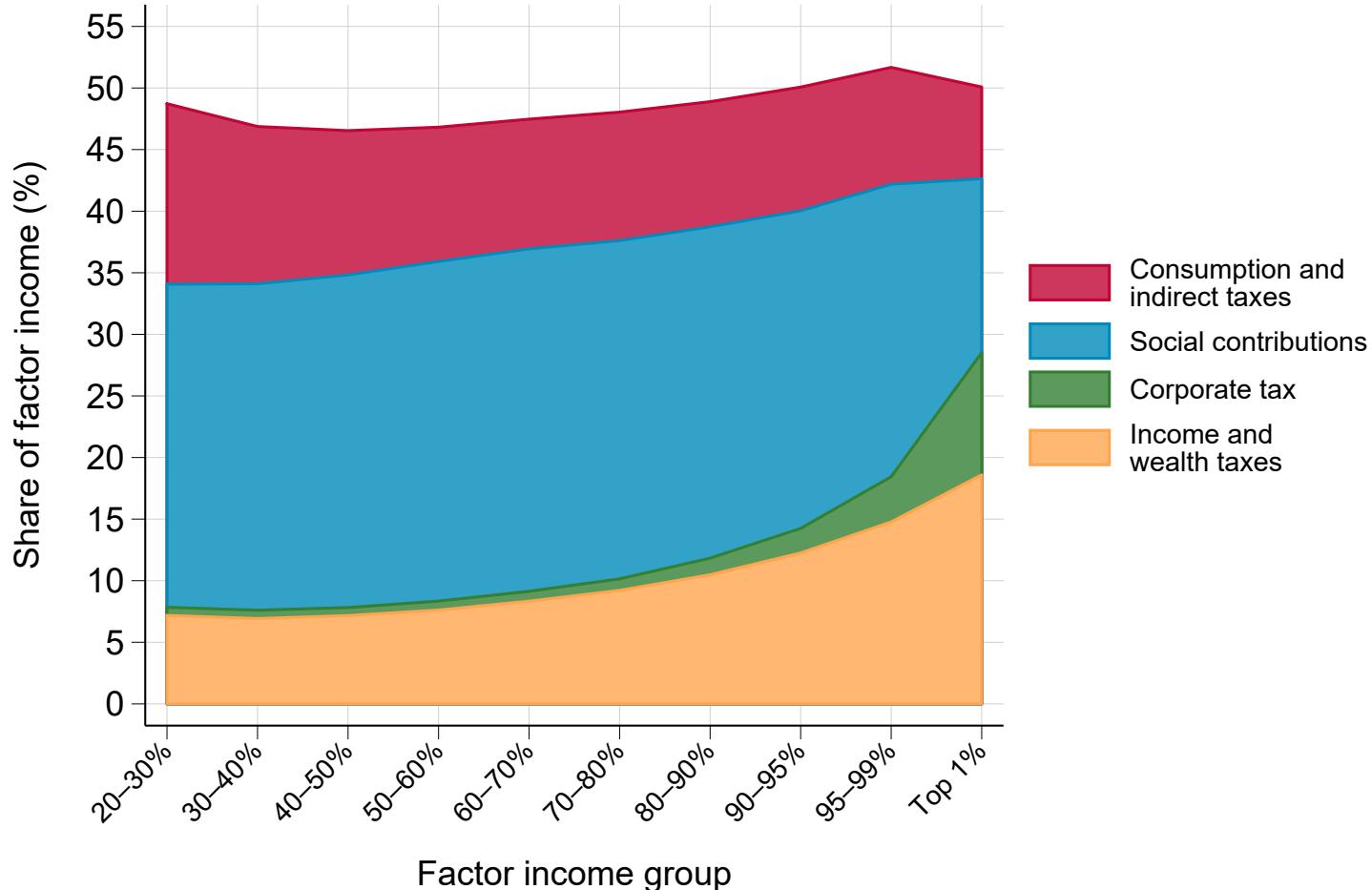
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.14.7**  
**Italy: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



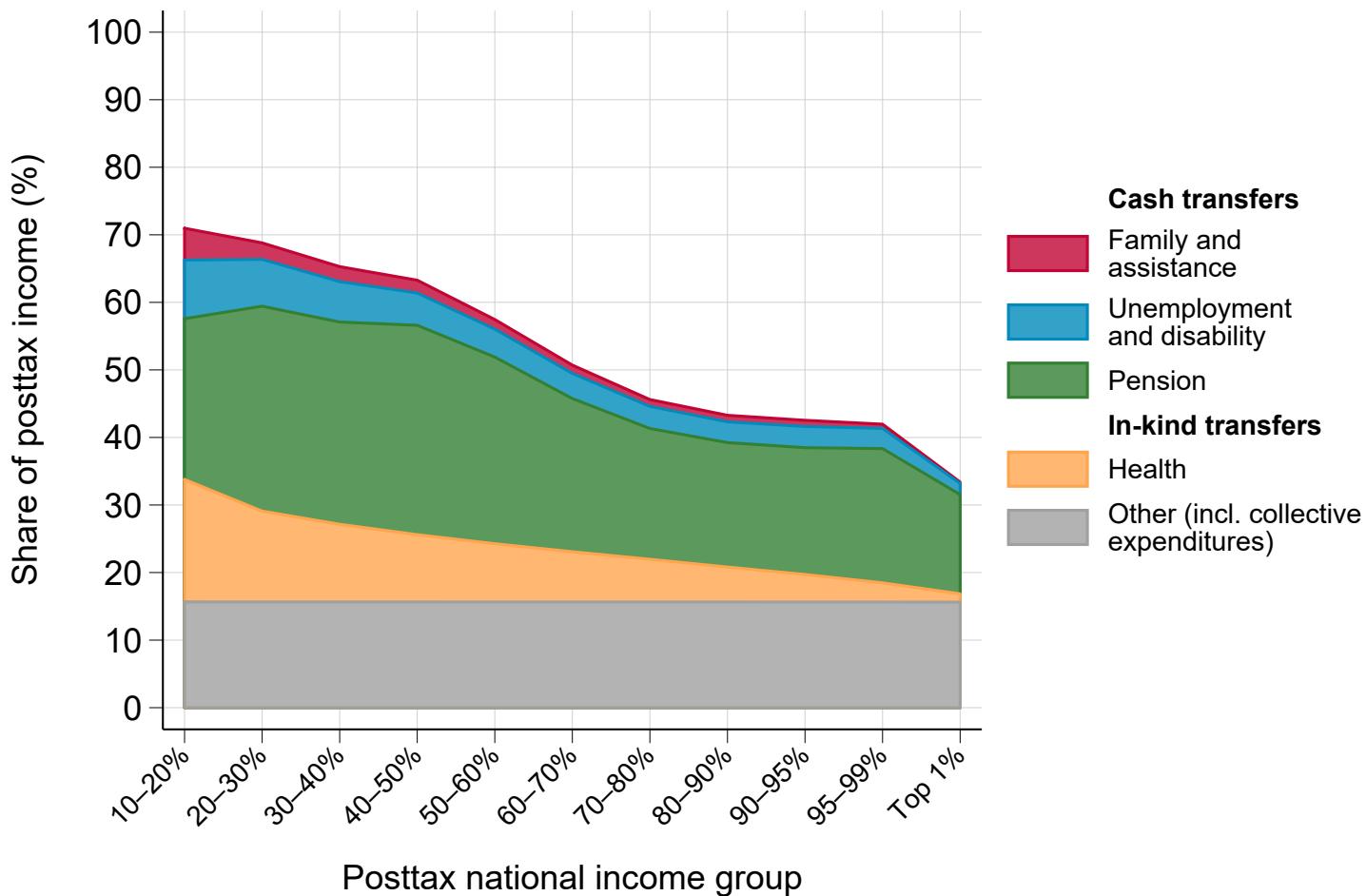
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.14.8**  
**Italy: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



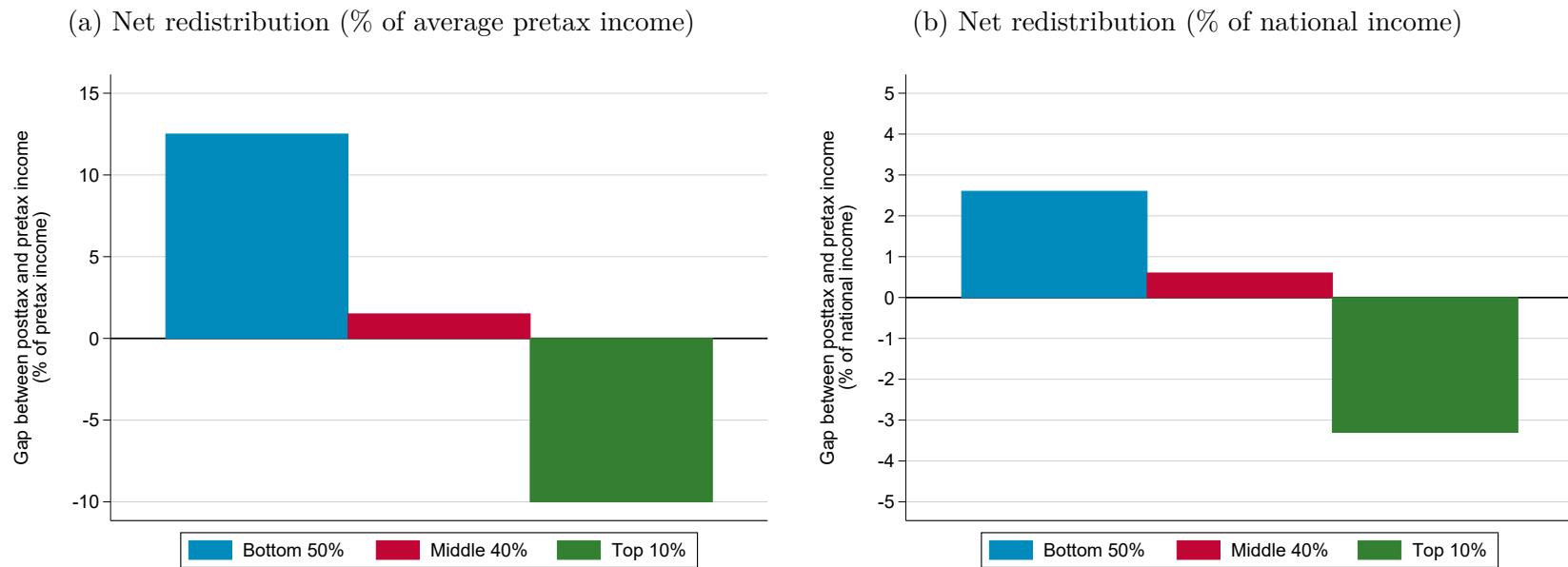
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.14.9**  
**Italy: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.14.10**  
**Italy: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.14.1**  
**Italy: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980			x	x		x	x	x	x
1981	x		x	x		x	x	x	x
1982	x		x	x		x	x	x	x
1983			x	x		x	x	x	x
1984			x	x		x	x	x	x
1985			x	x		x	x	x	x
1986	x	x	x	x		x	x	x	x
1987	x	x	x	x		x	x	x	x
1988			x	x		x	x	x	x
1989	x	x	x	x		x	x	x	x
1990			x	x		x	x	x	x
1991	x	x	x	x		x	x	x	x
1992			x	x		x	x	x	x
1993	x	x	x	x		x	x	x	x
1994			x	x		x	x	x	x
1995	x	x	x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998	x	x	x	x	x	x	x	x	x
1999			x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002	x		x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x	x	x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.14.2**  
**Italy: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			84.4%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	80%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	4.5%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	4.3%
(+)	Government primary income	National accounts	Proportional to pretax income	11.3%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	21.3%
(+)	Pension benefits	Survey + tax data	Observed	20.2%
(+)	Unemployment benefits	Survey + tax data	Observed	1.2%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			30.1%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-3.1%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	14.6%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	15.9%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.7%
(+)	Transfers			28.7%
	<i>Cash transfers</i>	Survey + tax data	Observed	4.8%
	<i>Public health expenditures</i>	National accounts	Lump sum	8.2%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	15.7%
(+)	Budget balance	National accounts	Proportional to posttax income	1.4%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.14.3**  
**Italy: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (pretax, 2006–2017; posttax, 2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2006–2017); Employer contributions (EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that all social contributions, and also, on average, 17.2% of income taxes, are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies increases the top 10% share of pretax income by 0.02 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1986–2014; SILC, 2003–2017; PovcalNet, 1986–2000; Brandolini 1999, 1981–1995; Brandolini 2004, 1987–2002); pretax income (SILC, 2006–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.3 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	1980–2009 ( <a href="#">Alvaredo and Pisano, 2010</a> )	See section 1.4.2.	Using the same income concept as the tax data, we find that the top 1% share is 0.8 pp. higher in the tax data than the survey data.
	Application of the correction to all survey distributions.		See section 1.4.3.	The use of tax data does not lead to notable increase in the top 1% share of pretax income. It does not lead to notable increase in the top 1% share of posttax income.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2010, 2015, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents)	Due to lack of data, we use the average European distribution for imputed rents.  See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 26.8% of stocks, capture 15.5% of imputed rents, and account for 18.9% of consumption.  Undistributed corporate profits increase the top 10% share of income by 0.2 pp. on average; Imputed rents decrease the top 10% share of income by 0.4 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.9 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.1 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.3 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.14.4**  
**The distribution of national income in Italy, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€29,600	100%	€29,600	100%	€29,600	100%
Bottom 50%	€12,300	20.8%	€12,300	20.8%	€13,900	23.4%
Bottom 20%	€4,700	3.2%	€4,000	2.7%	€6,300	4.2%
Next 30%	€17,400	17.6%	€17,900	18.1%	€19,000	19.2%
Middle 40%	€34,600	46.7%	€35,600	48.1%	€35,100	47.4%
Top 10%	€96,100	32.5%	€92,100	31.1%	€86,500	29.2%
Top 1%	€266,000	9.0%	€233,000	7.9%	€214,000	7.2%
Top 0.1%	€755,000	2.5%	€587,000	2.0%	€537,000	1.8%
Top 0.01%	€2,170,000	0.7%	€1,480,000	0.5%	€1,350,000	0.5%
Top 0.001%	€6,240,000	0.2%	€3,740,000	0.1%	€3,410,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

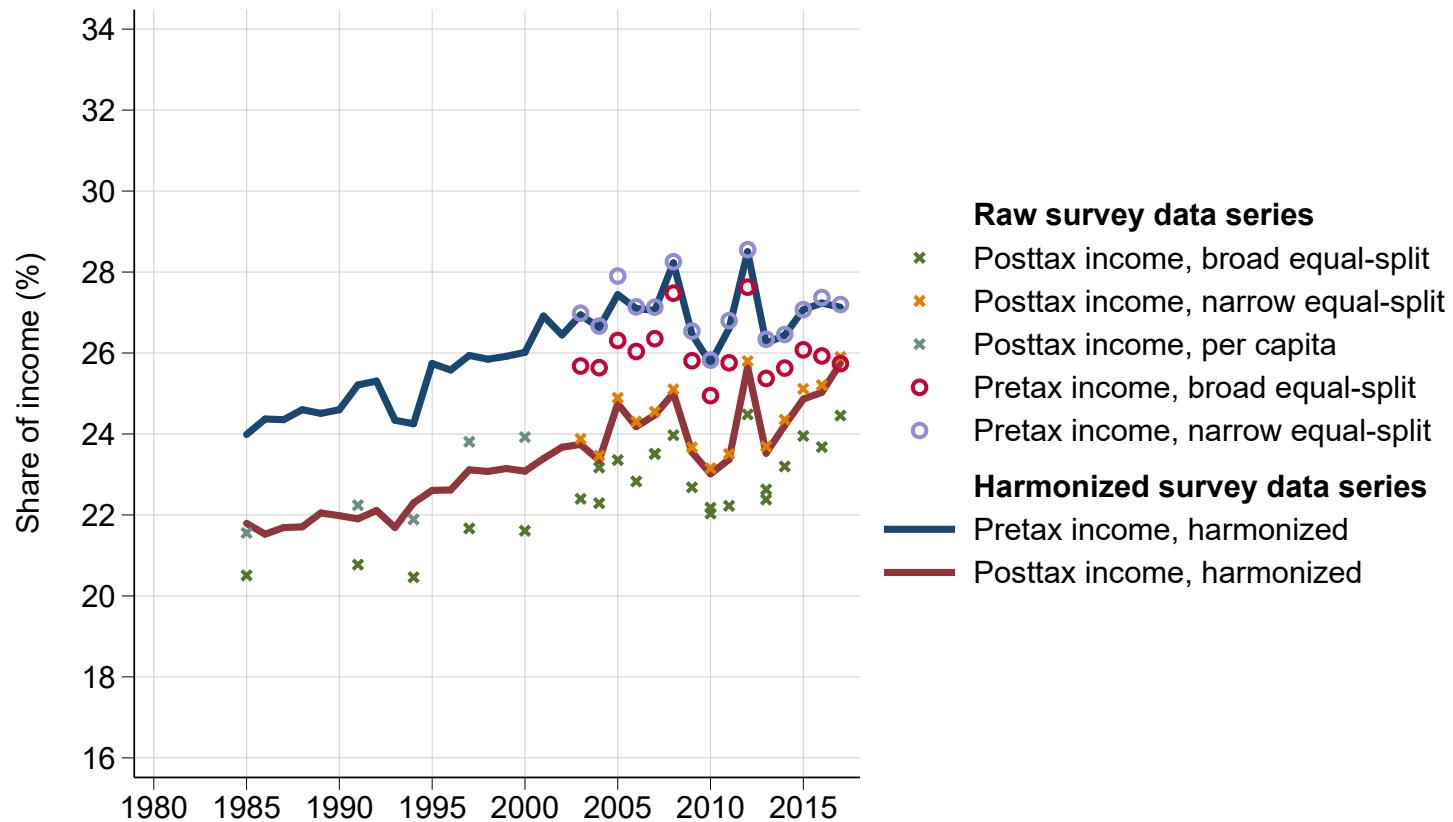
**Table A.3.14.5**  
**The distribution of national income growth in Italy, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	0.4%	-1.3%	0.4%	-1.3%	0.4%	-1.3%
Bottom 50%	-0.4%	-2.0%	-0.5%	-2.4%	-0.3%	-2.2%
Bottom 20%	-1.2%	-4.0%	-1.7%	-5.4%	-0.8%	-3.9%
Next 30%	-0.2%	-1.6%	-0.3%	-1.8%	-0.2%	-1.8%
Middle 40%	0.3%	-1.3%	0.3%	-1.3%	0.3%	-1.3%
Top 10%	1.2%	-0.7%	1.2%	-0.4%	1.1%	-0.5%
Top 1%	1.9%	-0.4%	1.9%	0.1%	1.8%	0.1%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

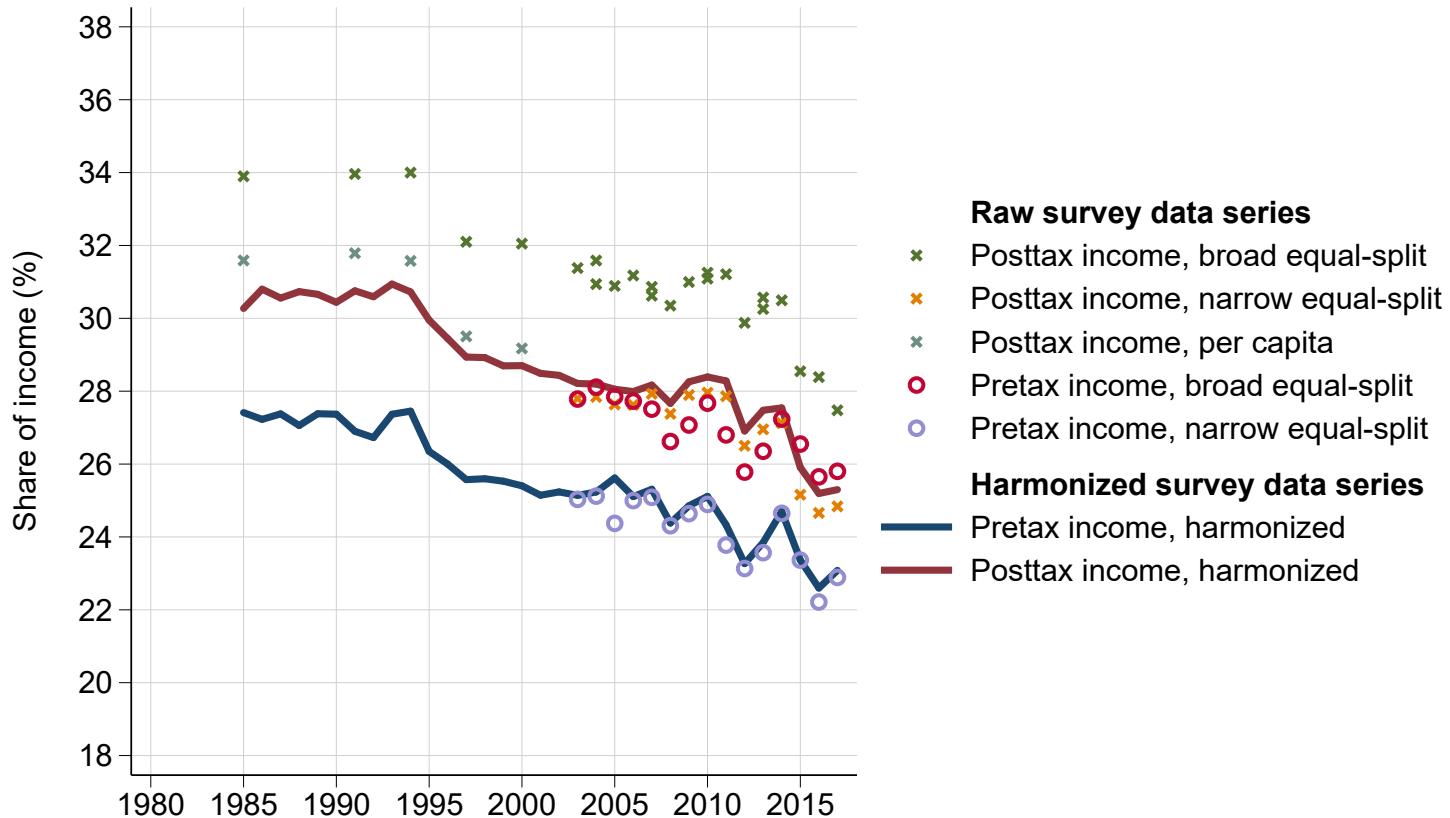
### 3.15 Luxembourg

**Figure A.3.15.1**  
Luxembourg: harmonization of survey data  
Top 10% pretax income share



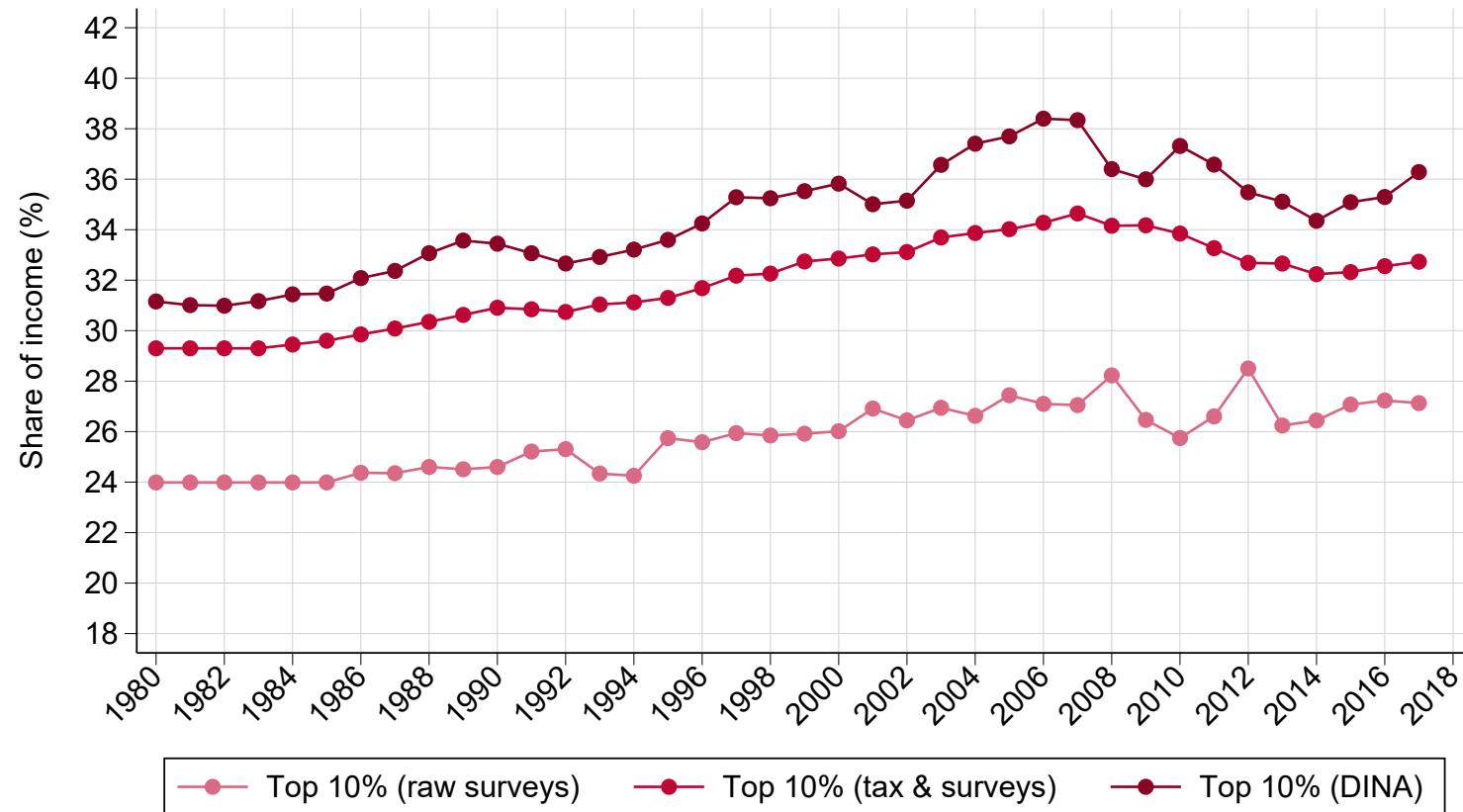
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.15.2**  
**Luxembourg: harmonization of survey data**  
**Bottom 50% pretax income share**



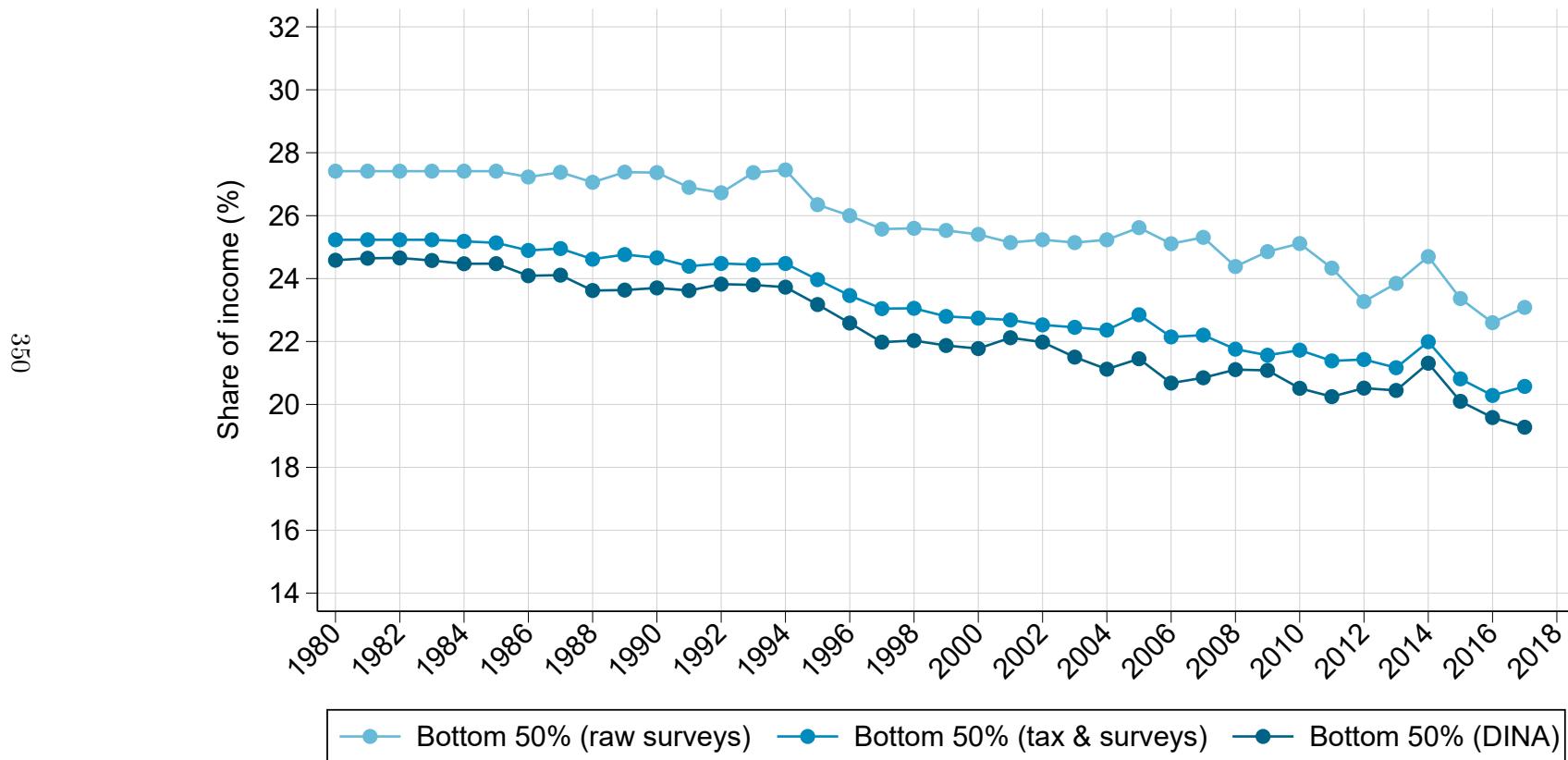
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.15.3**  
**Luxembourg: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



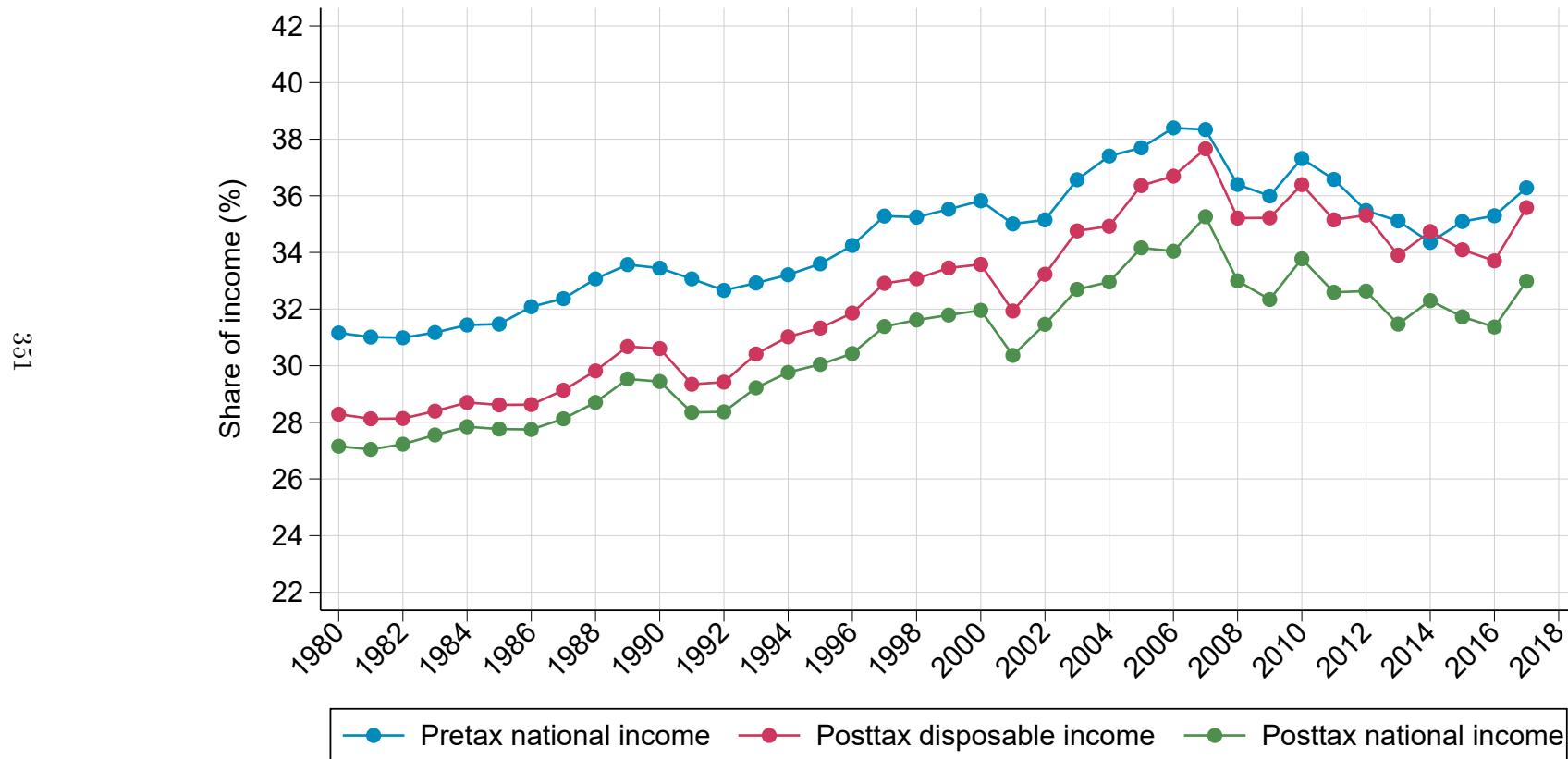
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.15.4**  
**Luxembourg: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



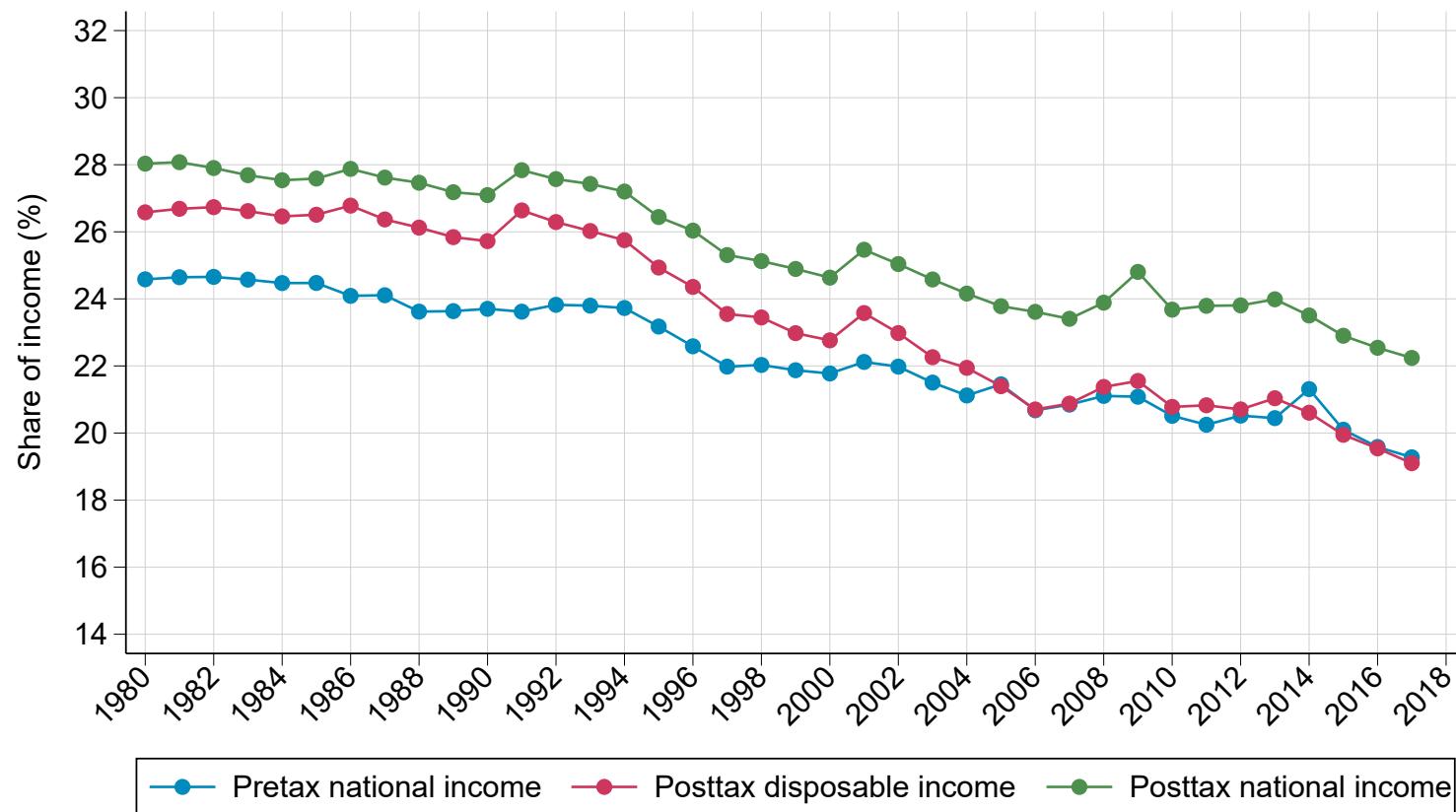
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.15.5**  
**Luxembourg: from pretax national income to posttax national income**  
**Top 10% income share**



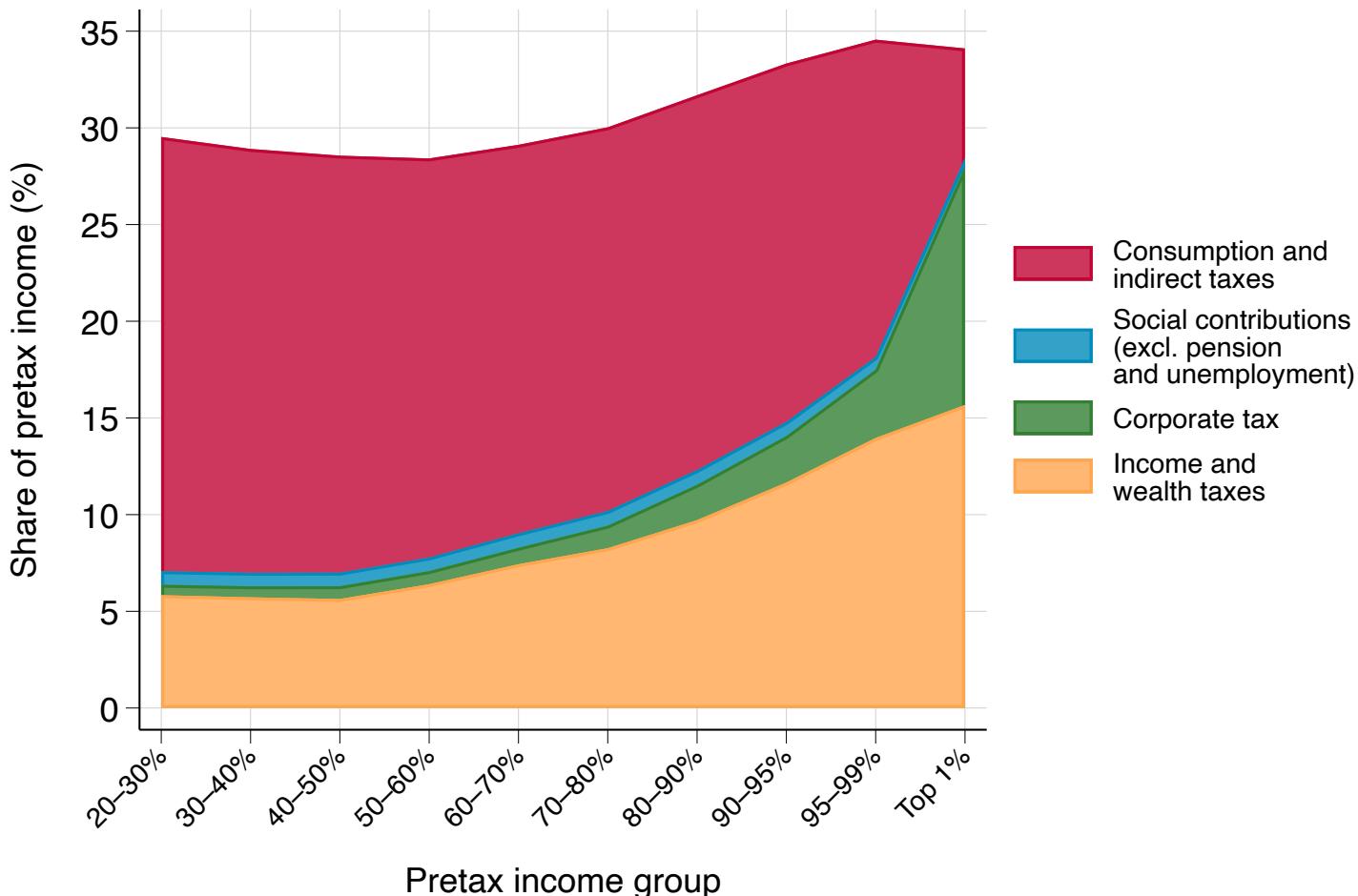
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.15.6**  
Luxembourg: from pretax national income to posttax national income  
**Bottom 50% income share**



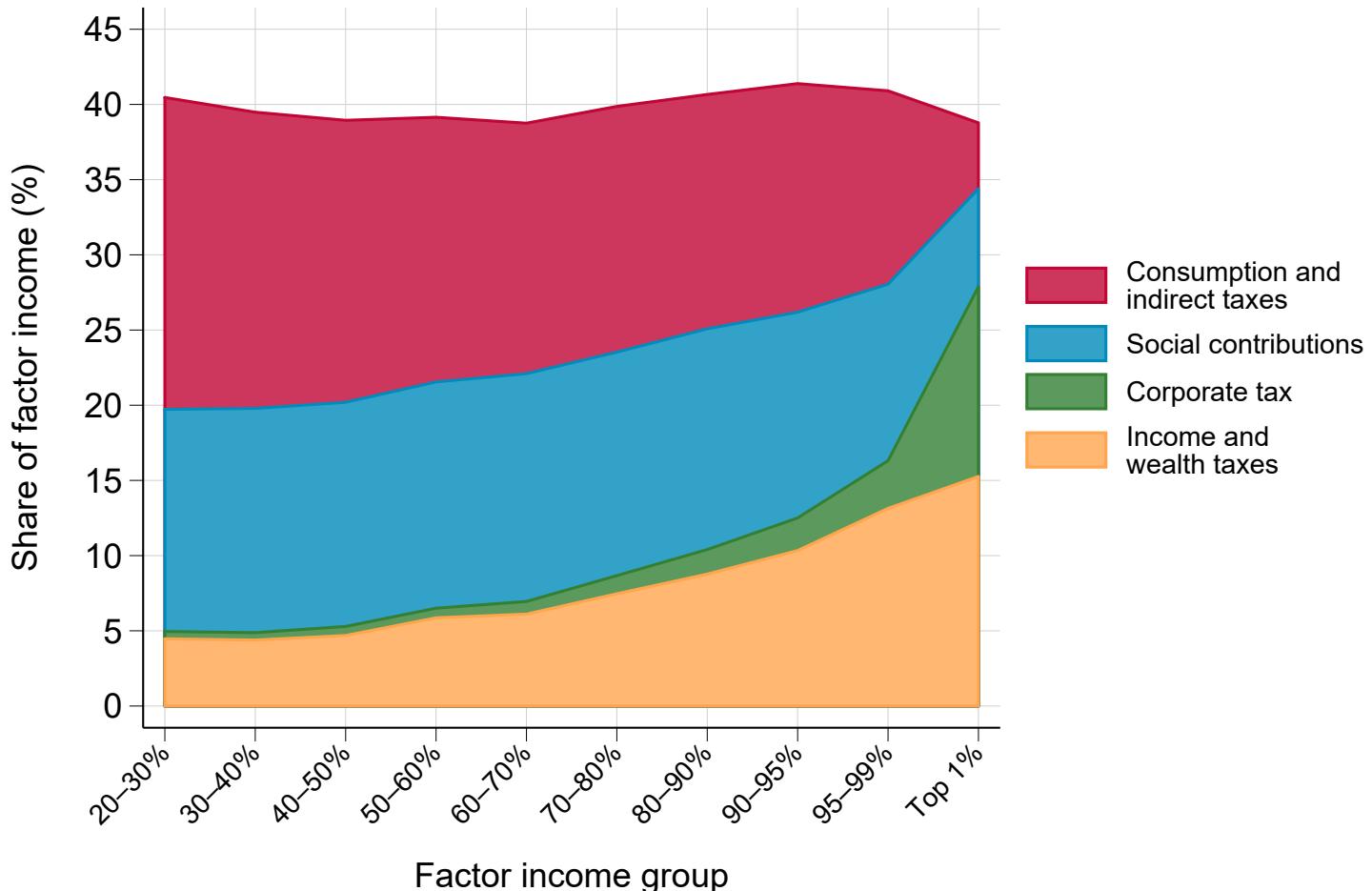
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.15.7**  
**Luxembourg: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



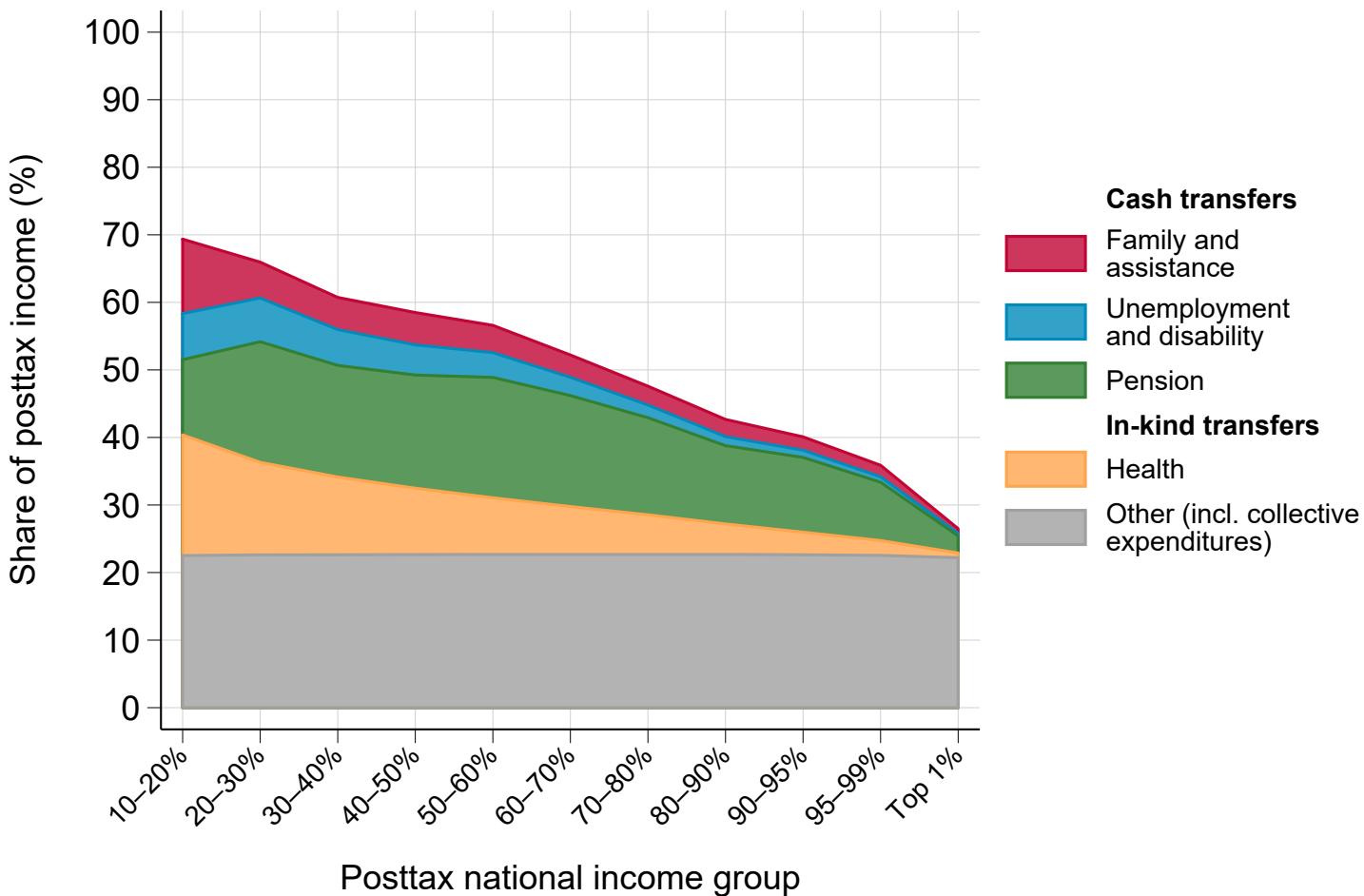
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.15.8**  
**Luxembourg: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



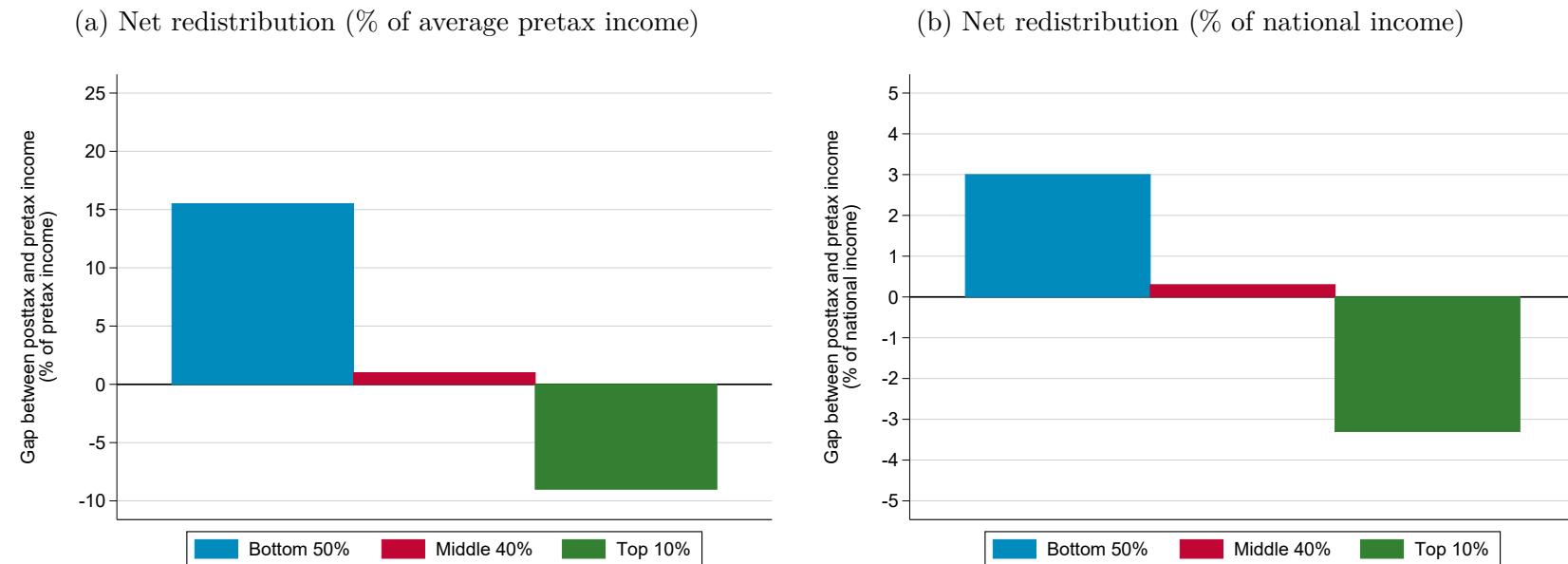
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.15.9**  
**Luxembourg: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.15.10**  
**Luxembourg: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.15.1**  
**Luxembourg: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980								x	
1981								x	
1982								x	
1983								x	
1984								x	
1985	x	x						x	
1986								x	
1987								x	
1988								x	
1989								x	
1990						x		x	
1991	x	x					x	x	
1992							x	x	
1993							x	x	
1994	x	x					x	x	
1995					x	x	x	x	
1996					x	x	x	x	
1997	x	x			x	x	x	x	
1998					x	x	x	x	
1999					x	x	x	x	
2000	x	x			x	x	x	x	
2001					x	x	x	x	
2002					x	x	x	x	
2003	x	x			x	x	x	x	
2004	x	x			x	x	x	x	
2005	x	x			x	x	x	x	
2006	x	x			x	x	x	x	
2007	x	x			x	x	x	x	
2008	x	x			x	x	x	x	
2009	x	x			x	x	x	x	
2010	x	x	x		x	x	x	x	
2011	x	x			x	x	x	x	
2012	x	x	x		x	x	x	x	
2013	x	x			x	x	x	x	
2014	x	x			x	x	x	x	
2015	x	x			x	x	x	x	
2016	x	x			x	x	x	x	
2017	x	x			x	x	x	x	

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

Table A.3.15.2

## Luxembourg: methodology used to distribute factor income, pretax income, and posttax income

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			67.2%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	63.6%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	3.5%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	12%
(+)	Government primary income	National accounts	Proportional to pretax income	20.9%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	14.8%
(+)	Pension benefits	Survey + tax data	Observed	12.9%
(+)	Unemployment benefits	Survey + tax data	Observed	1.8%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			40.6%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	2.3%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	14.2%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	18.9%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	5.1%
(+)	Transfers			36.1%
	<i>Cash transfers</i>	Survey + tax data	Observed	6.1%
	<i>Public health expenditures</i>	National accounts	Lump sum	6.9%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	23.2%
(+)	Budget balance	National accounts	Proportional to posttax income	4.4%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.15.3**  
**Luxembourg: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 86.3% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies increases the top 10% share of pretax income by 0.2 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1985–2013; SILC, 2003–2017; PovcalNet, 1985–2000); pretax income (SILC, 2003–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.8 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	2010–2012 (Authors)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 4.5 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 4.0 pp. higher than in the raw survey. The top 1% share of posttax income is 2.4 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2010, 2014, 2018 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 36.9% of stocks, capture 17.6% of imputed rents, and account for 16.9% of consumption.  Undistributed corporate profits increase the top 10% share of income by 1.6 pp. on average; Imputed rents decrease the top 10% share of income by 0.6 pp. on average; The corporate tax increase the top 10% share of pretax income by 1.1 pp. on average; Taxes on products increase the top 10% share of posttax income by 2.9 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.7 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.15.4**  
**The distribution of national income in Luxembourg, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€102,000	100%	€102,000	100%	€102,000	100%
Bottom 50%	€39,200	19.3%	€38,900	19.1%	€45,200	22.2%
Bottom 20%	€15,400	3.0%	€18,400	3.6%	€26,800	5.3%
Next 30%	€55,000	16.2%	€52,500	15.5%	€57,500	17.0%
Middle 40%	€113,000	44.4%	€115,000	45.3%	€114,000	44.8%
Top 10%	€369,000	36.3%	€362,000	35.6%	€335,000	33.0%
Top 1%	€1,310,000	12.9%	€1,180,000	11.6%	€1,070,000	10.5%
Top 0.1%	€5,270,000	5.2%	€4,370,000	4.3%	€3,930,000	3.9%
Top 0.01%	€21,950,000	2.2%	€16,870,000	1.7%	€15,170,000	1.5%
Top 0.001%	€92,290,000	0.9%	€65,930,000	0.6%	€59,230,000	0.6%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

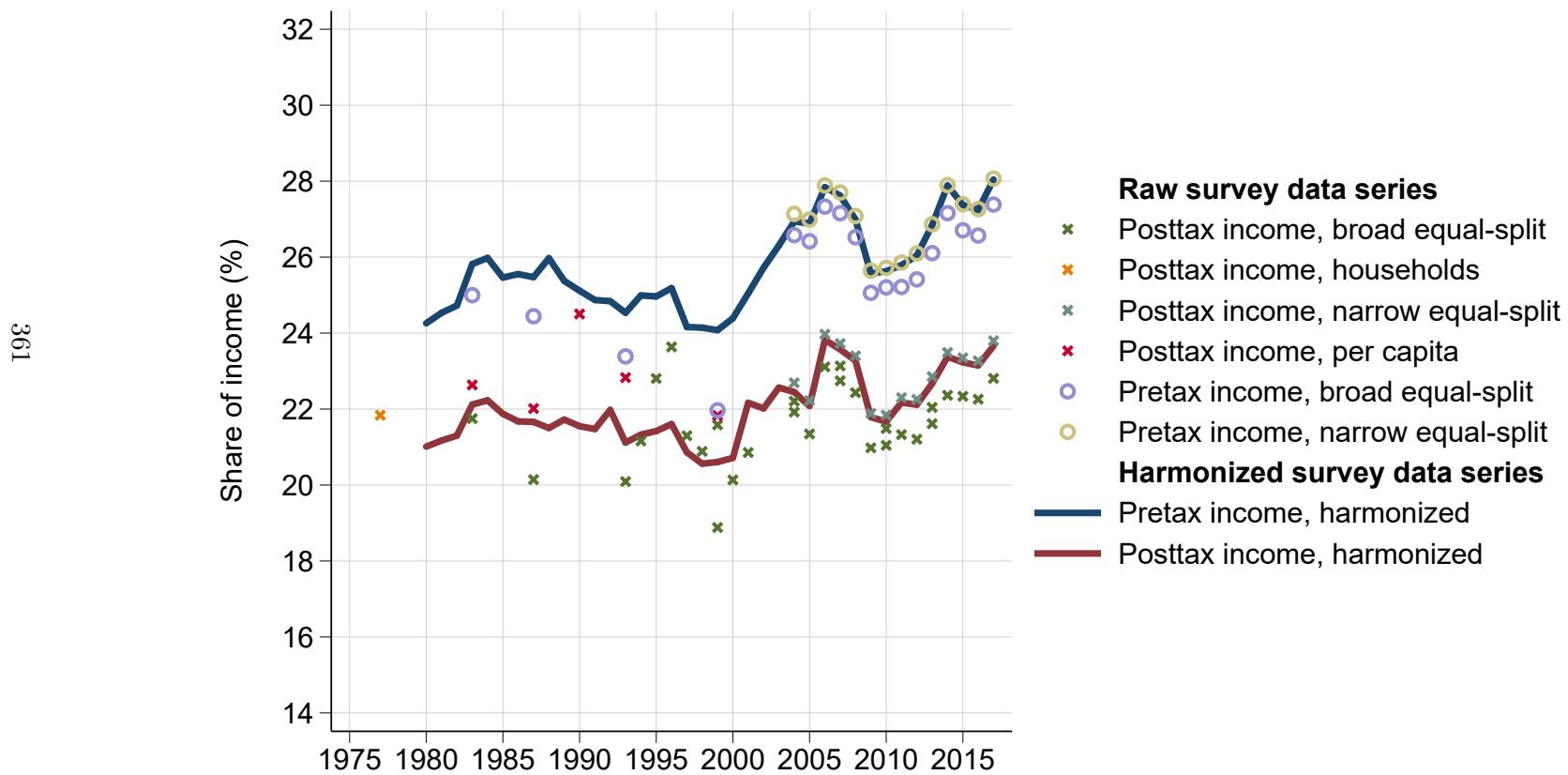
**Table A.3.15.5**  
**The distribution of national income growth in Luxembourg, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	2.6%	-2.9%	2.6%	-2.9%	2.6%	-2.9%
Bottom 50%	1.9%	-3.6%	1.7%	-3.7%	2.0%	-3.4%
Bottom 20%	1.0%	-6.3%	1.2%	-4.9%	1.9%	-3.8%
Next 30%	2.2%	-3.0%	1.8%	-3.4%	2.0%	-3.2%
Middle 40%	2.6%	-2.0%	2.6%	-2.0%	2.6%	-2.1%
Top 10%	3.0%	-3.4%	3.3%	-3.4%	3.2%	-3.5%
Top 1%	3.4%	-4.4%	3.9%	-4.5%	3.7%	-4.6%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

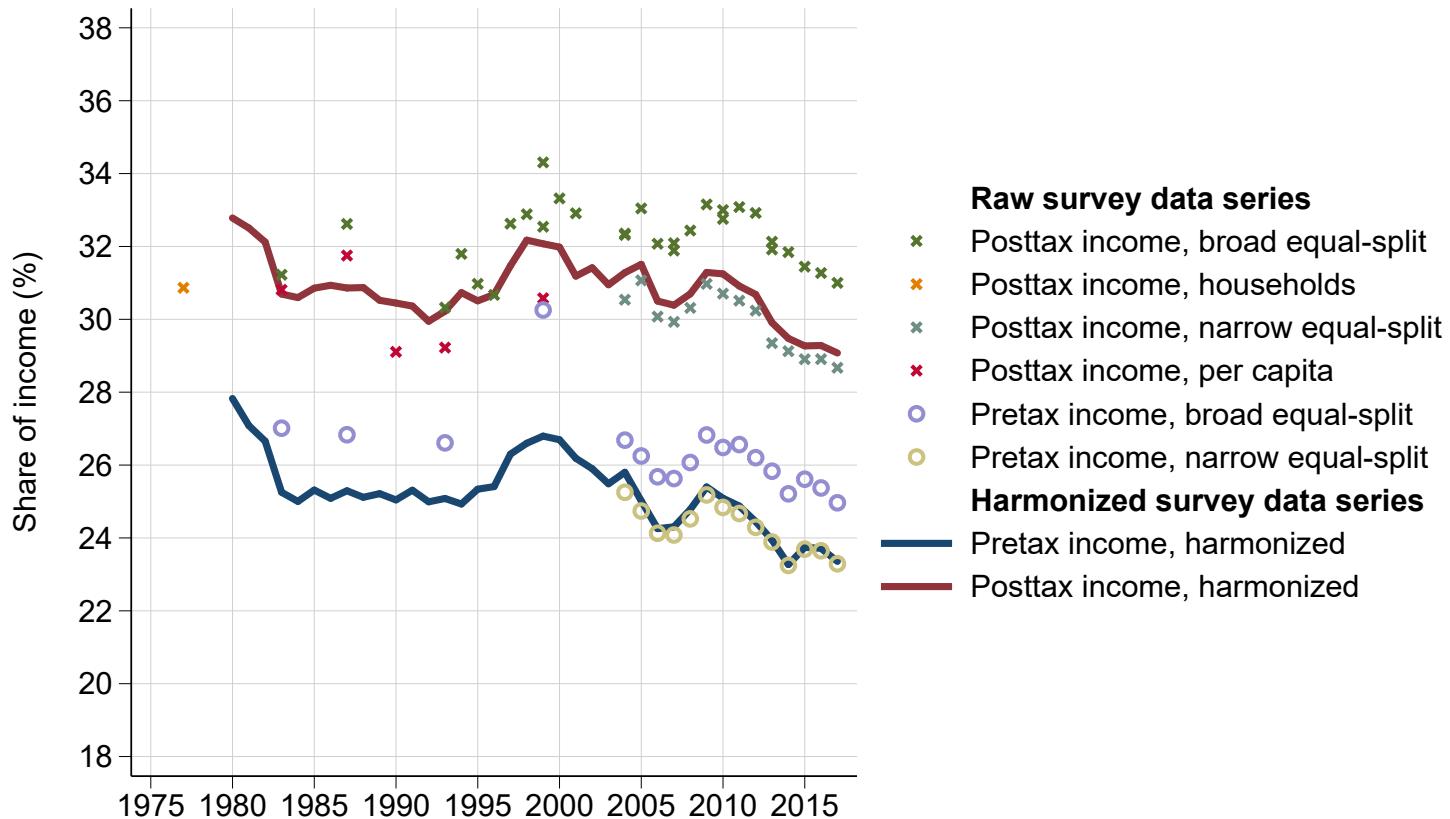
### 3.16 Netherlands

**Figure A.3.16.1**  
**Netherlands: harmonization of survey data**  
**Top 10% pretax income share**



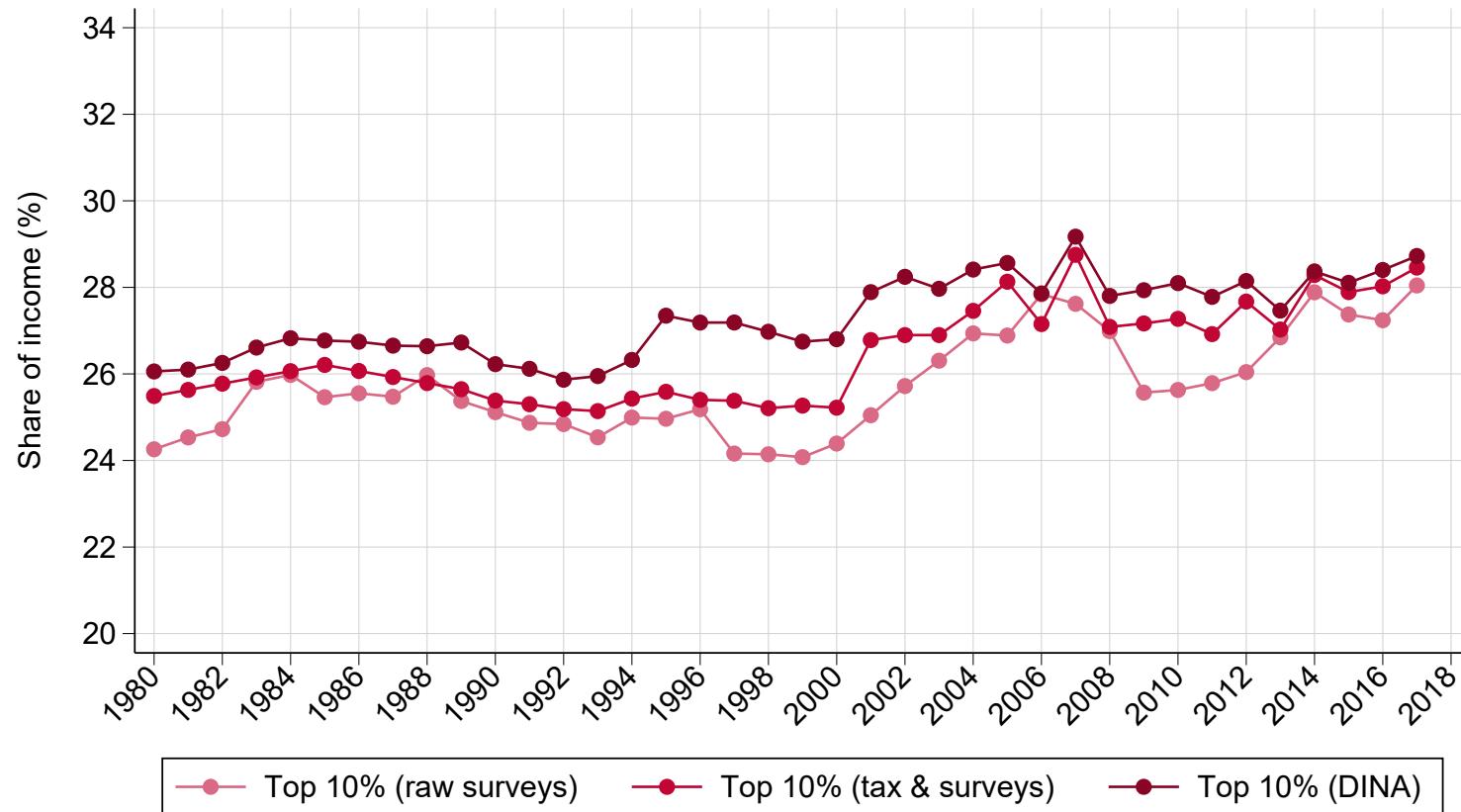
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.16.2**  
**Netherlands: harmonization of survey data**  
**Bottom 50% pretax income share**



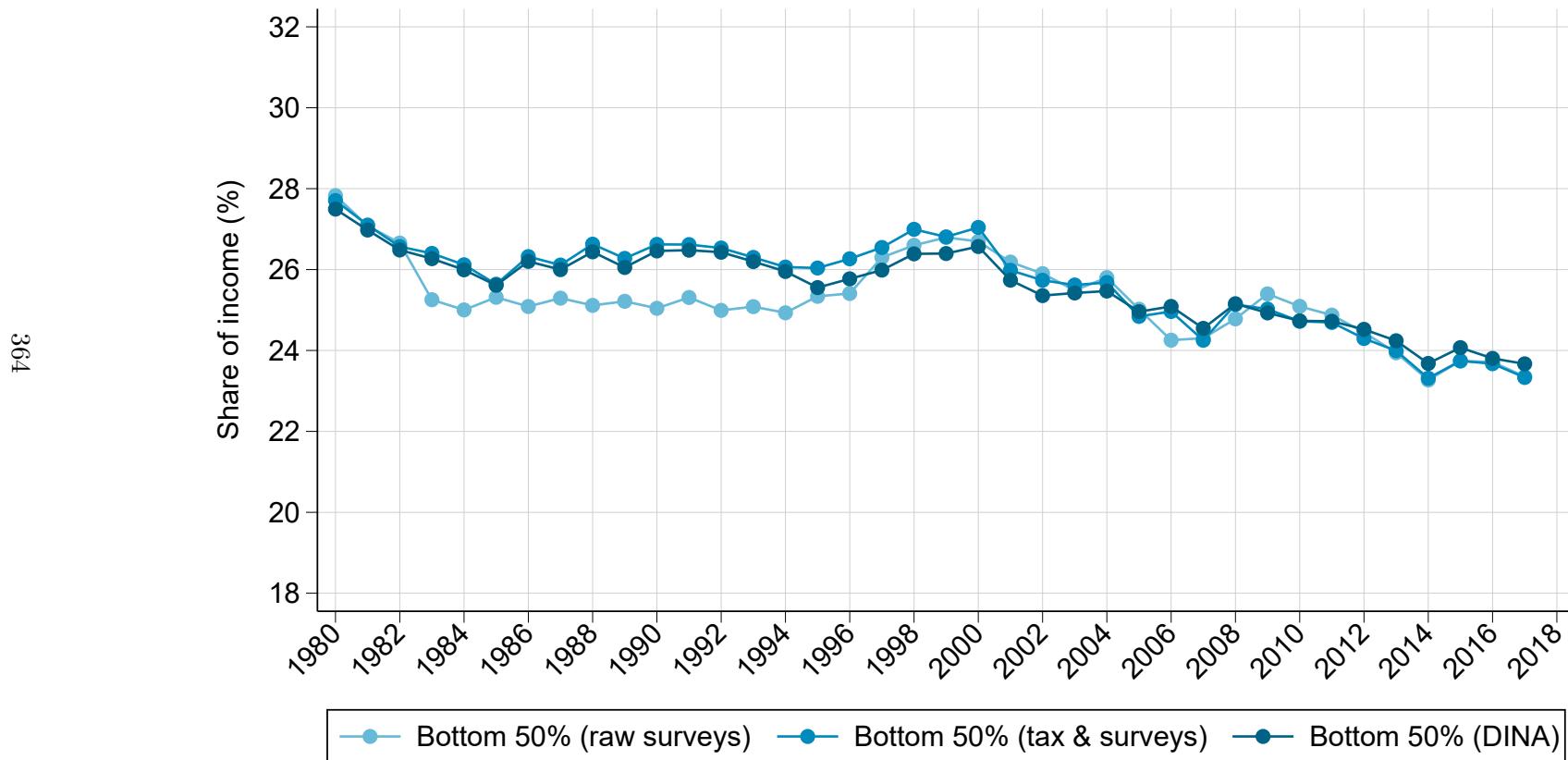
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.16.3**  
Netherlands: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



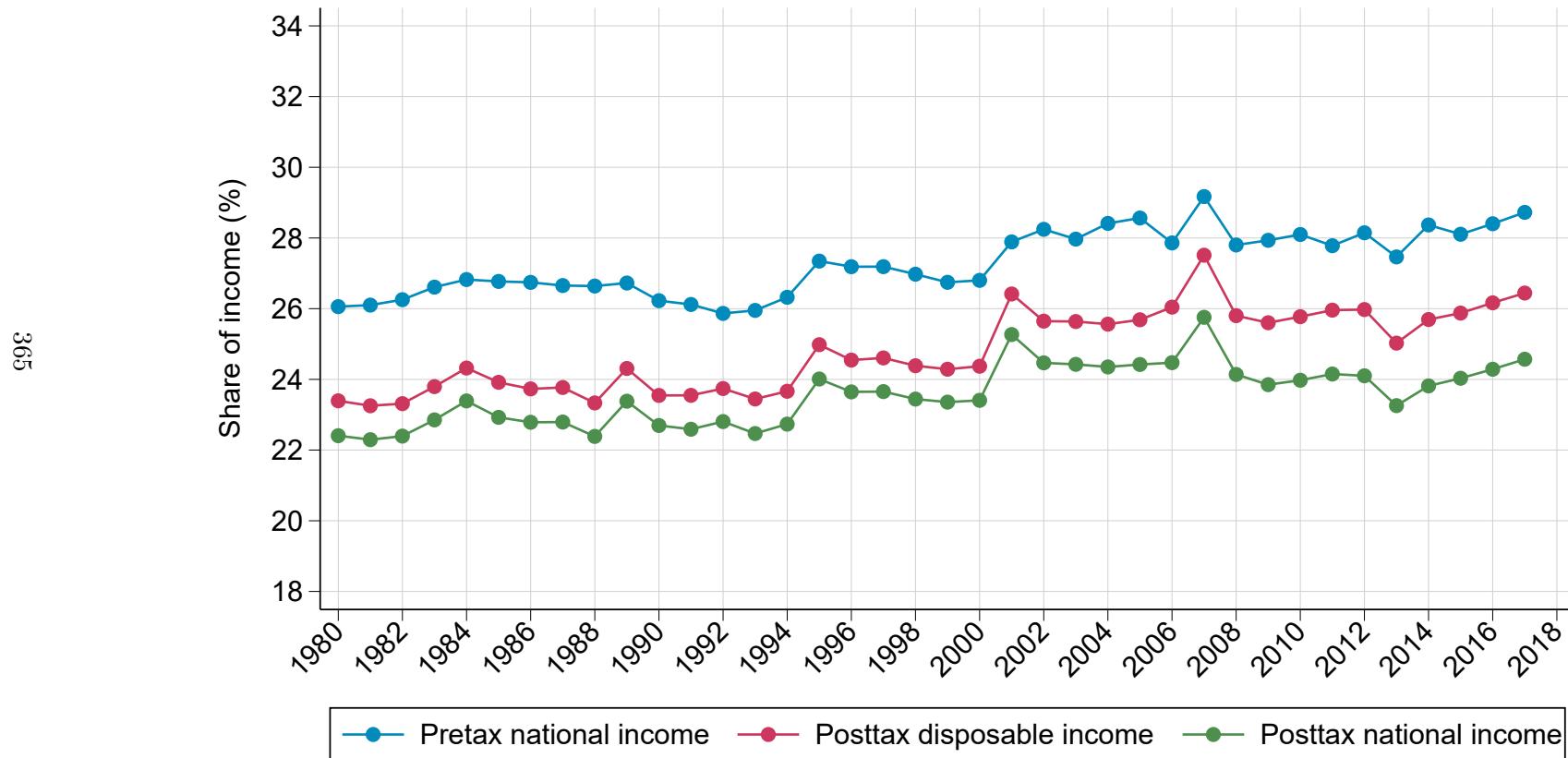
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.16.4**  
Netherlands: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



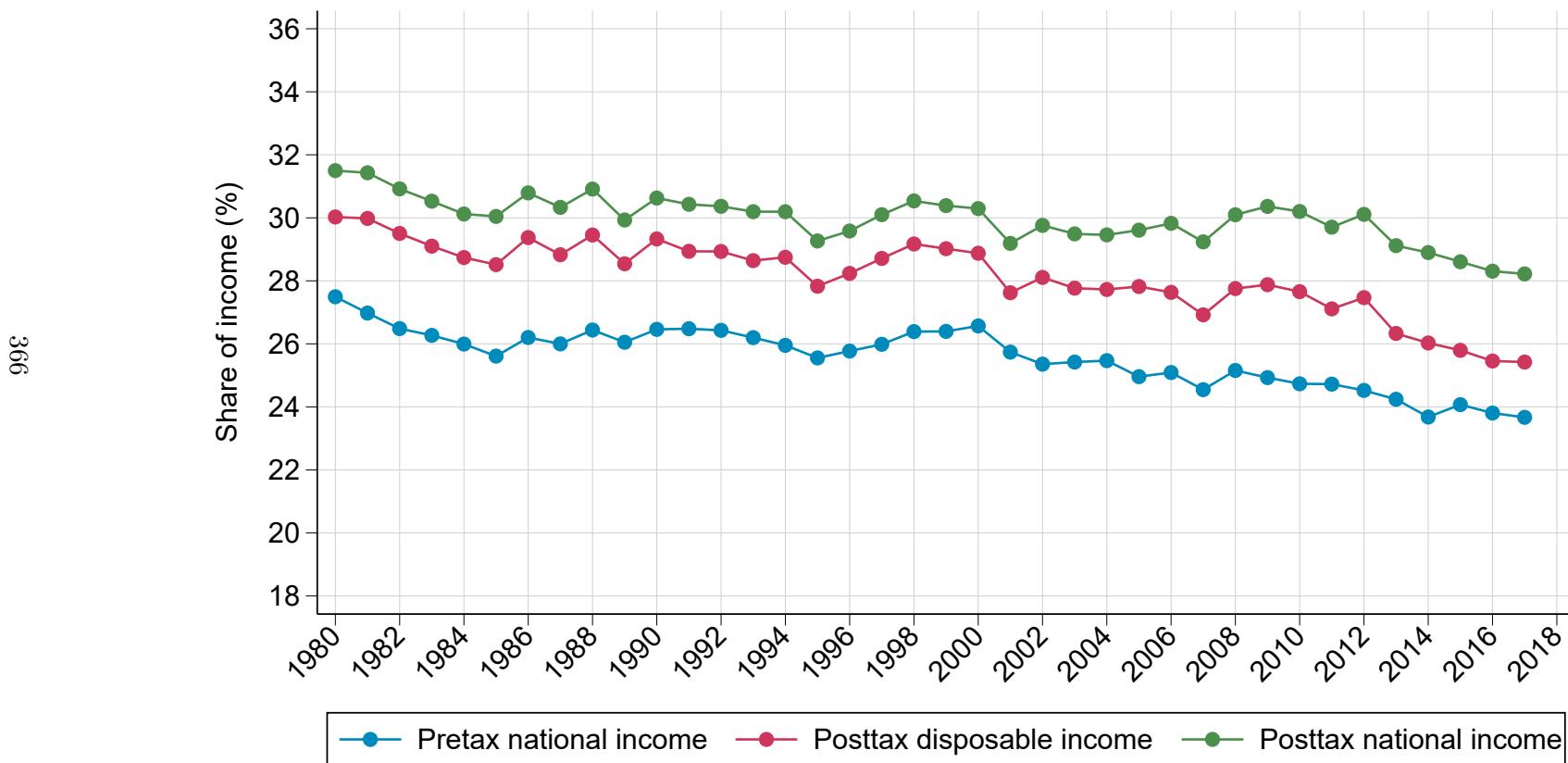
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.16.5**  
**Netherlands: from pretax national income to posttax national income**  
**Top 10% income share**



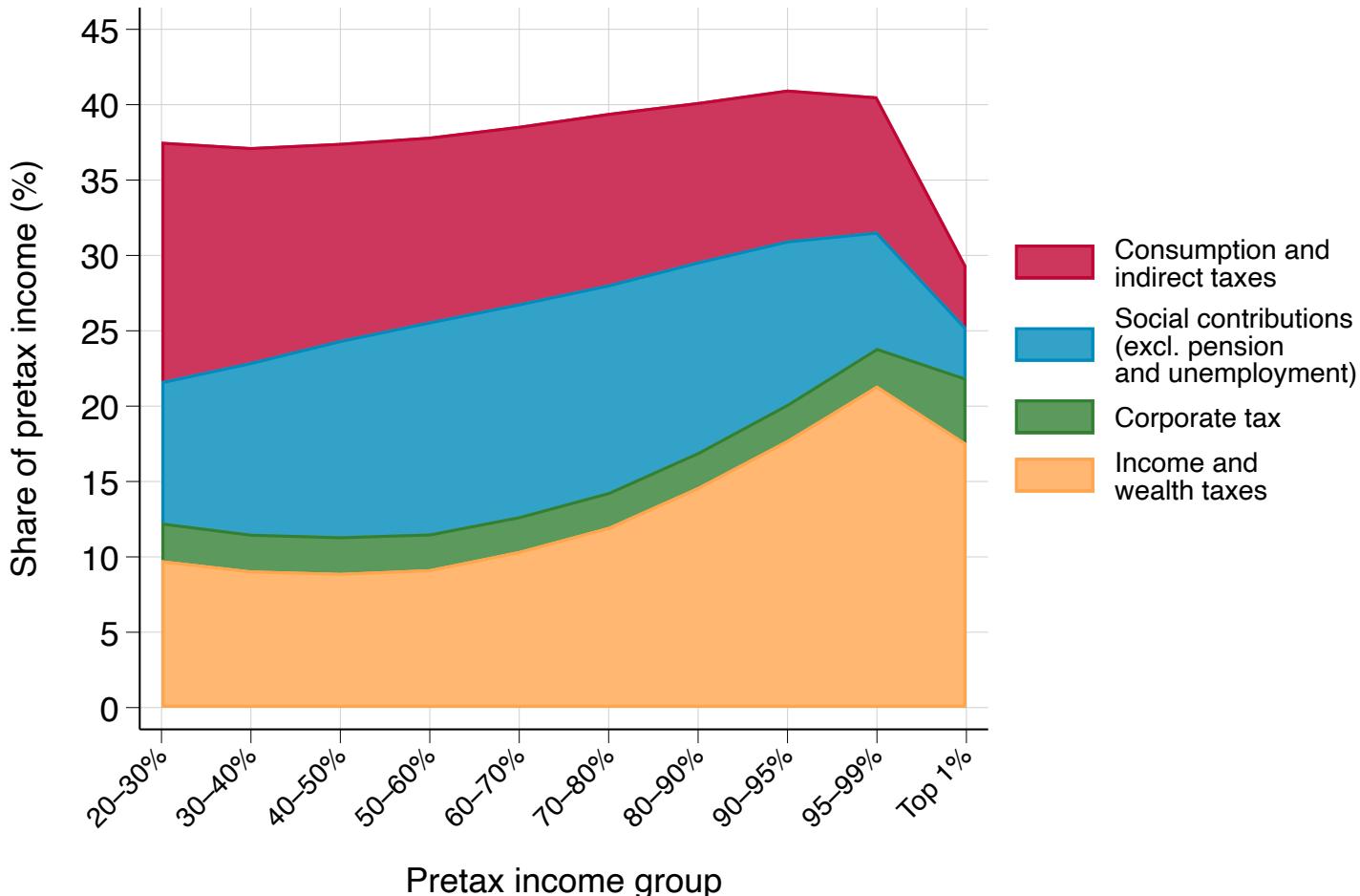
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.16.6**  
Netherlands: from pretax national income to posttax national income  
**Bottom 50% income share**



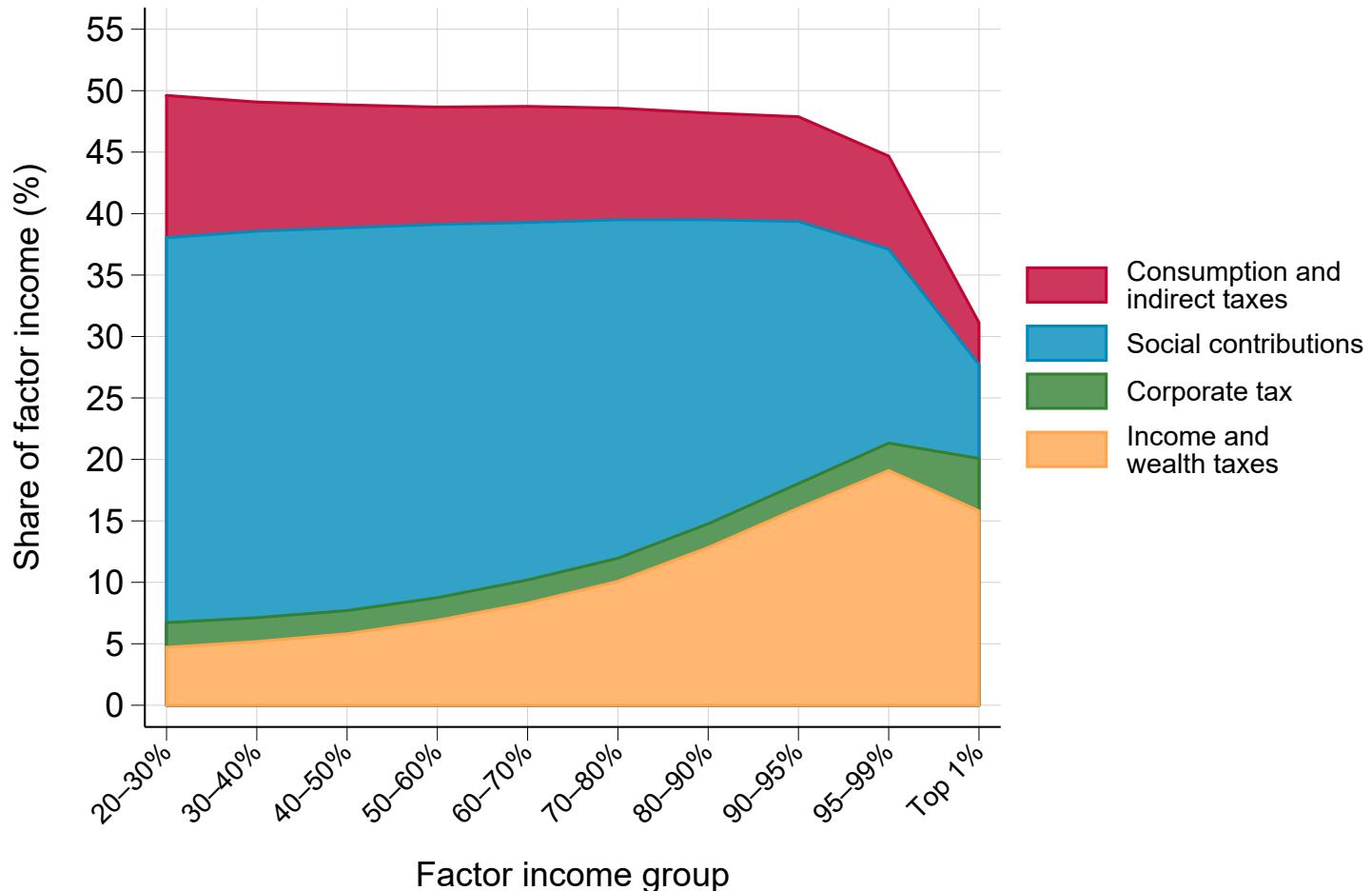
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.16.7**  
**Netherlands: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



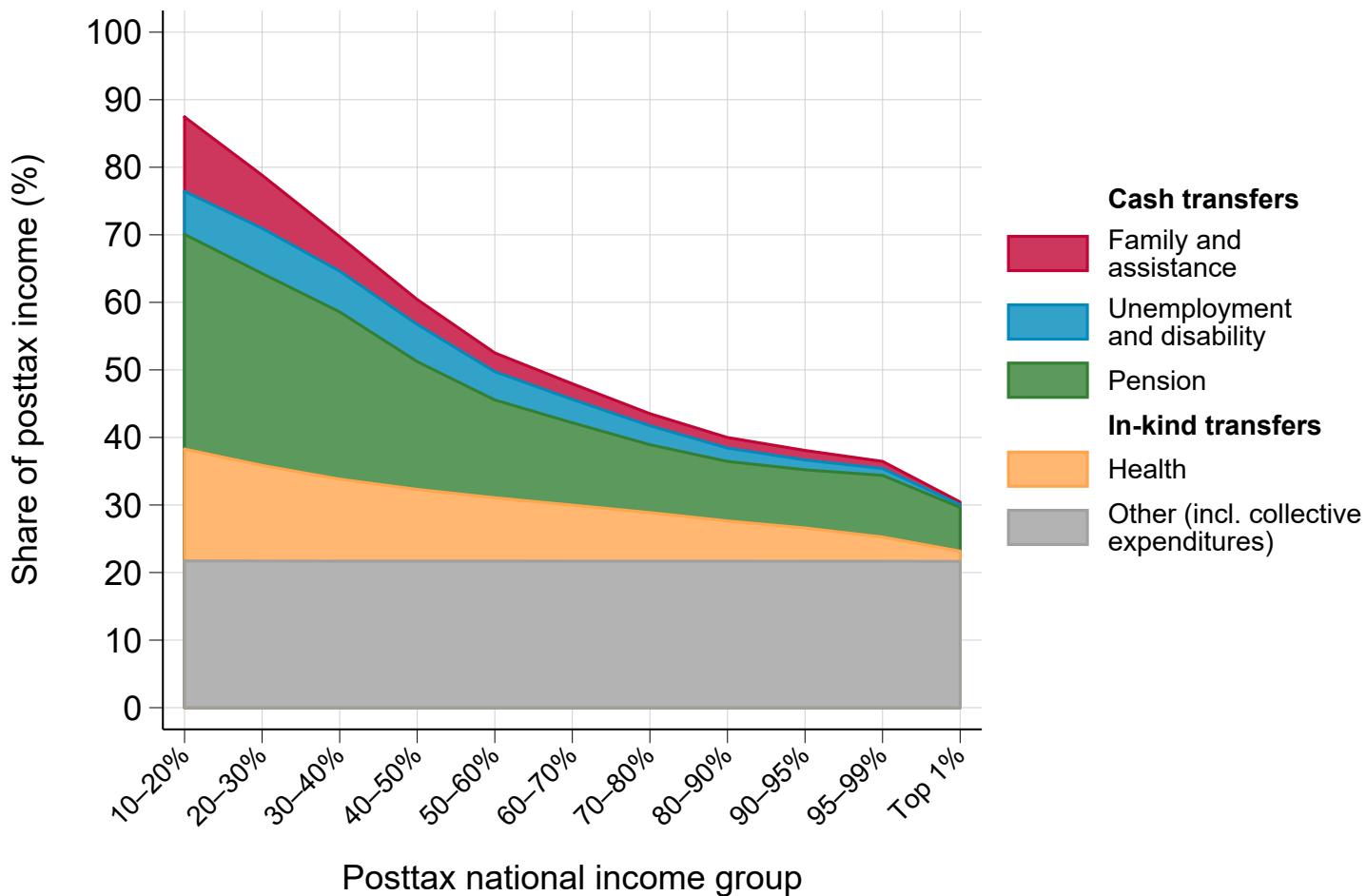
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.16.8**  
**Netherlands: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



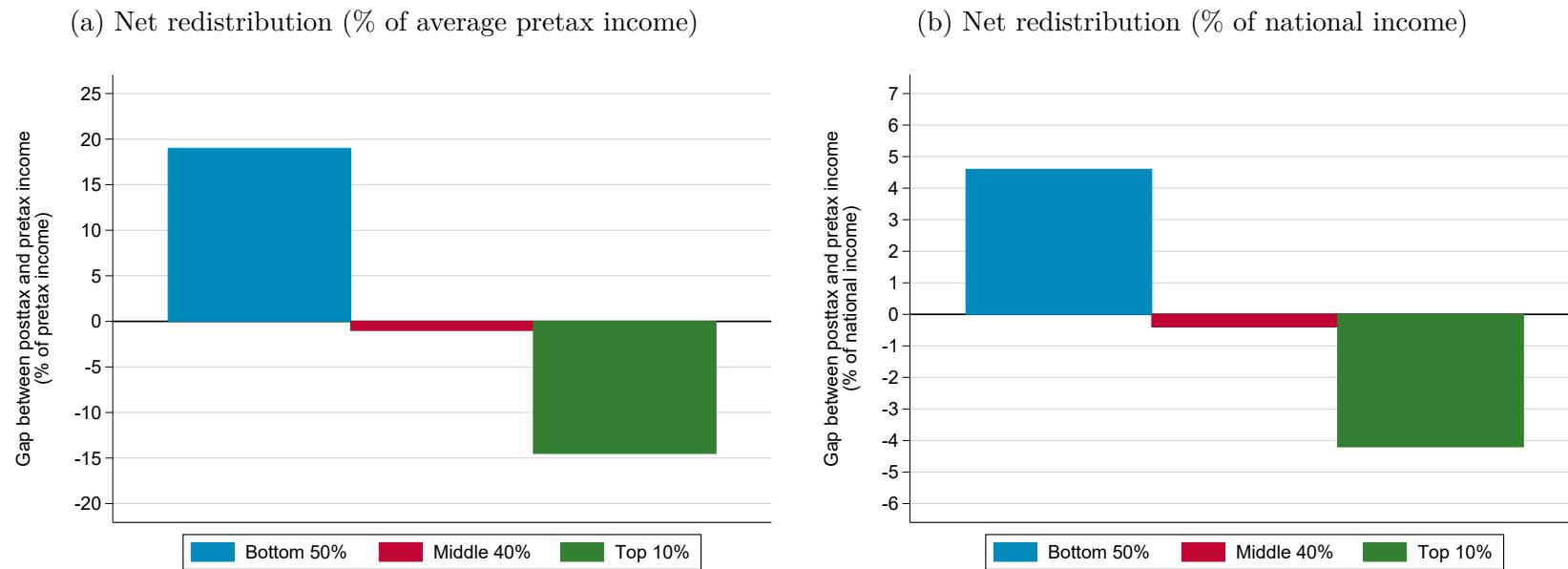
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.16.9**  
**Netherlands: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.16.10**  
**Netherlands: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.16.1**  
**Netherlands: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1977	x								
1980				x		x	x	x	x
1981			x	x		x	x	x	x
1982				x		x	x	x	x
1983	x	x		x		x	x	x	x
1984				x		x	x	x	x
1985			x	x		x	x	x	x
1986				x		x	x	x	x
1987	x	x		x		x	x	x	x
1988				x		x	x	x	x
1989			x	x		x	x	x	x
1990	x		x	x	x	x	x	x	x
1991			x	x	x	x	x	x	x
1992			x	x	x	x	x	x	x
1993	x	x	x	x	x	x	x	x	x
1994	x	x	x	x	x	x	x	x	x
1995	x	x	x	x	x	x	x	x	x
1996	x	x	x	x	x	x	x	x	x
1997	x	x	x	x	x	x	x	x	x
1998	x	x	x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001	x	x	x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.16.2**  
**Netherlands: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			72.8%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	74.7%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	-1.9%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	14.6%
(+)	Government primary income	National accounts	Proportional to pretax income	12.5%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	16.1%
(+)	Pension benefits	Survey + tax data	Observed	13.4%
(+)	Unemployment benefits	Survey + tax data	Observed	2.7%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			34.7%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	11.1%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	9.1%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	11.7%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.8%
(+)	Transfers			37.5%
	<i>Cash transfers</i>	Survey + tax data	Observed	6.6%
	<i>Public health expenditures</i>	National accounts	Lump sum	9.1%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	21.7%
(+)	Budget balance	National accounts	Proportional to posttax income	-2.8%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.16.3**  
**Netherlands: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2004–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2004–2017); Employer contributions (OECD, 2004–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 59.4% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies increases the top 10% share of pretax income by 1.0 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (ECHP, 1994–2001; LIS, 1983–2013; SILC, 2004–2017; PovcalNet, 1983–1999; CSO 2005, 1977); pretax income (LIS, 1983–1999; SILC, 2004–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 3.7 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	1981–2012 ( <a href="#">Salverda and Atkinson, 2007</a> )	See section 1.4.2.	When using the same income concept as the tax data, we find no major difference between the top 1% income share in the survey and in the tax data.
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 0.6 pp. higher than in the raw survey. The top 1% share of posttax income is 0.3 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCS, 2010, 2014, 2017 (corporate stocks); EU-SILC, 2004–2017 (imputed rents)	Due to lack of data, we use the average European distribution for imputed rents.	We estimate that the top 10% of pretax income earners own, on average, 21.7% of stocks, capture 20.8% of imputed rents, and account for 18.7% of consumption.
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 1.0 pp. on average; Imputed rents increase the top 10% share of income by 0.05 pp. on average; The corporate tax decrease the top 10% share of pretax income by 0.1 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.0 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.2 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.16.4**  
**The distribution of national income in Netherlands, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€45,200	100%	€45,200	100%	€45,200	100%
Bottom 50%	€21,400	23.7%	€23,000	25.4%	€25,500	28.2%
Bottom 20%	€9,900	4.4%	€11,700	5.2%	€15,500	6.9%
Next 30%	€29,000	19.3%	€30,500	20.2%	€32,200	21.4%
Middle 40%	€53,800	47.6%	€54,400	48.1%	€53,300	47.2%
Top 10%	€130,000	28.7%	€119,000	26.4%	€111,000	24.6%
Top 1%	€308,000	6.8%	€288,000	6.4%	€261,000	5.8%
Top 0.1%	€710,000	1.6%	€777,000	1.7%	€693,000	1.5%
Top 0.01%	€1,620,000	0.4%	€2,190,000	0.5%	€1,940,000	0.4%
Top 0.001%	€3,680,000	0.1%	€6,270,000	0.1%	€5,560,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

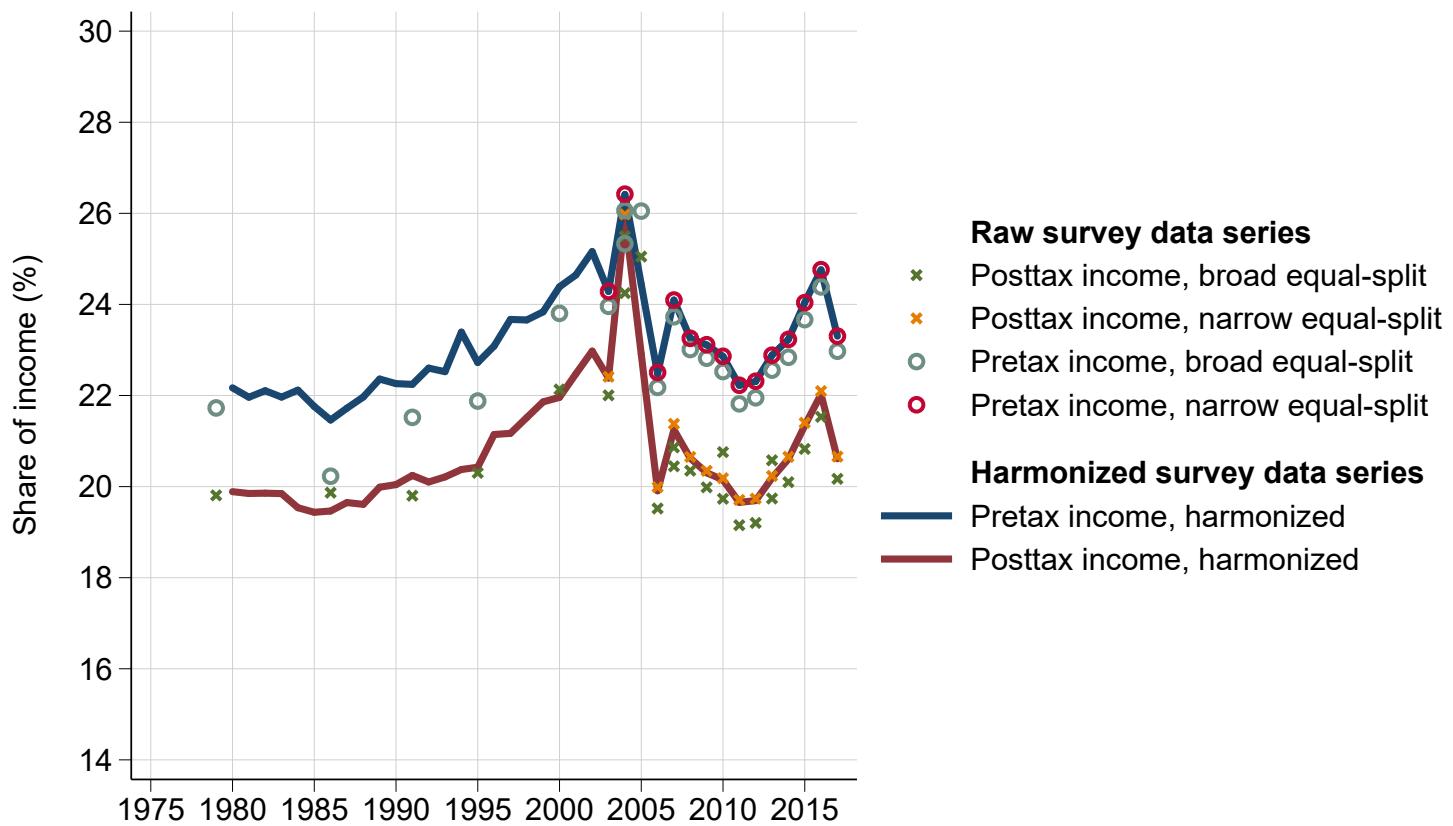
**Table A.3.16.5**  
**The distribution of national income growth in Netherlands, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	0.9%	0.2%	0.9%	0.2%	0.9%	0.2%
Bottom 50%	0.5%	-0.1%	0.5%	-0.3%	0.6%	-0.1%
Bottom 20%	0.2%	-1.0%	0.2%	-2.0%	0.6%	-1.1%
Next 30%	0.6%	0.1%	0.6%	0.1%	0.6%	0.2%
Middle 40%	1.0%	0.5%	1.0%	0.8%	1.0%	0.7%
Top 10%	1.2%	0.1%	1.3%	-0.2%	1.2%	-0.2%
Top 1%	1.3%	-1.0%	1.5%	-1.3%	1.4%	-1.4%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

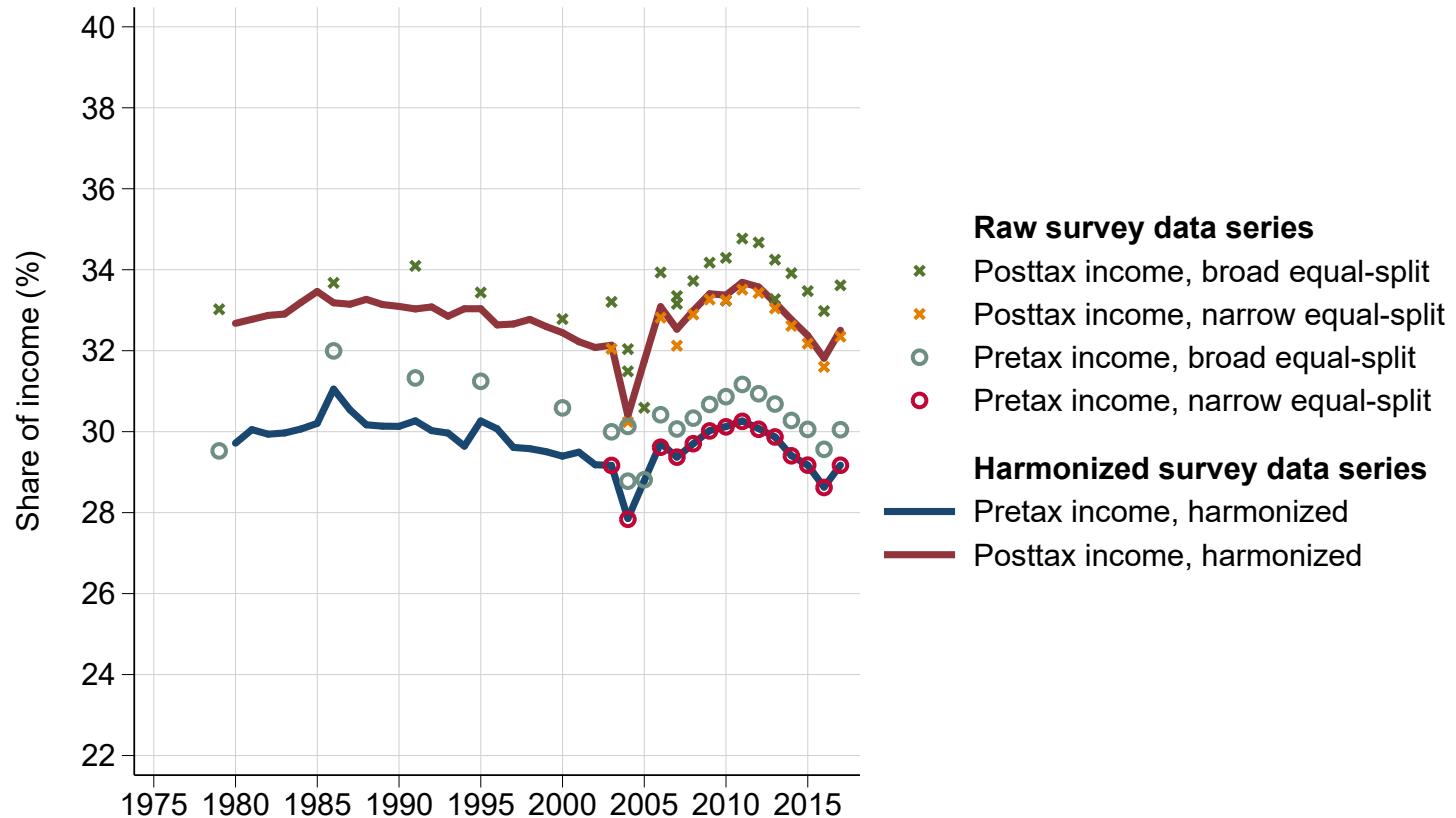
### 3.17 Norway

Figure A.3.17.1  
Norway: harmonization of survey data  
Top 10% pretax income share



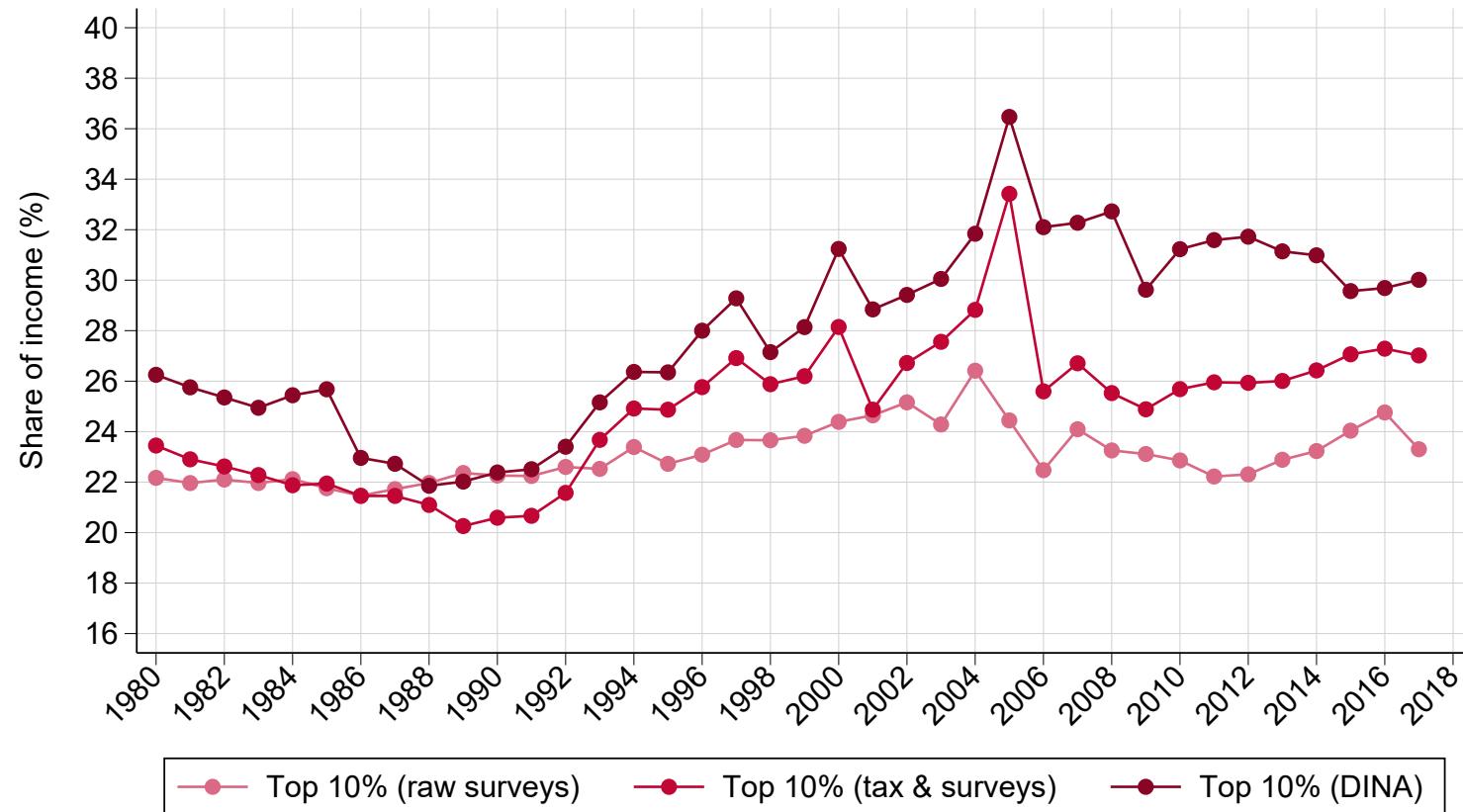
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.17.2**  
**Norway: harmonization of survey data**  
**Bottom 50% pretax income share**



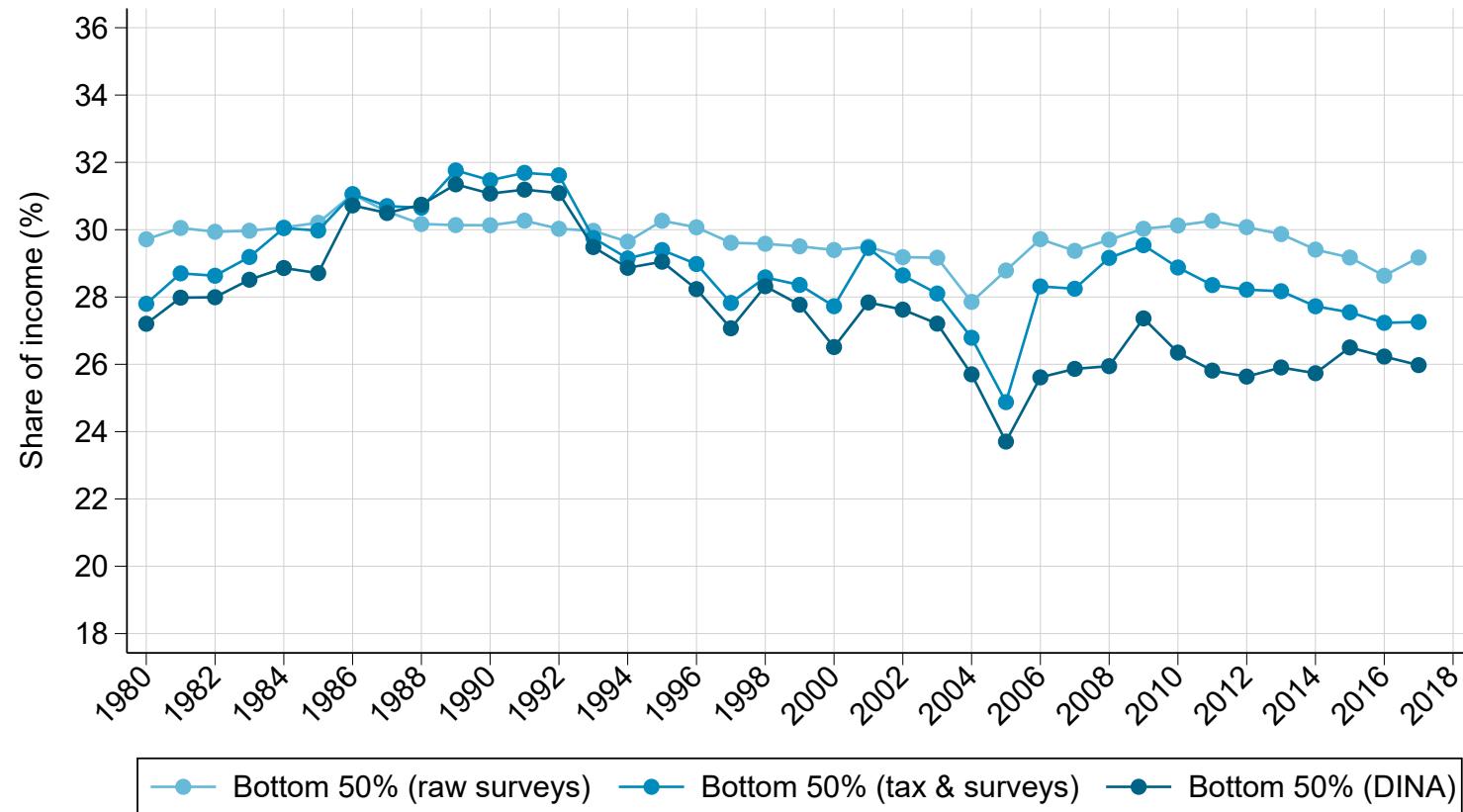
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.3.17.3  
Norway: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



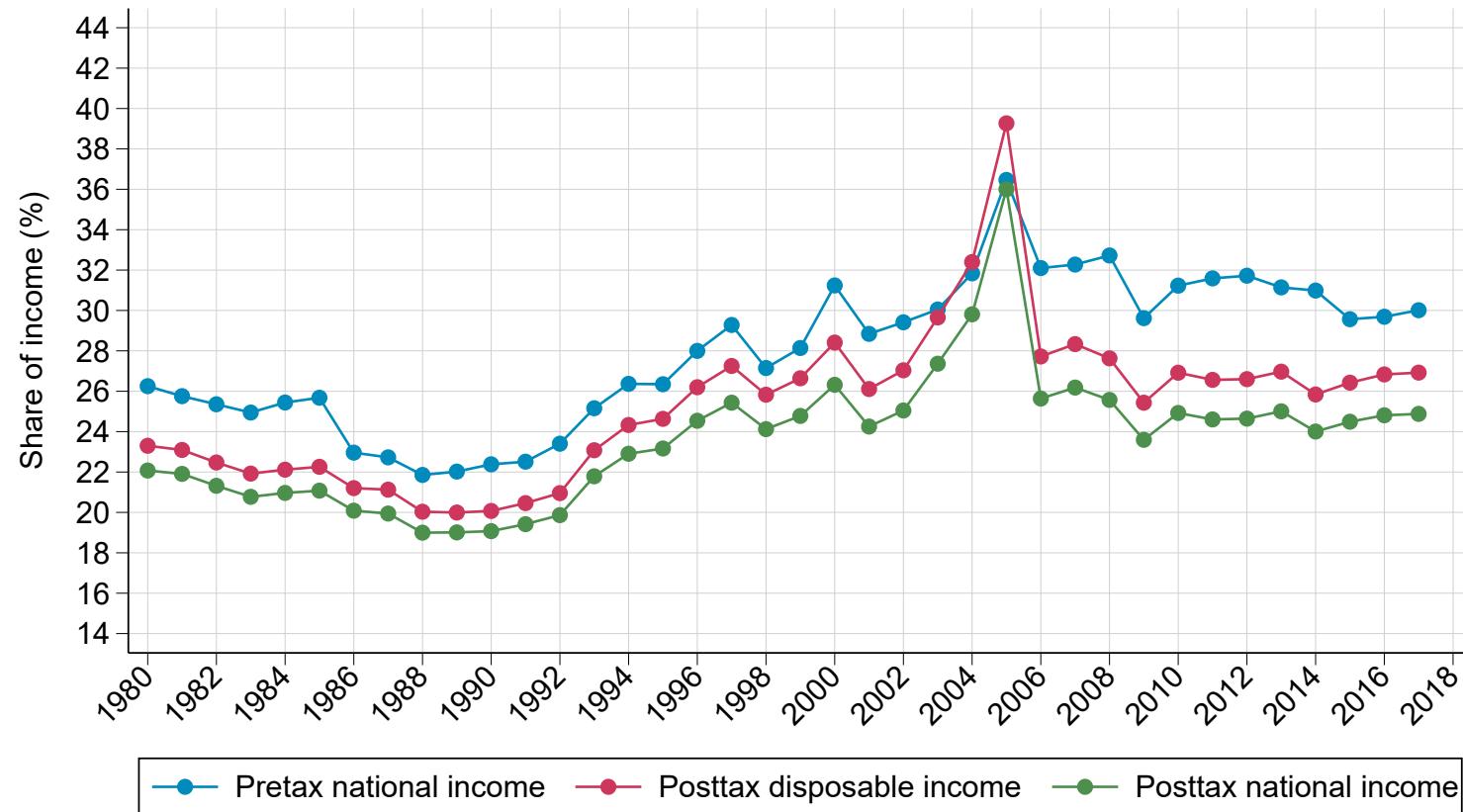
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.17.4  
Norway: from harmonized surveys to distributional national accounts  
Bottom 50% pretax income share



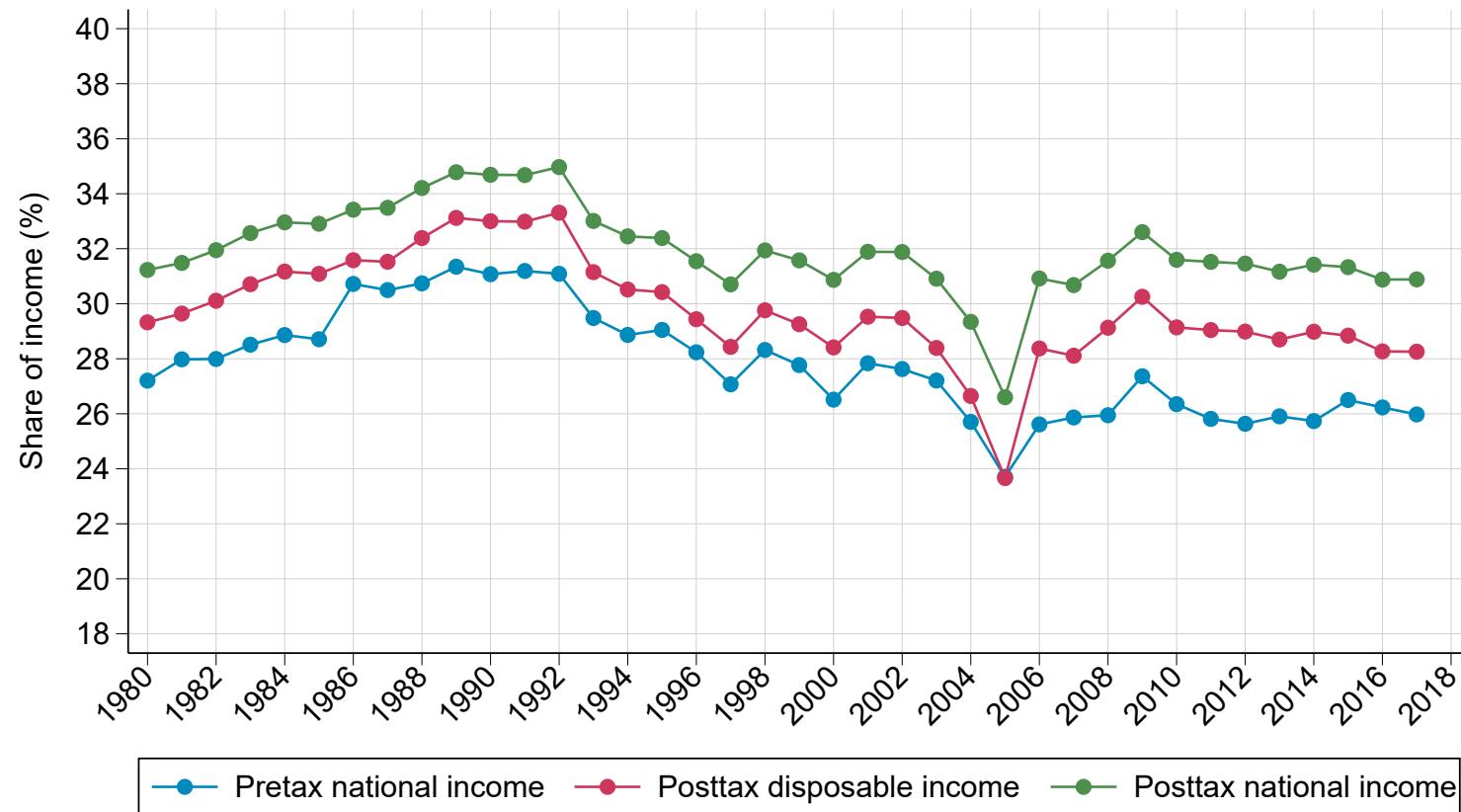
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.17.5**  
Norway: from pretax national income to posttax national income  
**Top 10% income share**



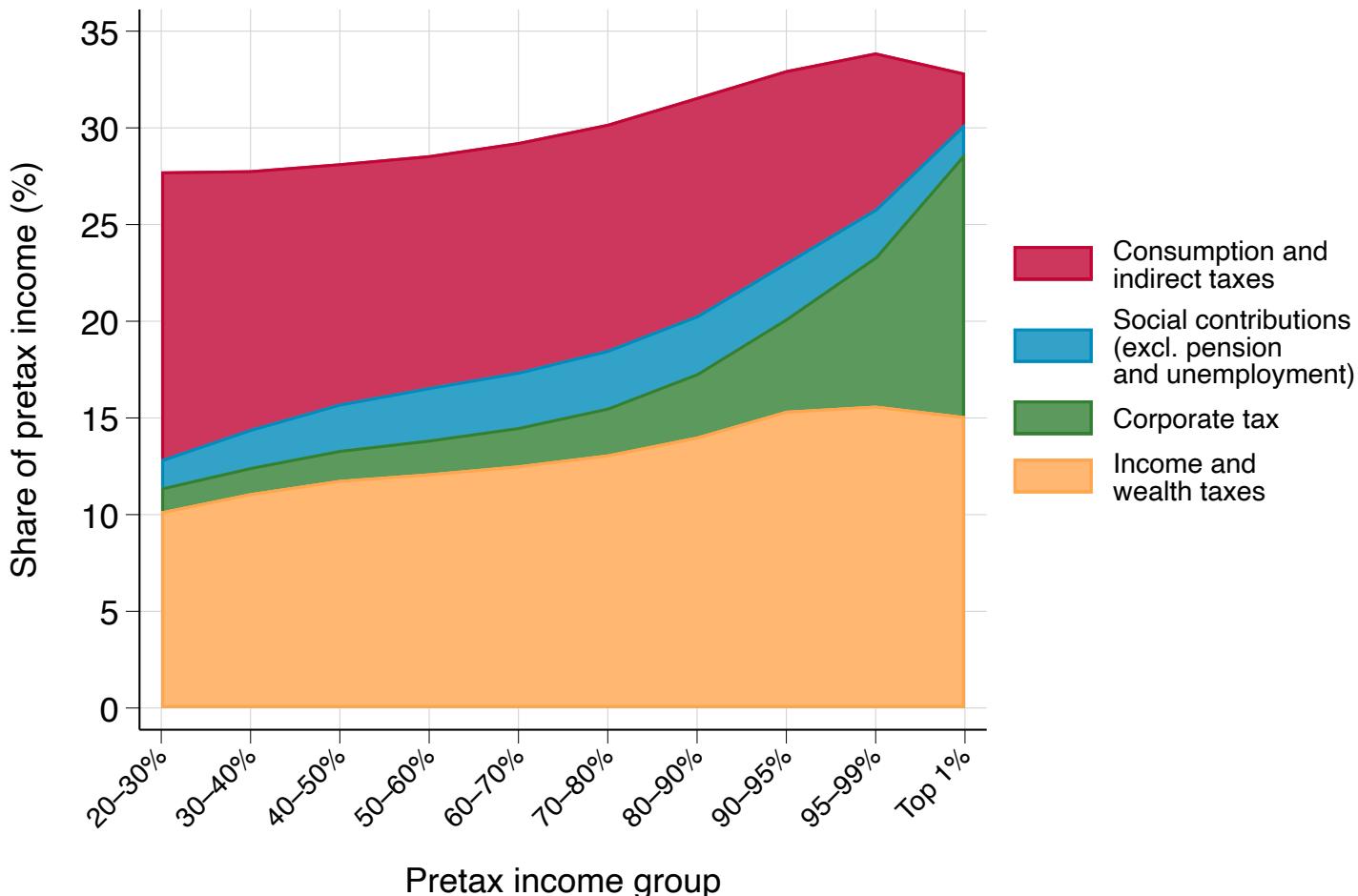
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.17.6**  
**Norway: from pretax national income to posttax national income**  
**Bottom 50% income share**



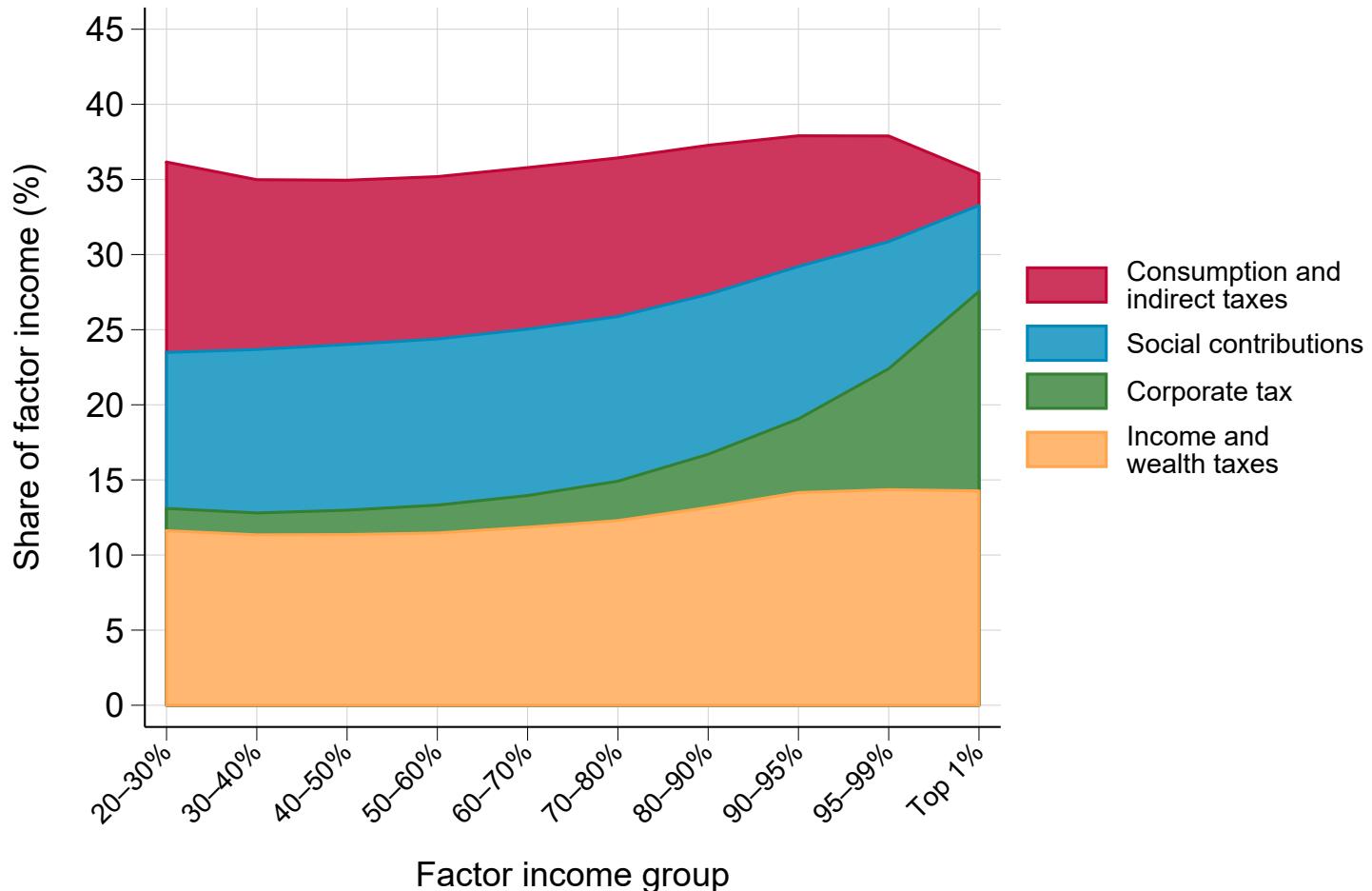
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.17.7**  
**Norway: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



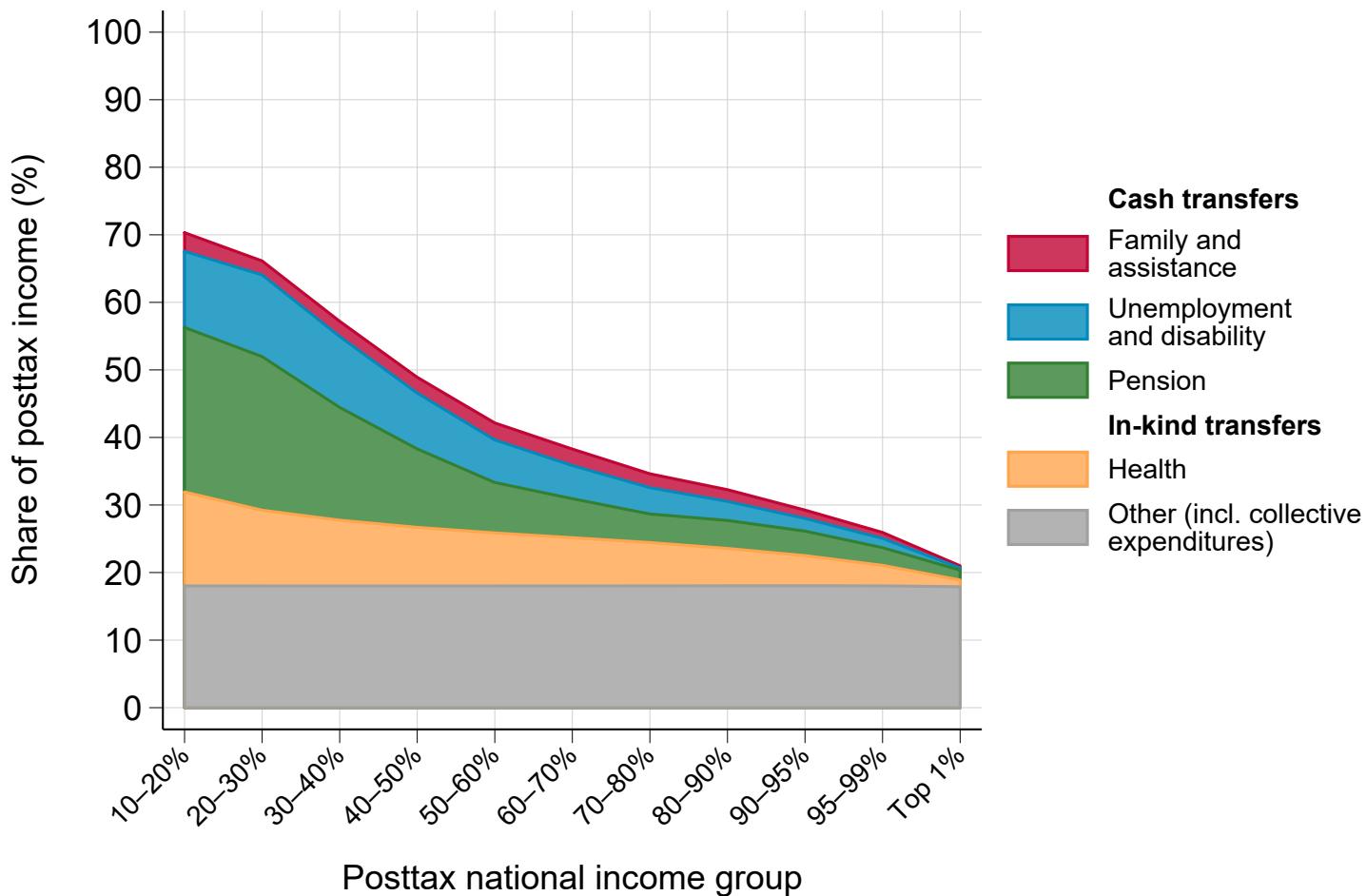
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.17.8**  
**Norway: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



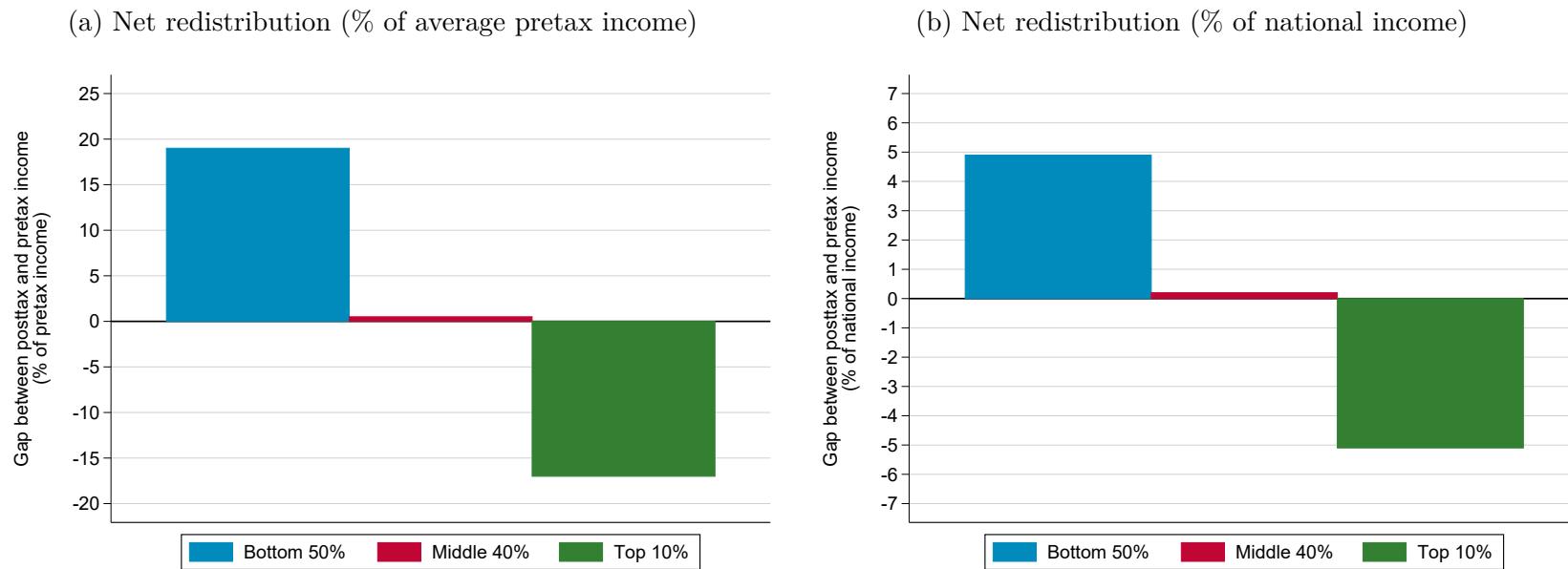
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.17.9**  
**Norway: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.17.10**  
**Norway: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.17.1**  
**Norway: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1979	x	x							
1980			x	x		x	x	x	x
1981			x	x		x	x	x	x
1982			x	x		x	x	x	x
1983			x	x		x	x	x	x
1984			x	x		x	x	x	x
1985			x	x		x	x	x	x
1986	x	x	x	x		x	x	x	x
1987			x	x		x	x	x	x
1988			x	x		x	x	x	x
1989			x	x		x	x	x	x
1990			x	x		x	x	x	x
1991	x	x	x	x		x	x	x	x
1992			x	x		x	x	x	x
1993			x	x		x	x	x	x
1994			x	x		x	x	x	x
1995	x	x	x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999			x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x		x	x	x	x	x	x
2013	x	x		x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.17.2**  
**Norway: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			59.8%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	58.2%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	1.7%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	16.1%
(+)	Government primary income	National accounts	Proportional to pretax income	24%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	13.2%
(+)	Pension benefits	Survey + tax data	Observed	12.6%
(+)	Unemployment benefits	Survey + tax data	Observed	.6%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			32.7%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	2%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	11.6%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	11.3%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	7.8%
(+)	Transfers			32.9%
	<i>Cash transfers</i>	Survey + tax data	Observed	6.5%
	<i>Public health expenditures</i>	National accounts	Lump sum	7.6%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	18.8%
(+)	Budget balance	National accounts	Proportional to posttax income	-0.2%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.17.3**  
**Norway: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 83.6% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.1 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (LIS, 1979–2013; SILC, 2003–2017); pretax income (LIS, 1979–2004; SILC, 2003–2017)	See section 1.3.	No estimation of pretax and posttax income needed.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1981–2011 (Aaberge and Atkinson, 2010)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 2.8 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 1.5 pp. higher than in the raw survey. The top 1% share of posttax income is 1.7 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	EU-SILC, 2006–2017 (imputed rents)	Due to lack of data, we use the average European distribution for corporate stocks and imputed rents.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 15.8% of imputed rents, and account for 18.3% of consumption.
			See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 1.2 pp. on average; Imputed rents decrease the top 10% share of income by 0.4 pp. on average; The corporate tax increase the top 10% share of pretax income by 1.3 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.4 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.7 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.17.4**  
**The distribution of national income in Norway, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€55,000	100%	€55,000	100%	€55,000	100%
Bottom 50%	€28,600	26.0%	€31,100	28.3%	€34,000	30.9%
Bottom 20%	€16,700	6.1%	€18,600	6.8%	€23,000	8.4%
Next 30%	€36,400	19.9%	€39,400	21.5%	€41,300	22.5%
Middle 40%	€60,500	44.0%	€61,600	44.8%	€60,800	44.2%
Top 10%	€165,000	30.0%	€148,000	26.9%	€137,000	24.9%
Top 1%	€516,000	9.4%	€422,000	7.7%	€378,000	6.9%
Top 0.1%	€1,760,000	3.2%	€1,310,000	2.4%	€1,160,000	2.1%
Top 0.01%	€6,200,000	1.1%	€4,200,000	0.8%	€3,700,000	0.7%
Top 0.001%	€21,980,000	0.4%	€13,570,000	0.2%	€11,940,000	0.2%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

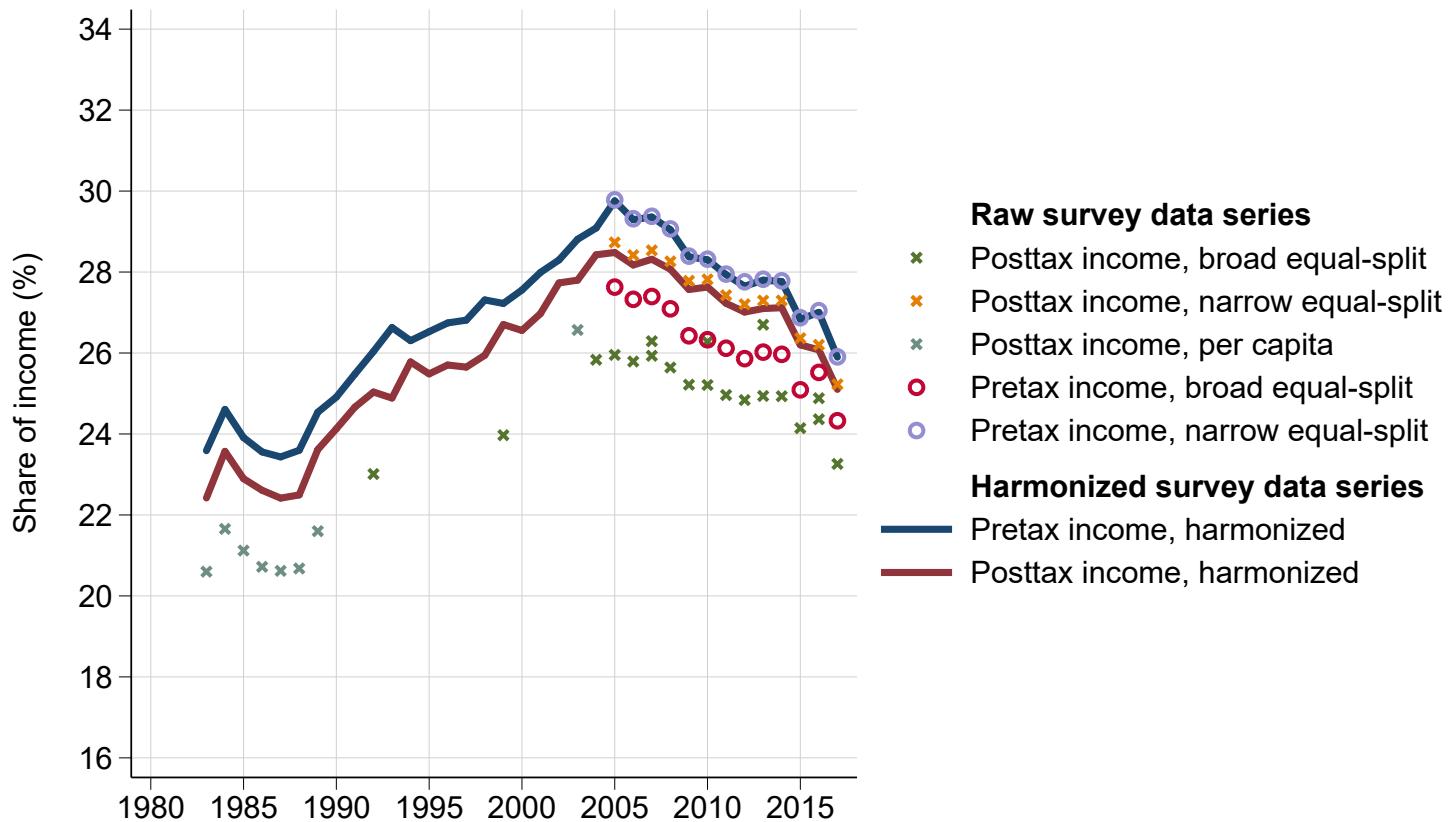
**Table A.3.17.5**  
**The distribution of national income growth in Norway, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	2.4%	0.9%	2.4%	0.9%	2.4%	0.9%
Bottom 50%	2.2%	1.0%	2.3%	1.0%	2.3%	1.0%
Bottom 20%	2.1%	0.4%	2.3%	0.9%	2.4%	1.0%
Next 30%	2.3%	1.2%	2.3%	1.0%	2.3%	1.0%
Middle 40%	2.2%	1.5%	2.2%	1.2%	2.2%	1.2%
Top 10%	2.7%	0.2%	2.8%	0.4%	2.7%	0.4%
Top 1%	3.3%	-1.4%	3.5%	-1.4%	3.4%	-1.4%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

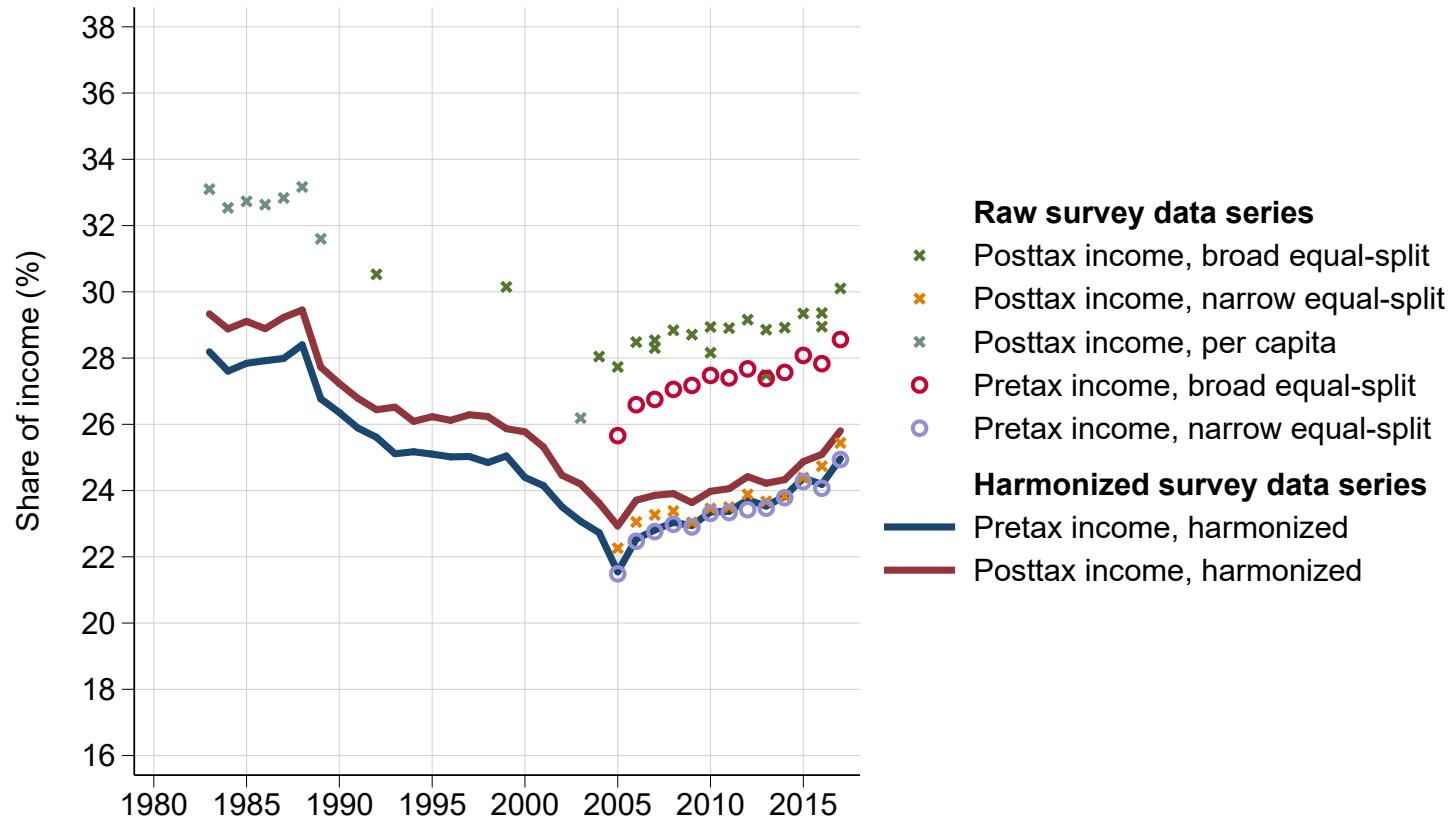
### 3.18 Poland

**Figure A.3.18.1**  
Poland: harmonization of survey data  
Top 10% pretax income share



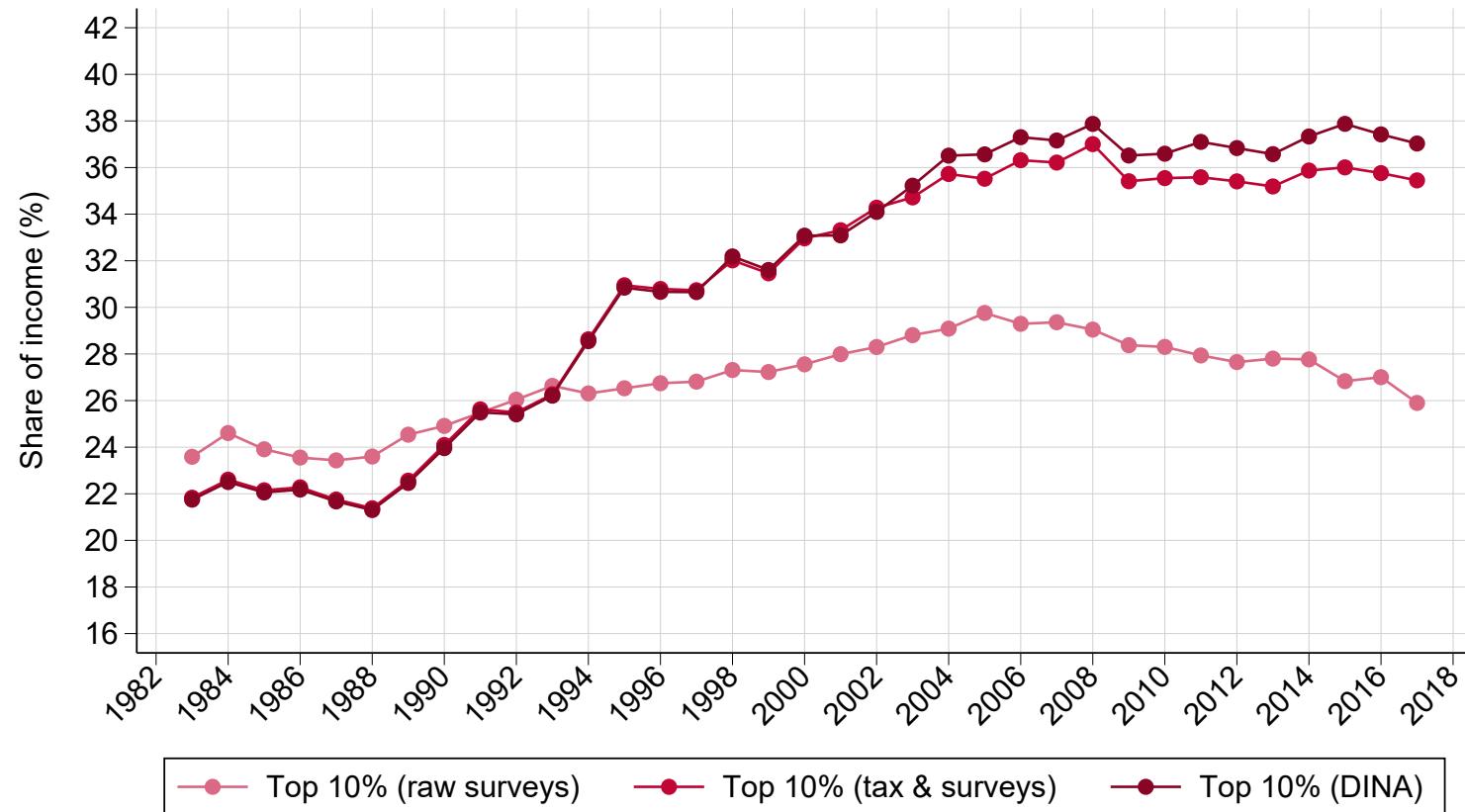
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.18.2**  
**Poland: harmonization of survey data**  
**Bottom 50% pretax income share**



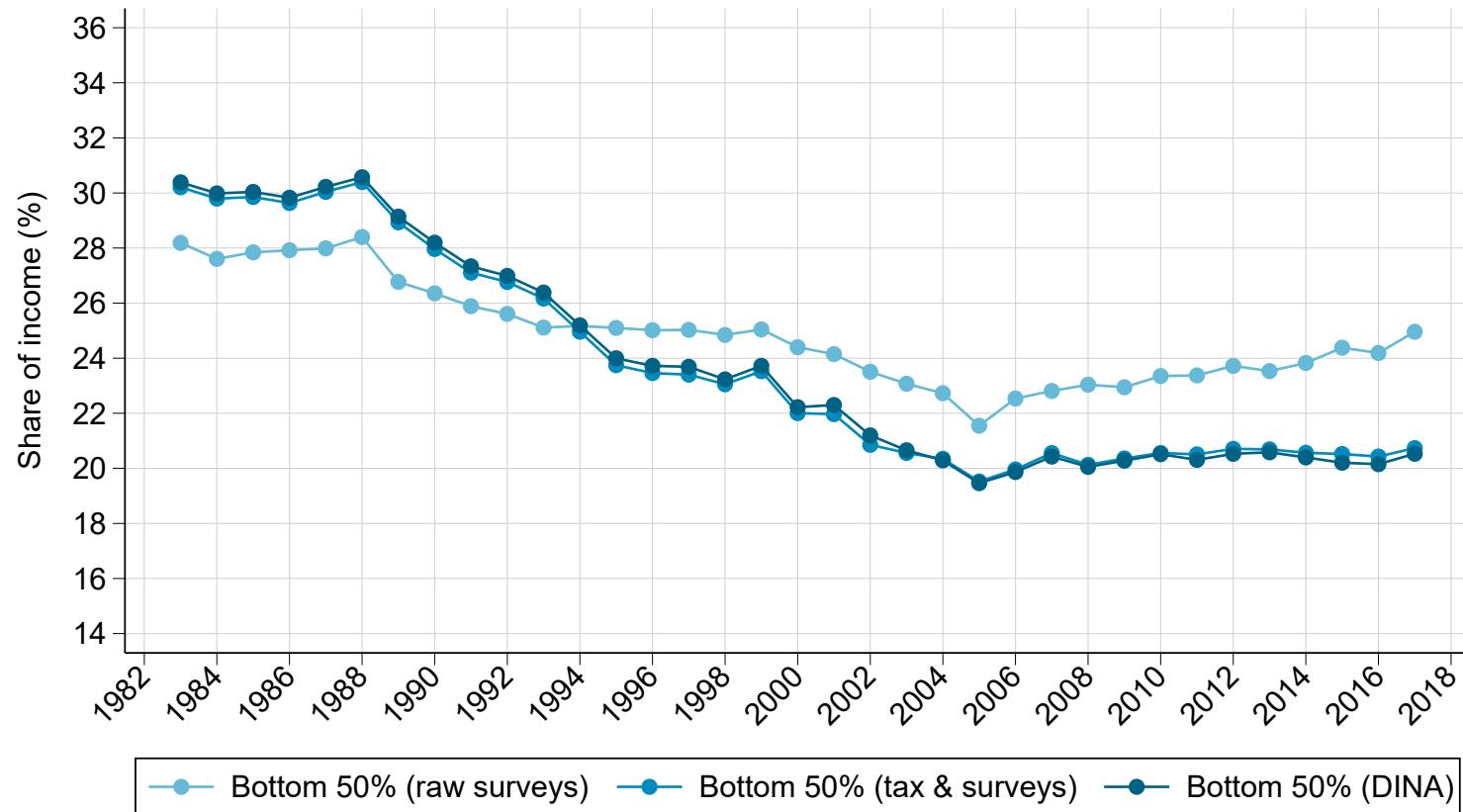
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.3.18.3  
Poland: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



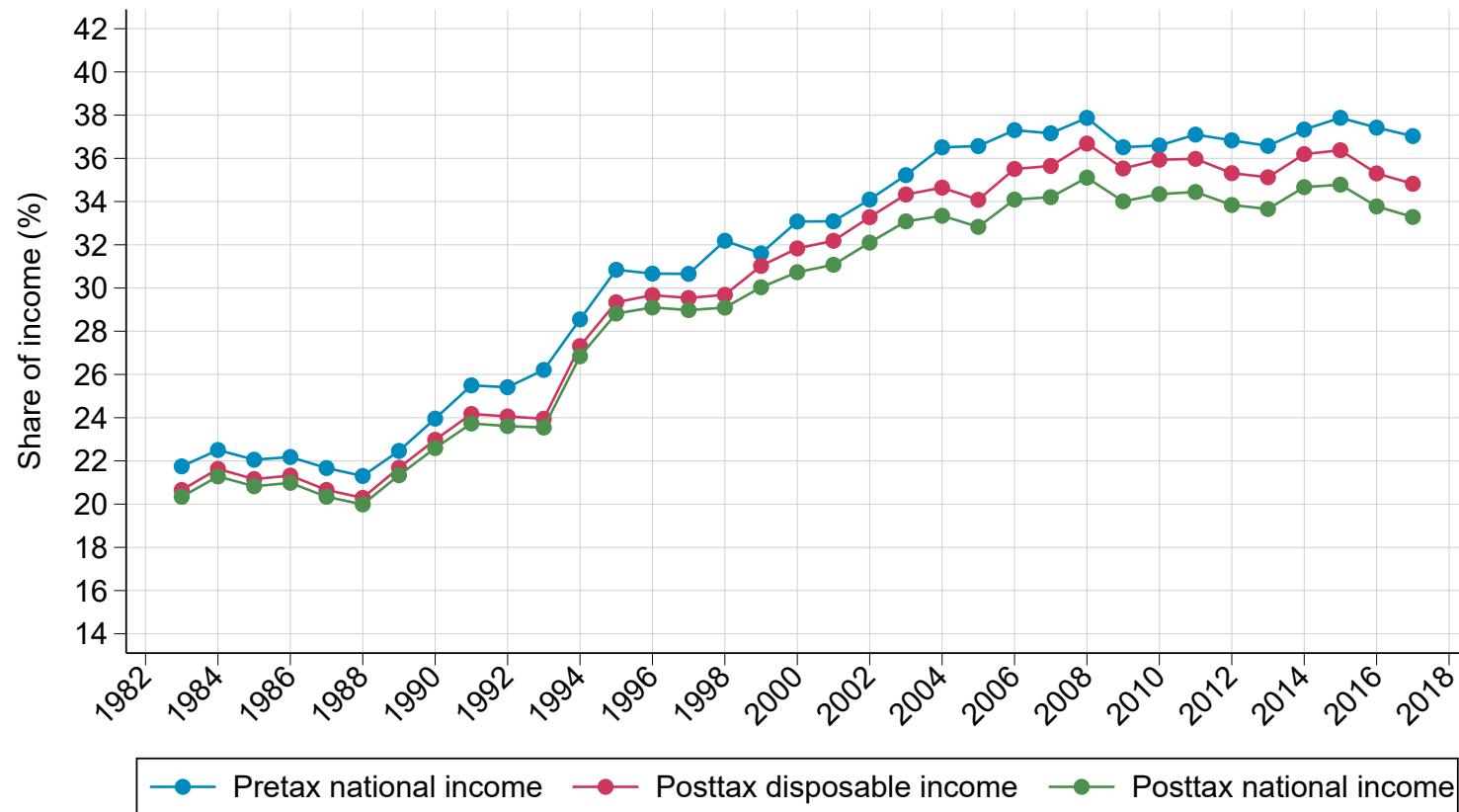
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.18.4**  
**Poland: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



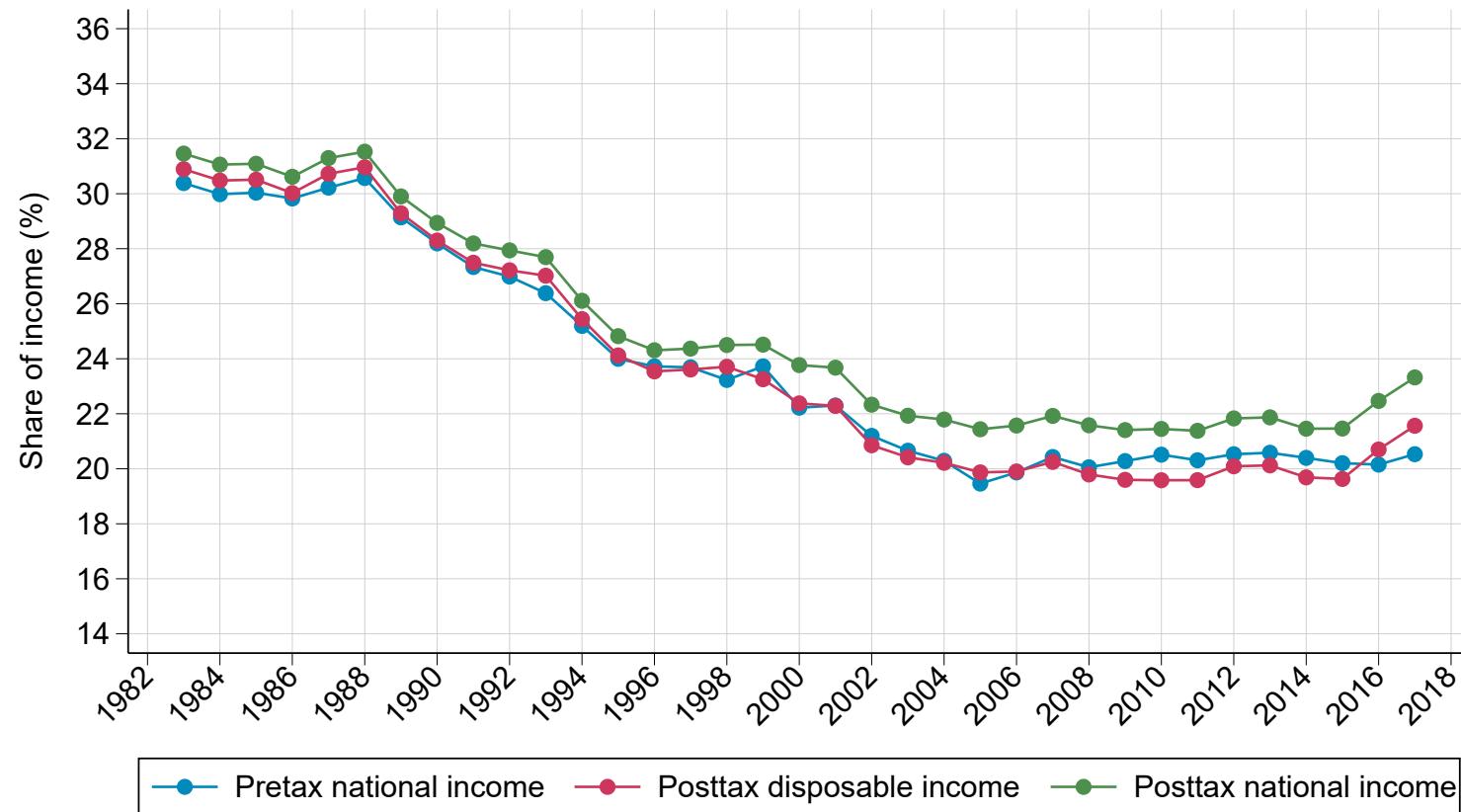
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.18.5  
Poland: from pretax national income to posttax national income  
Top 10% income share



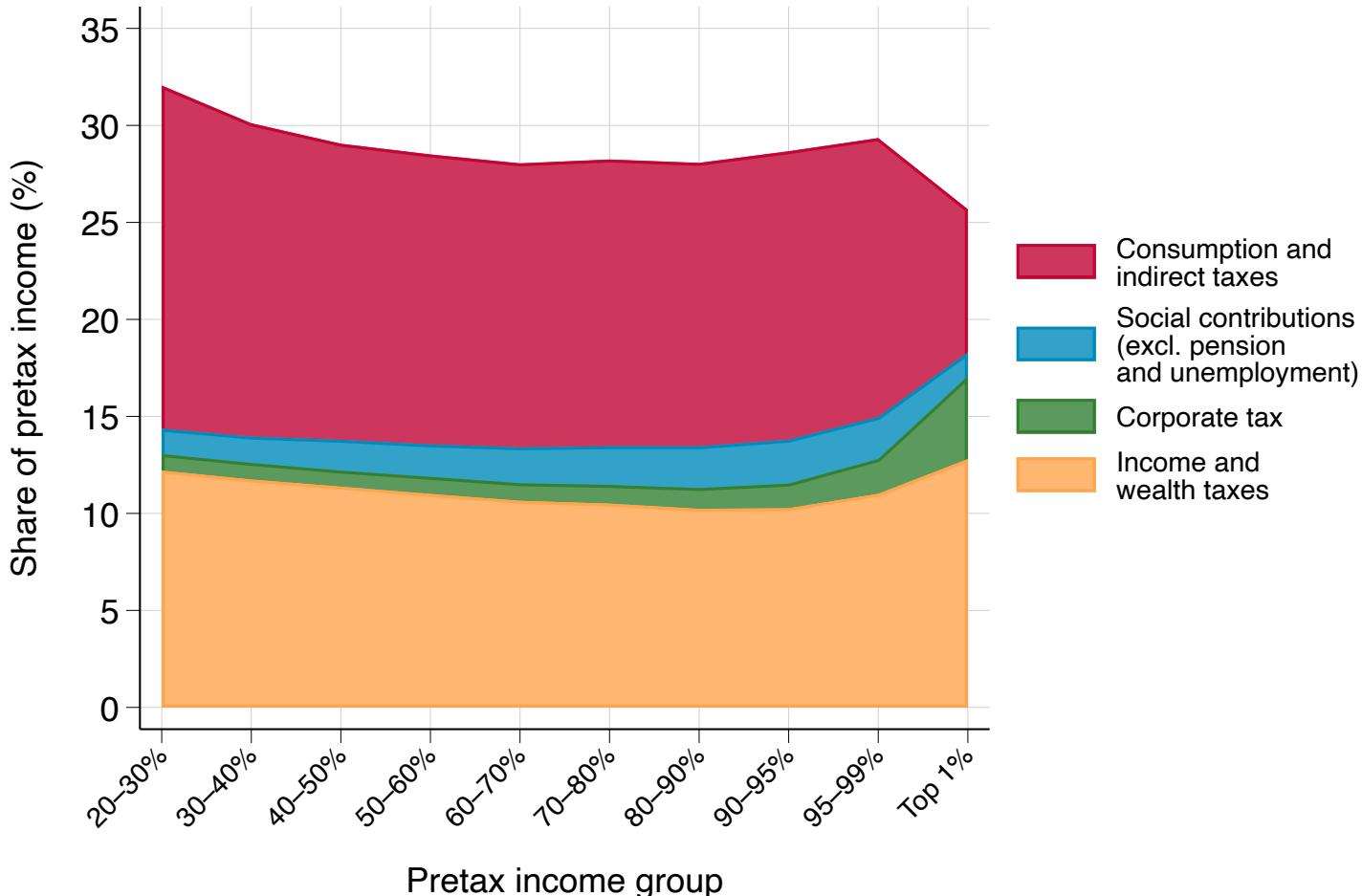
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.18.6  
Poland: from pretax national income to posttax national income  
Bottom 50% income share



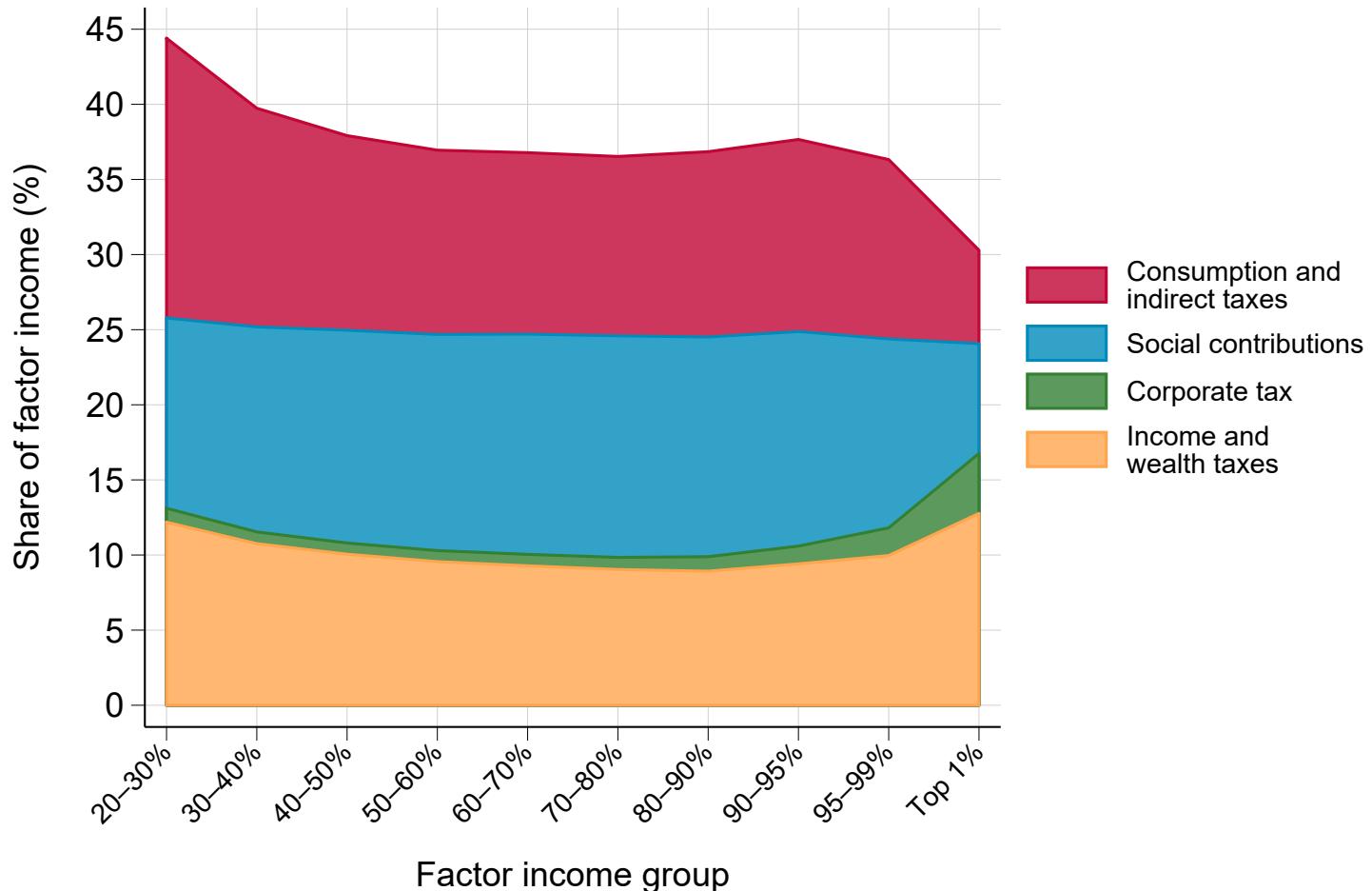
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.18.7**  
**Poland: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



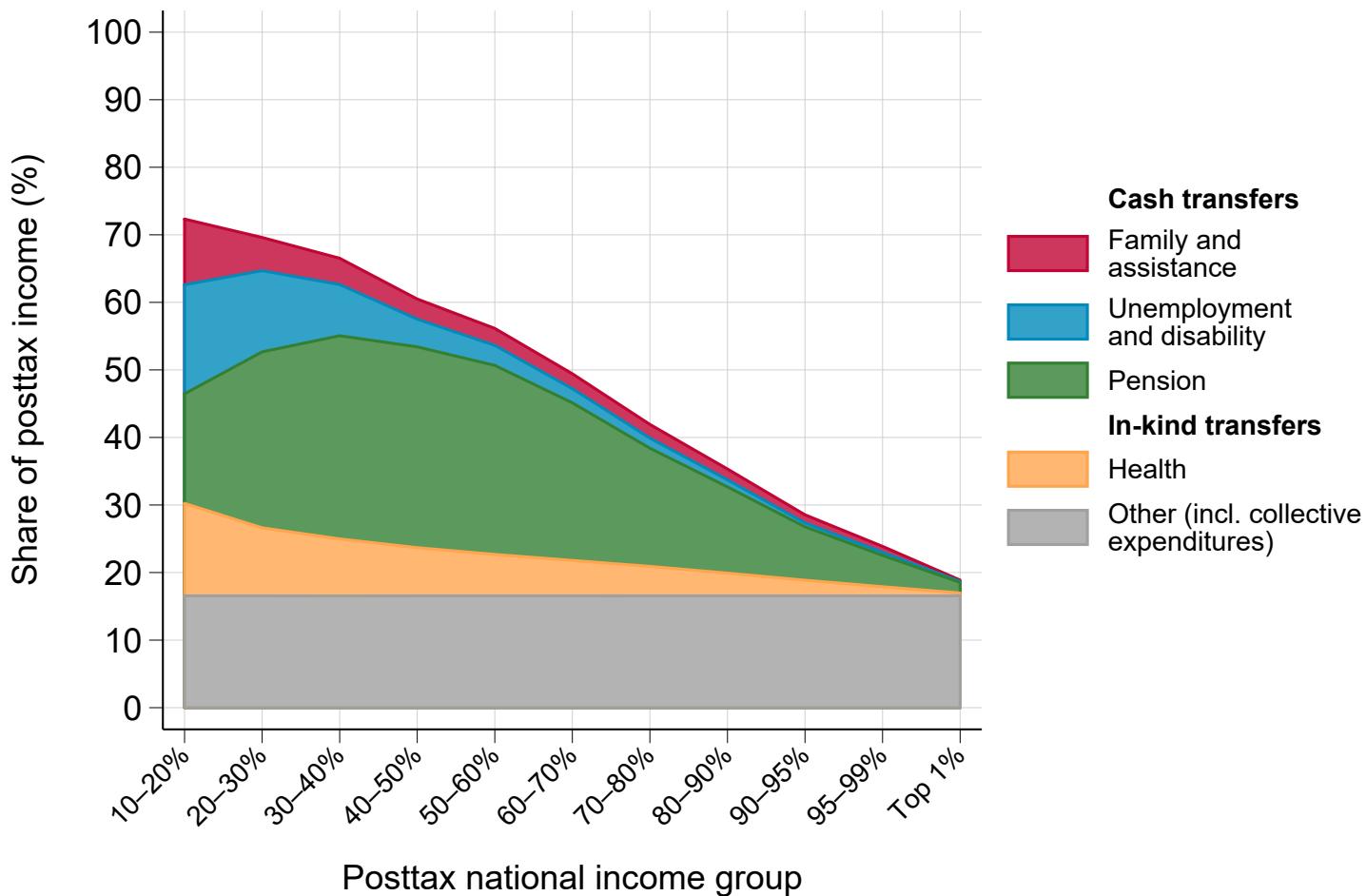
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.18.8**  
**Poland: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



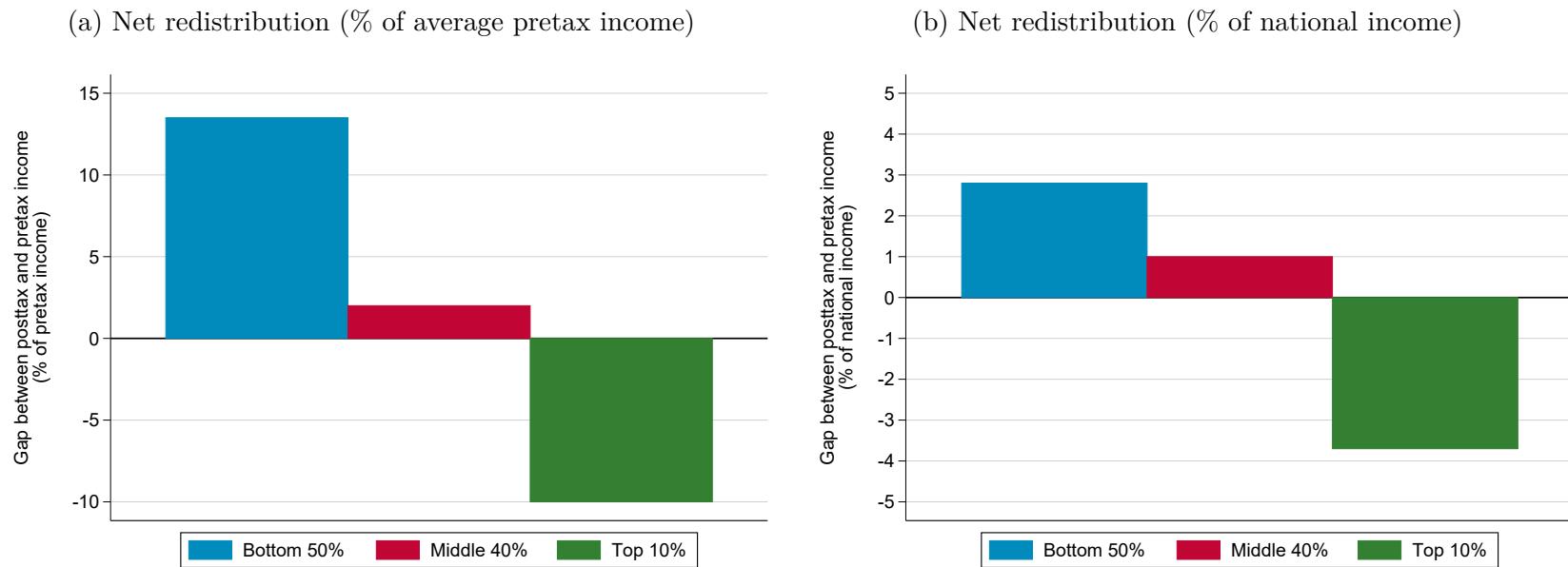
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.18.9**  
**Poland: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.18.10**  
**Poland: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.18.1**  
**Poland: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981									
1982									
1983	x			x					
1984	x			x					
1985	x			x					
1986	x			x					
1987	x			x					
1988	x			x					
1989	x			x					
1990									x
1991									x
1992	x	x	x						x
1993				x					x
1994				x					x
1995				x	x				x
1996			x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000			x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003	x		x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.18.2**  
**Poland: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			73.7%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	72.7%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	1%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	12.9%
(+)	Government primary income	National accounts	Proportional to pretax income	13.4%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	15.3%
(+)	Pension benefits	Survey + tax data	Observed	15%
(+)	Unemployment benefits	Survey + tax data	Observed	.3%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			23.6%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	1%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	5.3%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	14.8%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.4%
(+)	Transfers			24.5%
	<i>Cash transfers</i>	Survey + tax data	Observed	3.1%
	<i>Public health expenditures</i>	National accounts	Lump sum	4.9%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	16.5%
(+)	Budget balance	National accounts	Proportional to posttax income	-0.9%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.18.3**  
**Poland: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2004–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2004–2017); Employer contributions (OECD, 2004–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 94.7% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.3 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1992–2016; SILC, 2005–2017; Atkinson and Micklewright 1992, 1983–1989; Transmonee 2005, 2003); pretax income (SILC, 2005–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 1.0 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1983–2015 (Bukowski and Novokmet, 2017b)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 7.0 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 4.2 pp. higher than in the raw survey. The top 1% share of posttax income is 2.7 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2014, 2016 (corporate stocks); EU-SILC, 2004–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 27.1% of stocks, capture 17.5% of imputed rents, and account for 22.1% of consumption.  Undistributed corporate profits increase the top 10% share of income by 0.5 pp. on average; Imputed rents decrease the top 10% share of income by 0.2 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.2 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.3 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 0.9 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.18.4**  
**The distribution of national income in Poland, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€23,200	100%	€23,200	100%	€23,200	100%
Bottom 50%	€9,500	20.5%	€10,000	21.6%	€10,800	23.3%
Bottom 20%	€3,700	3.2%	€4,800	4.1%	€5,900	5.1%
Next 30%	€13,400	17.3%	€13,500	17.4%	€14,100	18.2%
Middle 40%	€24,600	42.4%	€25,300	43.6%	€25,100	43.4%
Top 10%	€85,800	37.0%	€80,700	34.8%	€77,100	33.3%
Top 1%	€335,000	14.5%	€287,000	12.4%	€271,000	11.7%
Top 0.1%	€1,420,000	6.1%	€1,160,000	5.0%	€1,090,000	4.7%
Top 0.01%	€6,110,000	2.6%	€4,870,000	2.1%	€4,570,000	2.0%
Top 0.001%	€26,450,000	1.1%	€20,580,000	0.9%	€19,310,000	0.8%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

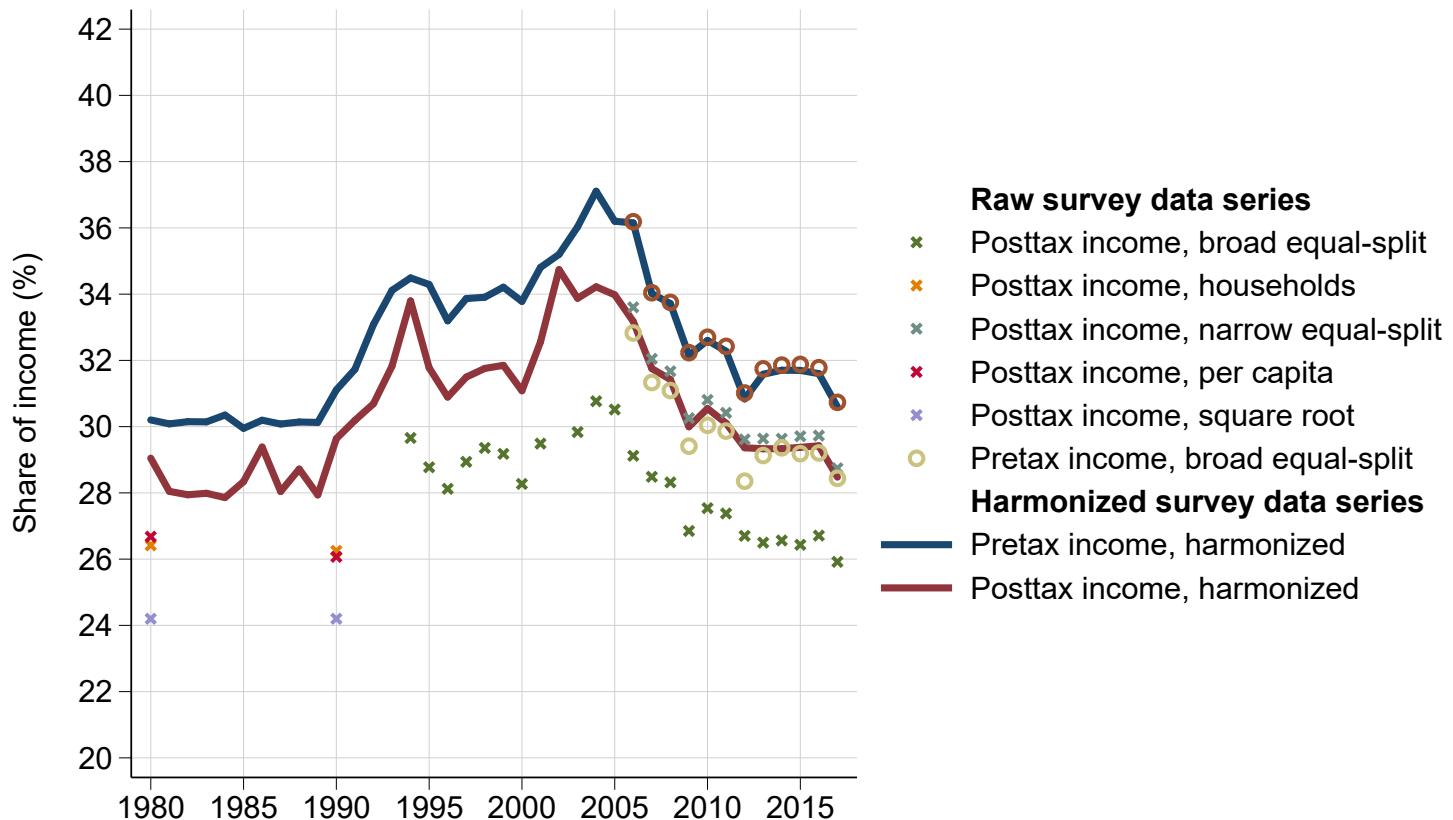
**Table A.3.18.5**  
**The distribution of national income growth in Poland, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	2.0%	3.0%	2.0%	3.0%	2.0%	3.0%
Bottom 50%	0.9%	3.1%	1.0%	3.7%	1.1%	3.7%
Bottom 20%	-0.4%	1.9%	0.2%	5.3%	0.7%	4.9%
Next 30%	1.2%	3.3%	1.2%	3.3%	1.3%	3.3%
Middle 40%	1.6%	3.0%	1.7%	2.9%	1.7%	2.9%
Top 10%	3.4%	3.0%	3.4%	2.8%	3.3%	2.8%
Top 1%	5.4%	2.2%	5.3%	2.1%	5.2%	2.1%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

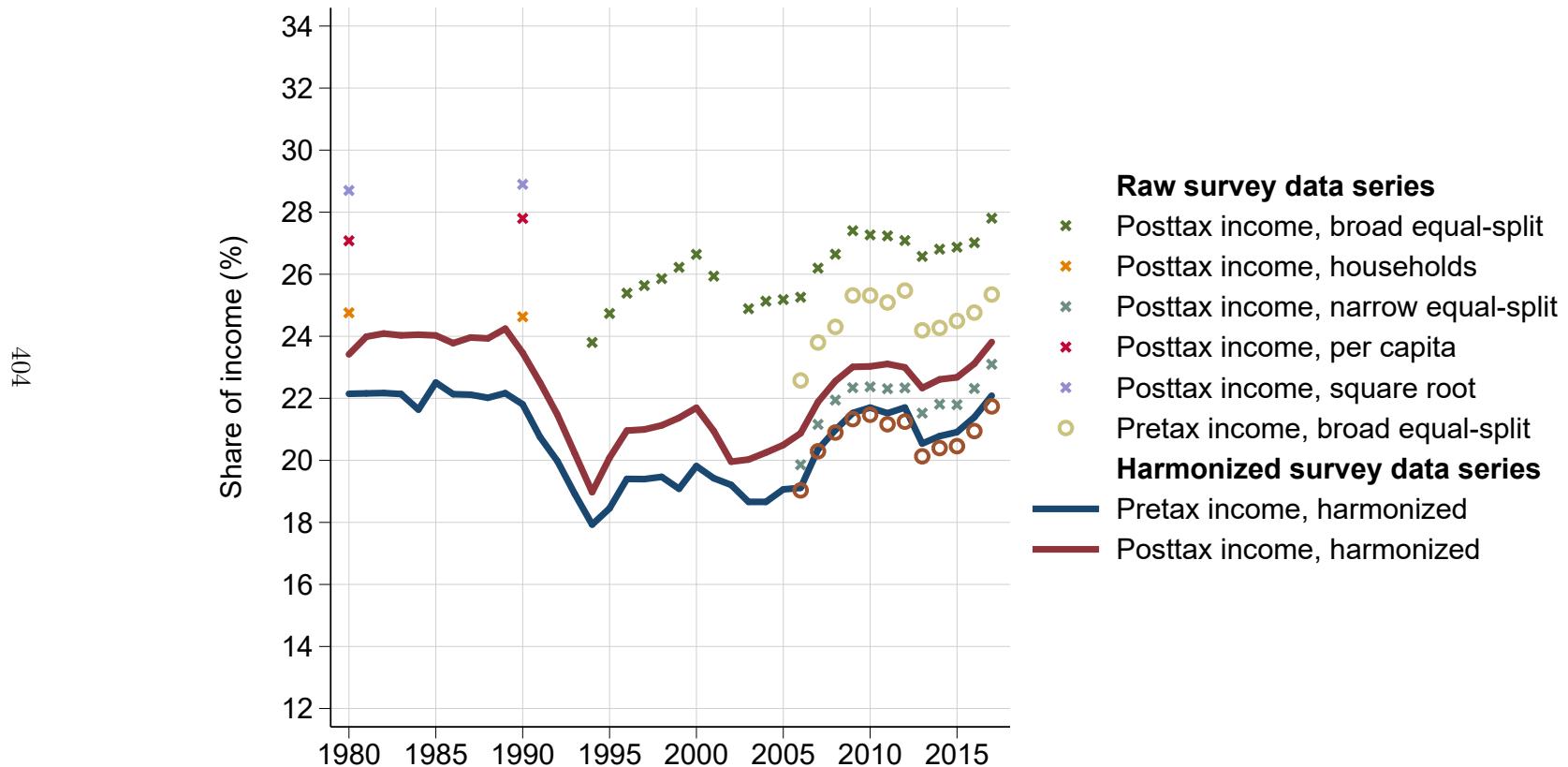
### 3.19 Portugal

Figure A.3.19.1  
Portugal: harmonization of survey data  
Top 10% pretax income share



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.19.2**  
**Portugal: harmonization of survey data**  
**Bottom 50% pretax income share**



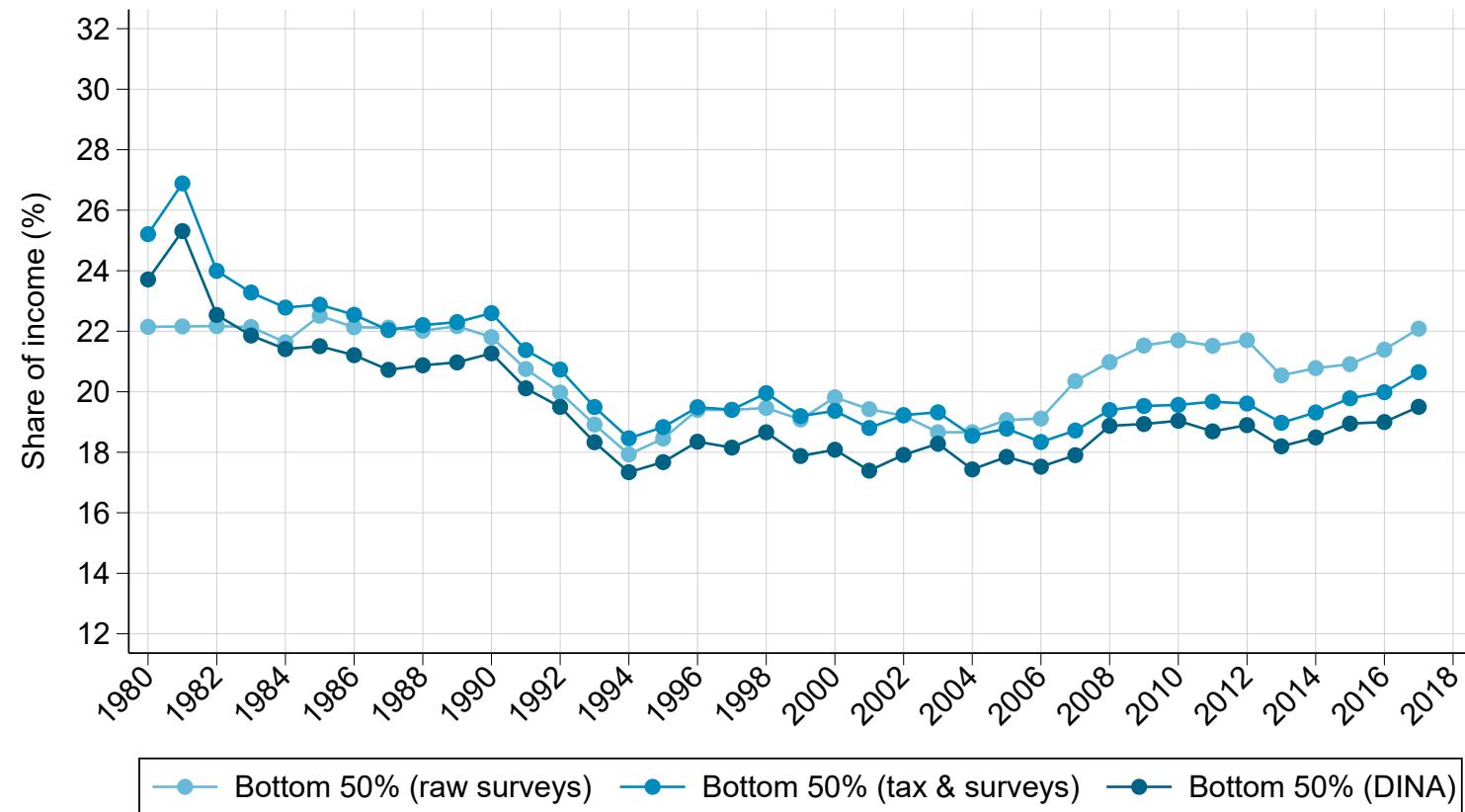
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.19.3**  
**Portugal: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

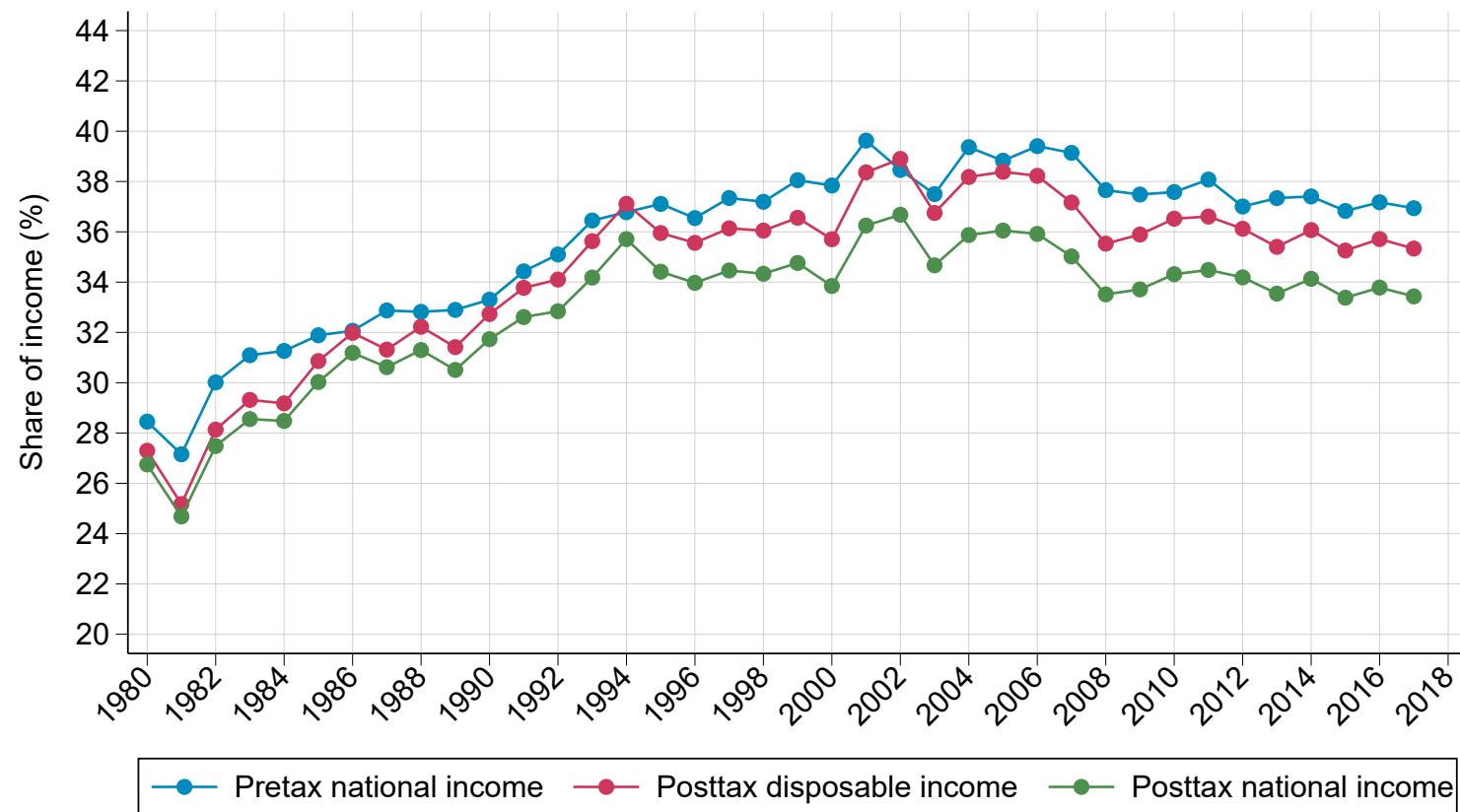
**Figure A.3.19.4**  
**Portugal: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

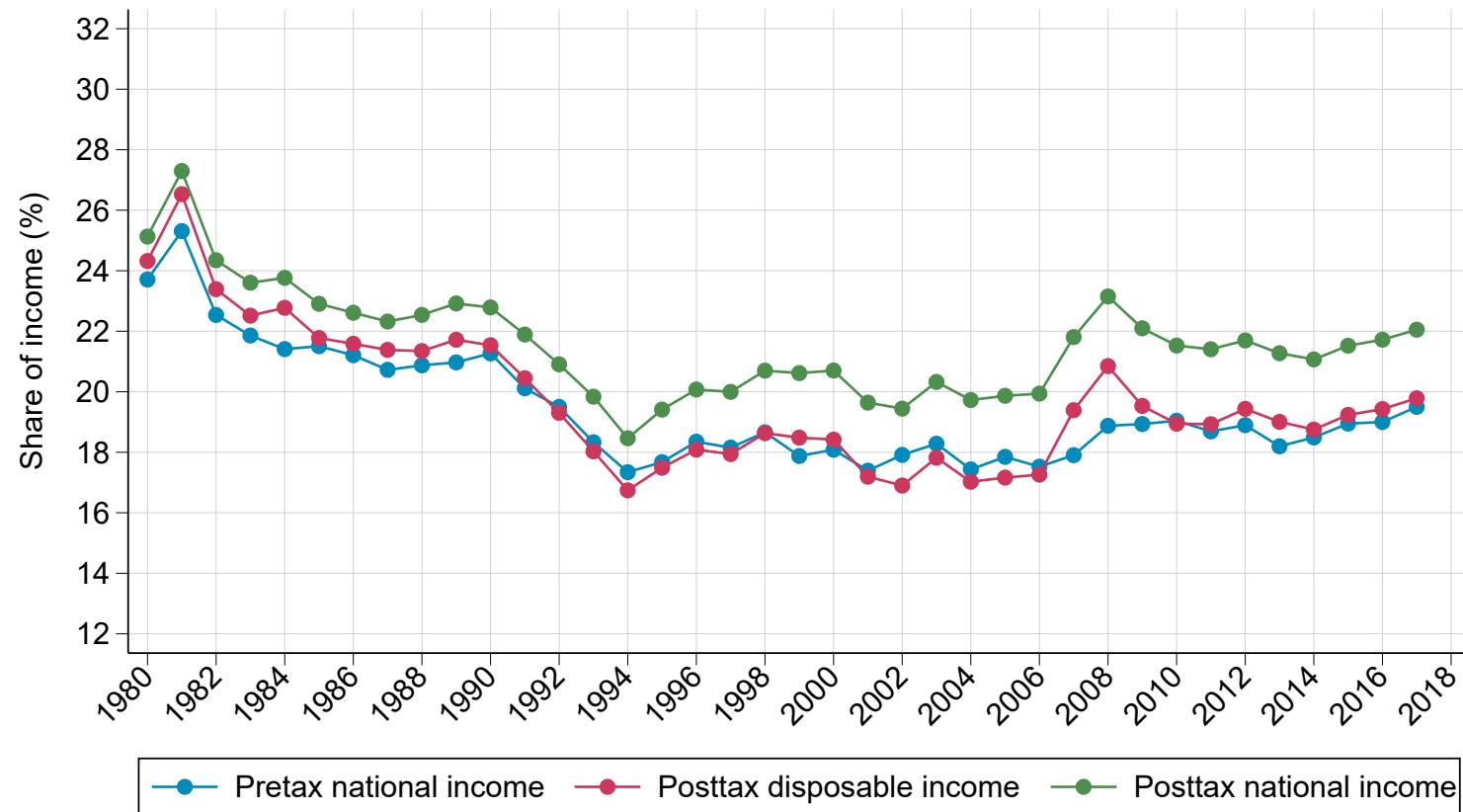
**Figure A.3.19.5**  
**Portugal: from pretax national income to posttax national income**  
**Top 10% income share**

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*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.19.6**  
**Portugal: from pretax national income to posttax national income**  
**Bottom 50% income share**



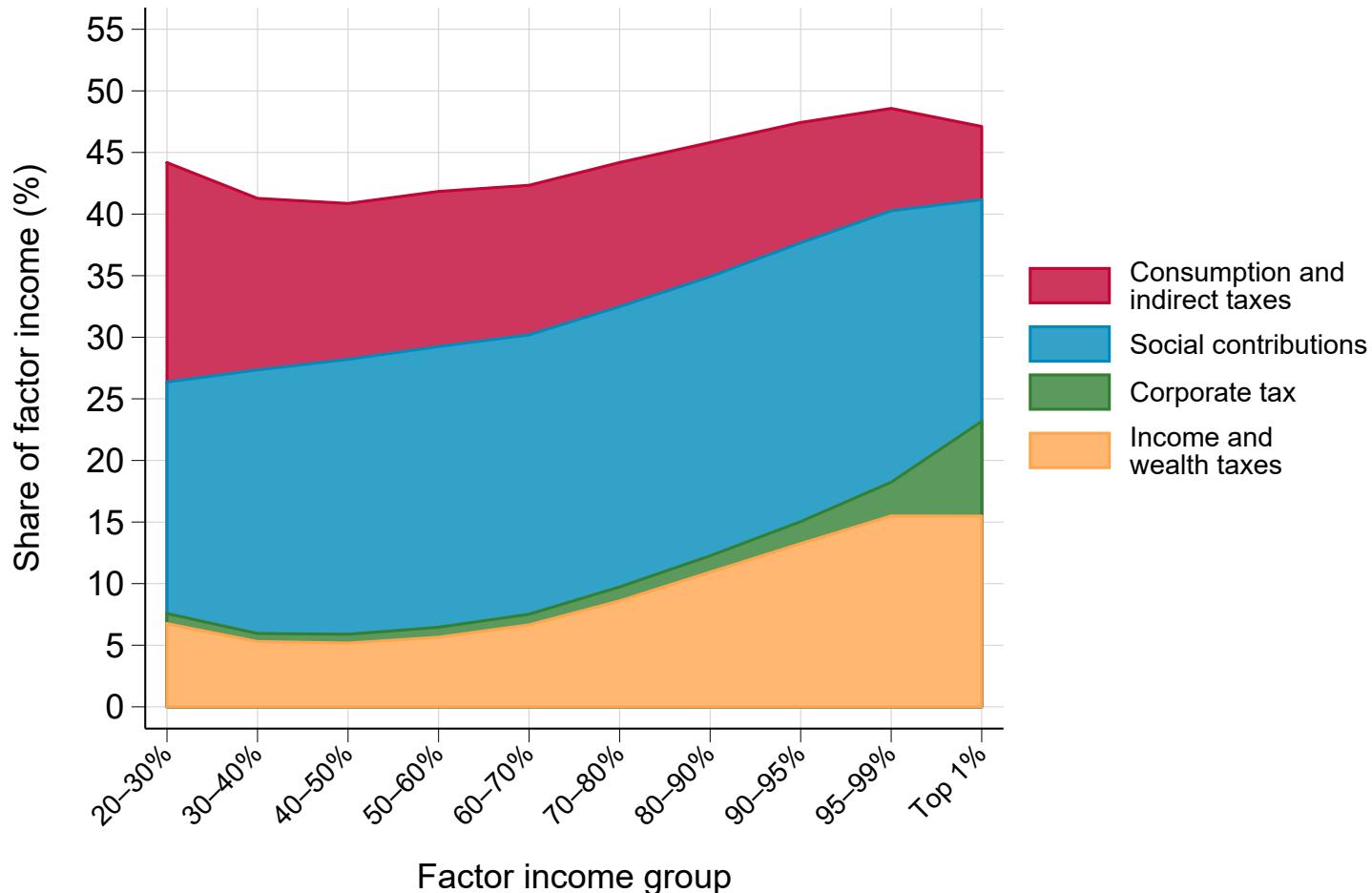
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.19.7**  
**Portugal: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



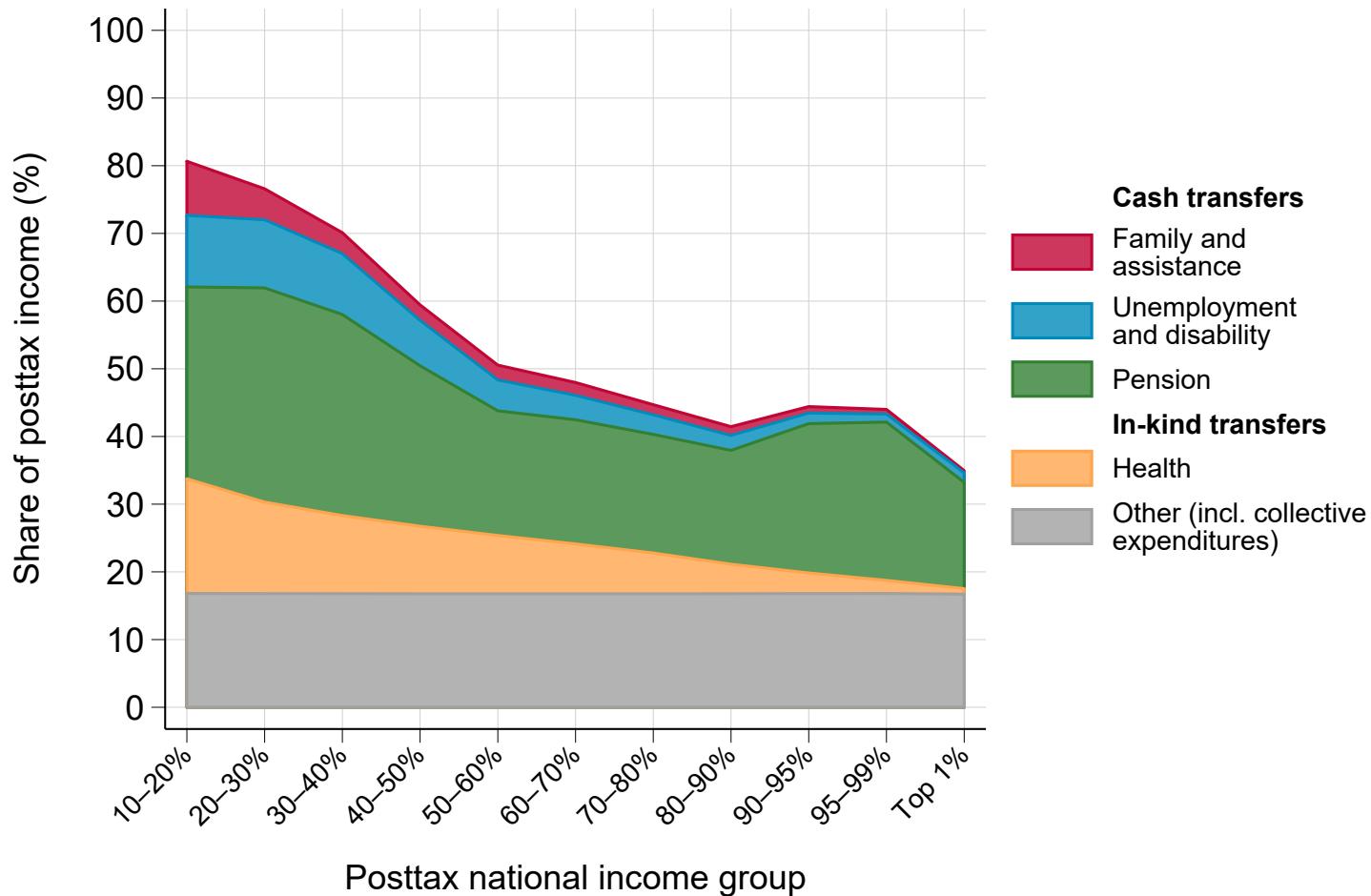
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.19.8**  
**Portugal: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



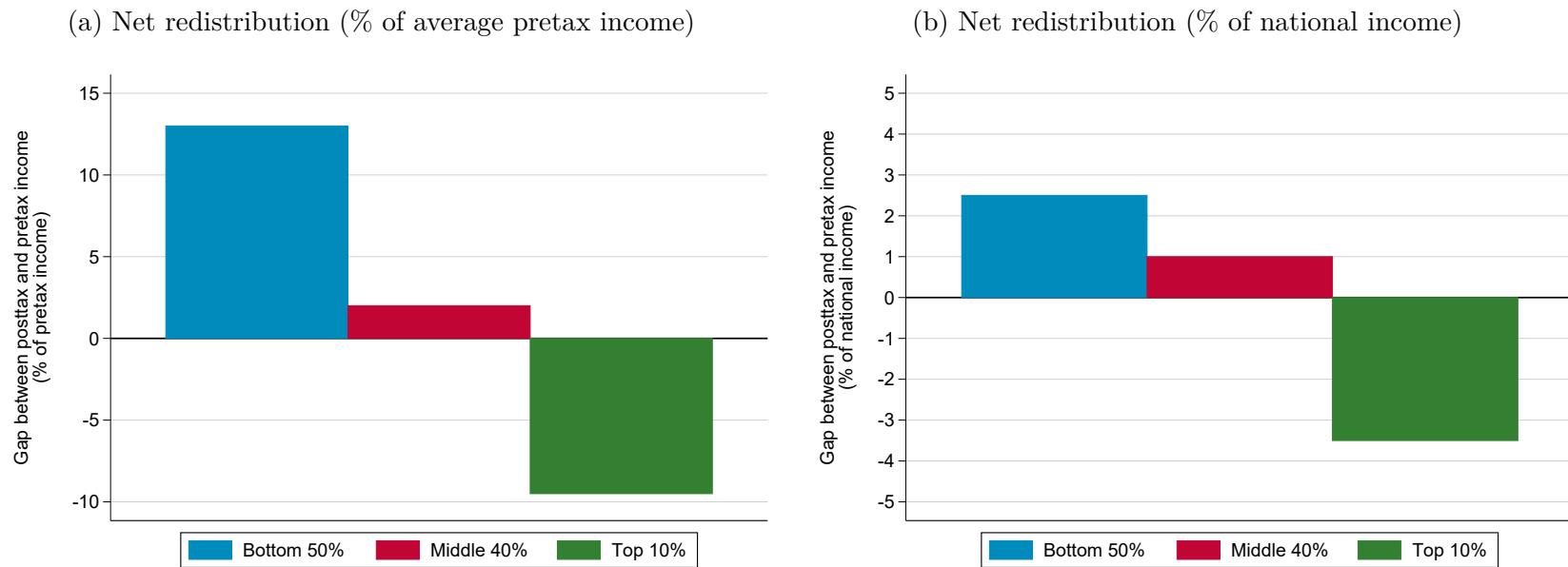
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.19.9**  
**Portugal: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.19.10**  
**Portugal: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.19.1**  
**Portugal: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980	x		x						x
1981			x						x
1982			x						x
1983			x						x
1984			x						x
1985			x						x
1986			x						x
1987			x						x
1988			x						x
1989			x						x
1990	x		x						x
1991			x						x
1992			x						x
1993			x						x
1994	x	x	x						x
1995	x	x	x	x	x	x	x	x	x
1996	x	x	x	x	x	x	x	x	x
1997	x	x	x	x	x	x	x	x	x
1998	x	x	x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001	x	x	x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x	x	x	x	x	x	x	x
2017	x	x	x	x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

Table A.3.19.2

## Portugal: methodology used to distribute factor income, pretax income, and posttax income

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			78.6%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	77.4%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	1.2%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	8.7%
(+)	Government primary income	National accounts	Proportional to pretax income	12.7%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	22.7%
(+)	Pension benefits	Survey + tax data	Observed	20.9%
(+)	Unemployment benefits	Survey + tax data	Observed	1.8%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			23.4%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-5.4%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	8.2%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	16.8%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	3.8%
(+)	Transfers			25.7%
	<i>Cash transfers</i>	Survey + tax data	Observed	2.6%
	<i>Public health expenditures</i>	National accounts	Lump sum	6.8%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	16.3%
(+)	Budget balance	National accounts	Proportional to posttax income	-2.3%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.19.3**  
**Portugal: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (pretax, 2006–2017; posttax, 2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2006–2017); Employer contributions (EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that all social contributions, and also, on average, 53.0% of income taxes, are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 2.1 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (ECHP, 1994–2001; SILC, 2003–2017; Gouveia and Tavares 1995, 1980–1990; Atkinson, Rainwater and Smeeding 1995a, 1980–1990); pretax income (SILC, 2006–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.2 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1980–2005 ( <a href="#">Alvaredo, 2009</a> )	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 1.4 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 0.5 pp. higher than in the raw survey. The top 1% share of posttax income is 0.4 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2010, 2013, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 37.5% of stocks, capture 20.8% of imputed rents, and account for 22.4% of consumption.  Undistributed corporate profits increase the top 10% share of income by 1.6 pp. on average; Imputed rents increase the top 10% share of income by 0.1 pp. on average; The corporate tax increase the top 10% share of pretax income by 1.0 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.6 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.5 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.19.4**  
**The distribution of national income in Portugal, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€24,500	100%	€24,500	100%	€24,500	100%
Bottom 50%	€9,600	19.5%	€9,700	19.8%	€10,800	22.1%
Bottom 20%	€4,000	3.2%	€3,900	3.2%	€5,400	4.4%
Next 30%	€13,300	16.3%	€13,600	16.6%	€14,400	17.6%
Middle 40%	€26,700	43.6%	€27,500	44.9%	€27,300	44.5%
Top 10%	€90,700	36.9%	€86,700	35.3%	€82,100	33.4%
Top 1%	€272,000	11.1%	€233,000	9.5%	€217,000	8.9%
Top 0.1%	€829,000	3.4%	€593,000	2.4%	€550,000	2.2%
Top 0.01%	€2,530,000	1.0%	€1,480,000	0.6%	€1,370,000	0.6%
Top 0.001%	€7,760,000	0.3%	€3,660,000	0.1%	€3,380,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

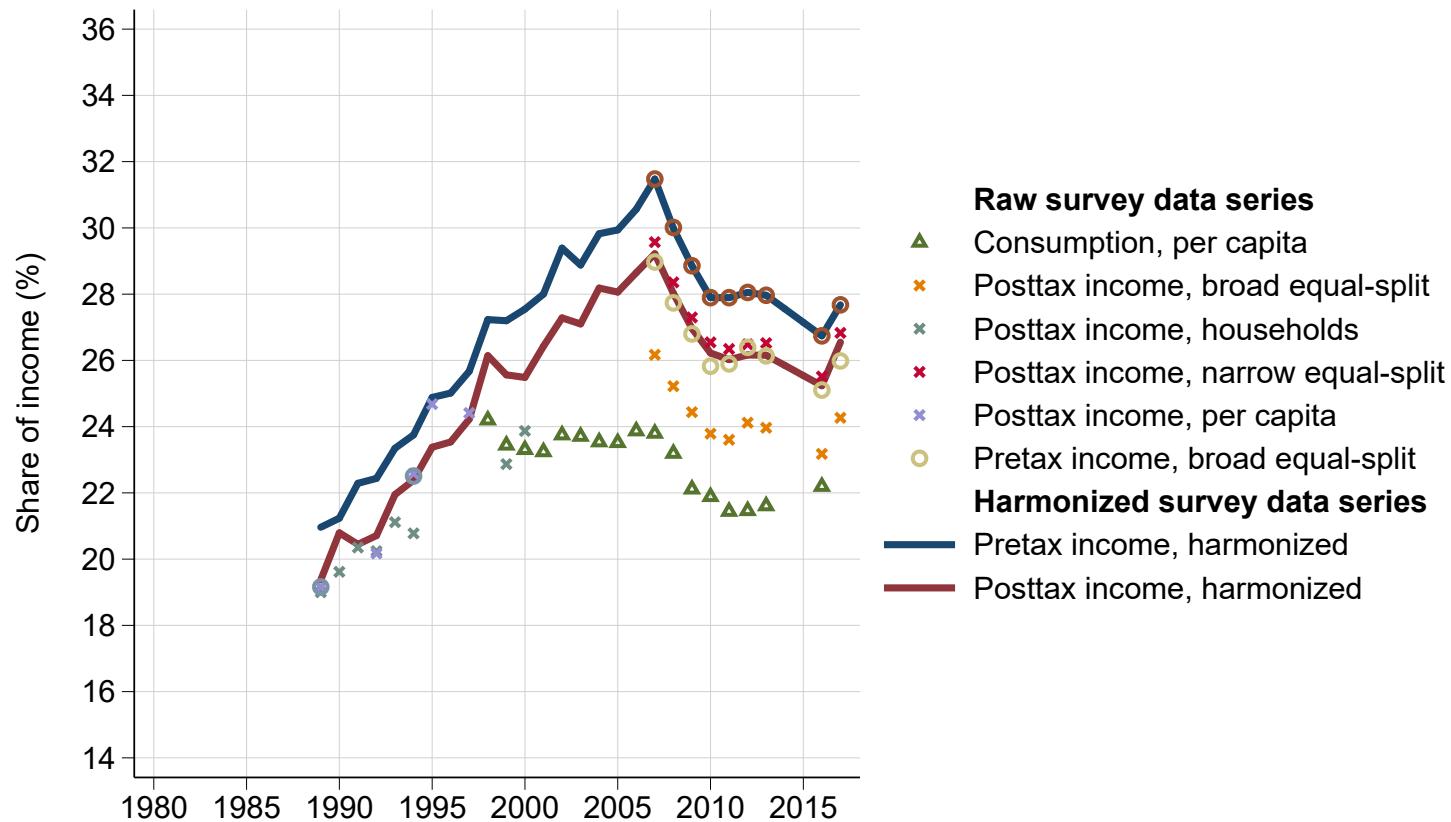
**Table A.3.19.5**  
**The distribution of national income growth in Portugal, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.3%	-0.1%	1.3%	-0.1%	1.3%	-0.1%
Bottom 50%	0.8%	0.8%	0.7%	0.1%	0.9%	0.0%
Bottom 20%	0.1%	0.6%	0.2%	-2.9%	0.8%	-2.2%
Next 30%	0.9%	0.8%	0.9%	0.8%	1.0%	0.6%
Middle 40%	1.0%	0.0%	1.1%	0.2%	1.1%	0.2%
Top 10%	2.0%	-0.7%	2.0%	-0.6%	1.9%	-0.6%
Top 1%	2.6%	0.2%	2.4%	0.1%	2.3%	0.1%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

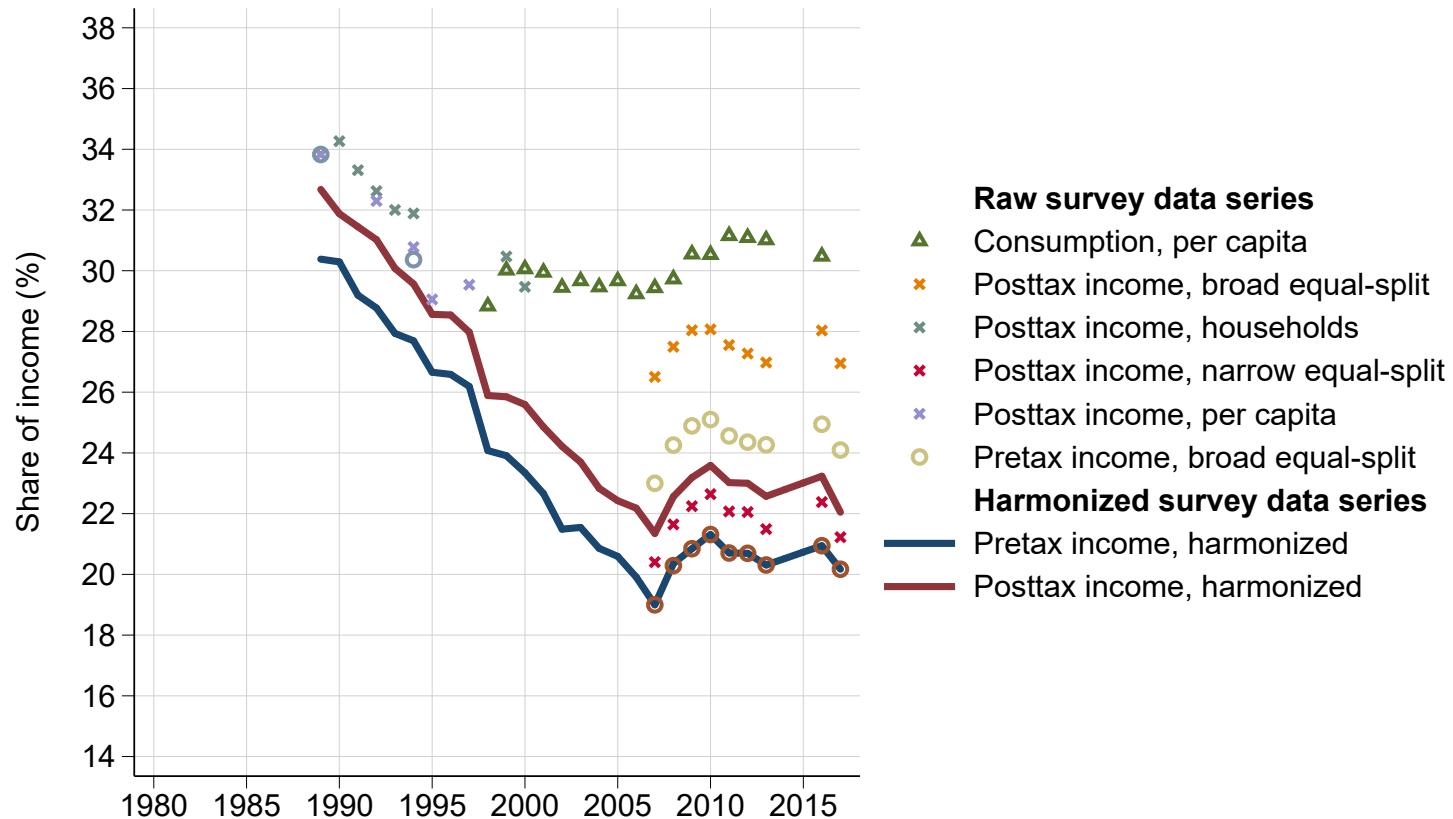
### 3.20 Romania

**Figure A.3.20.1**  
**Romania: harmonization of survey data**  
**Top 10% pretax income share**



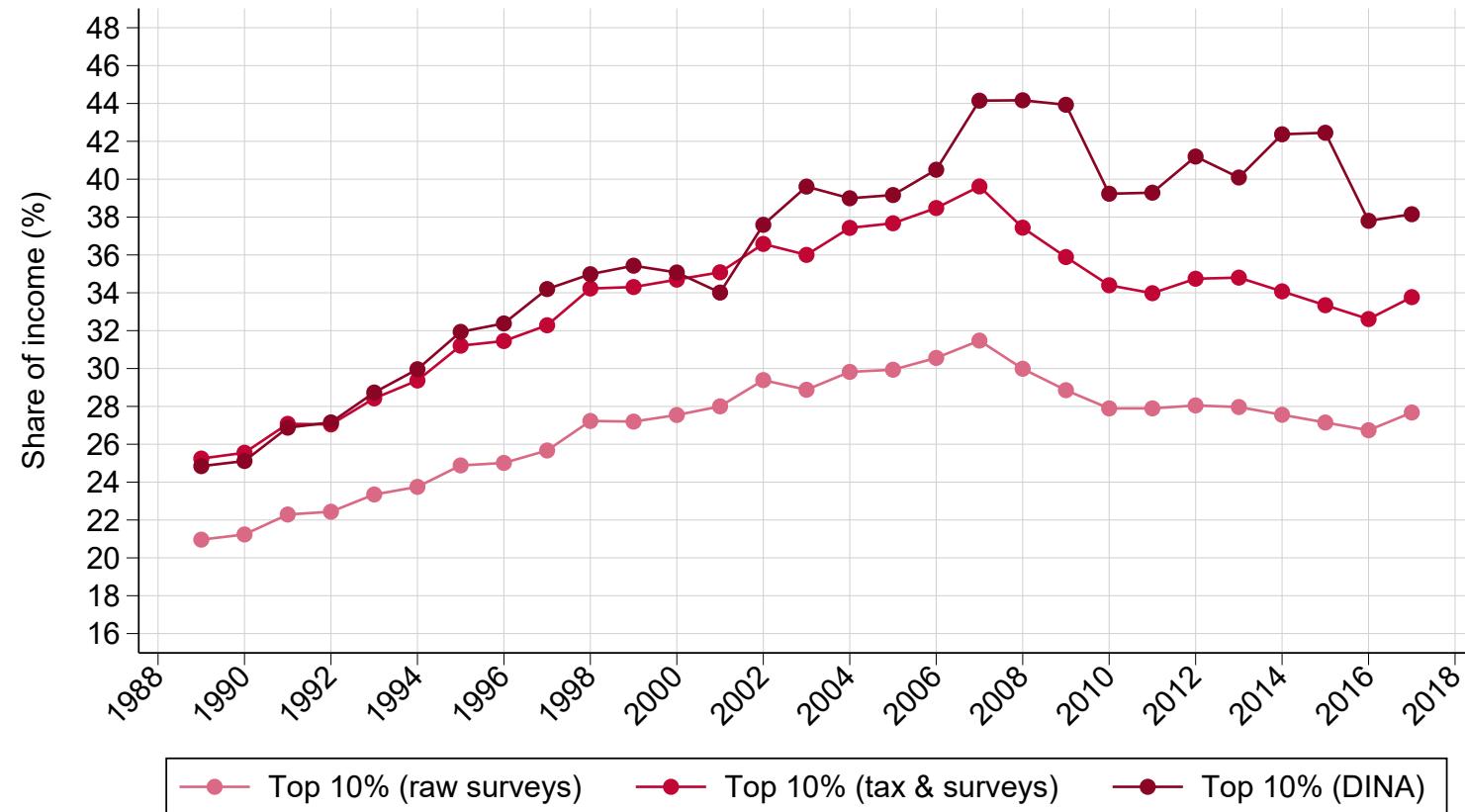
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.20.2**  
**Romania: harmonization of survey data**  
**Bottom 50% pretax income share**



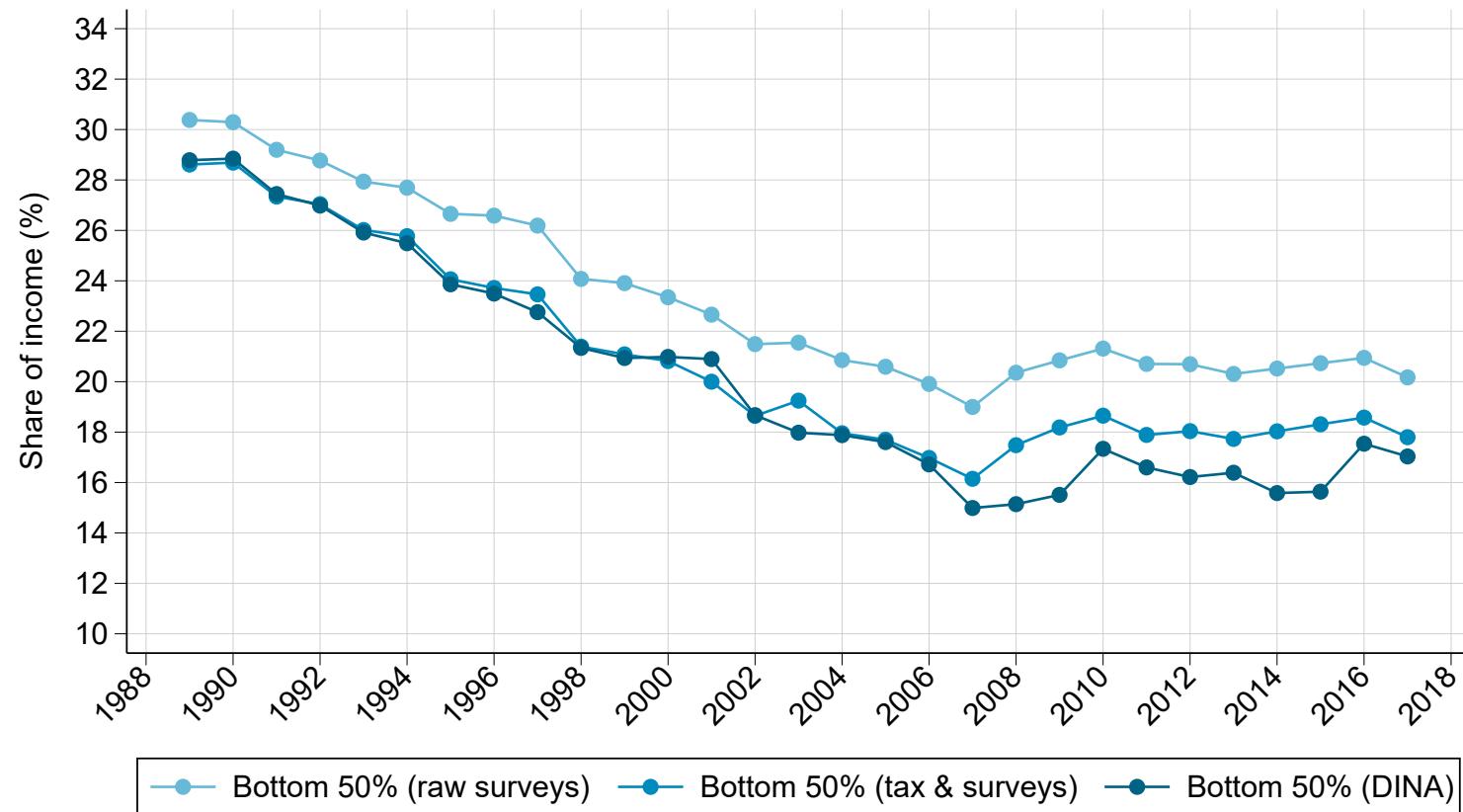
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.20.3**  
**Romania: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



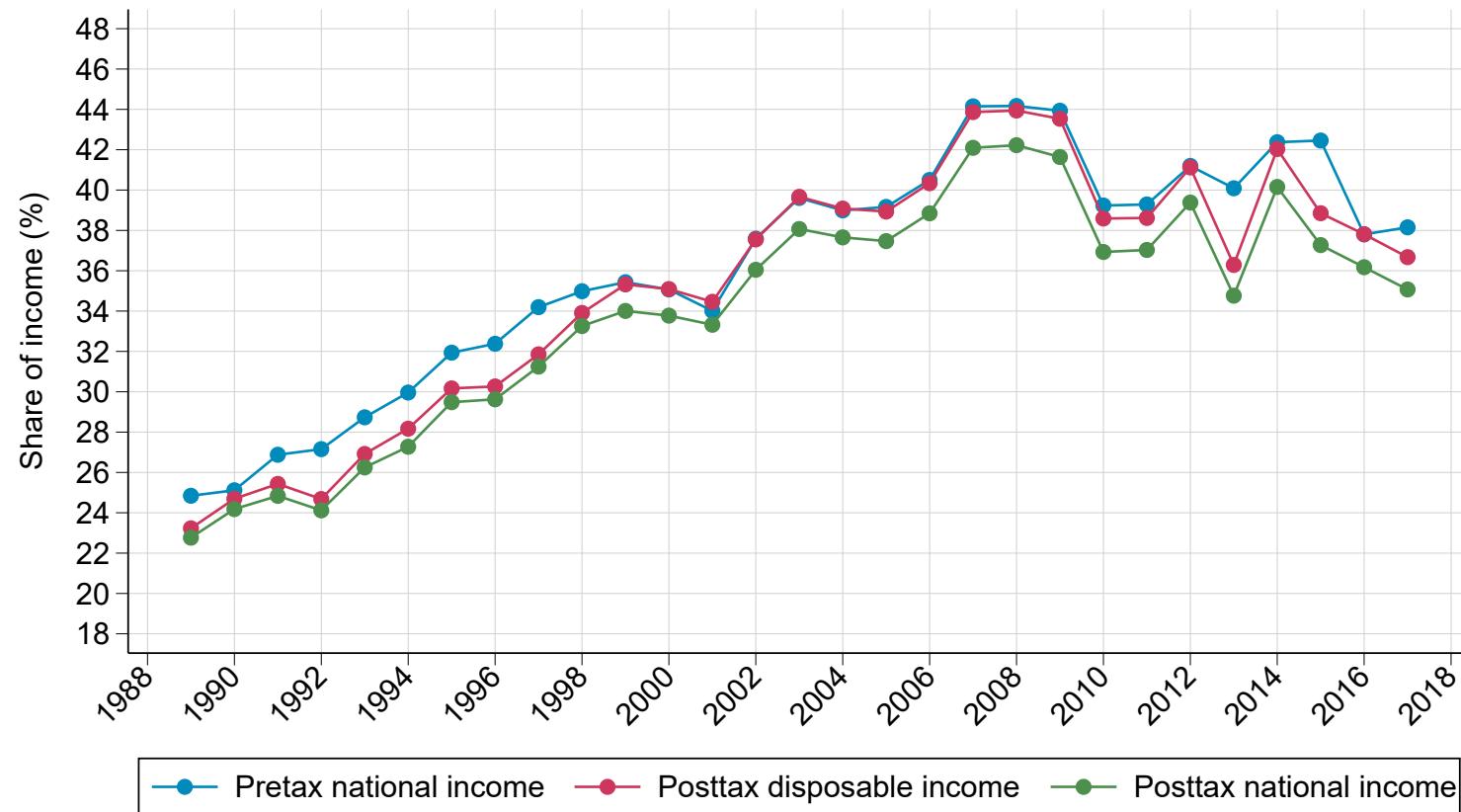
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.20.4**  
**Romania: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



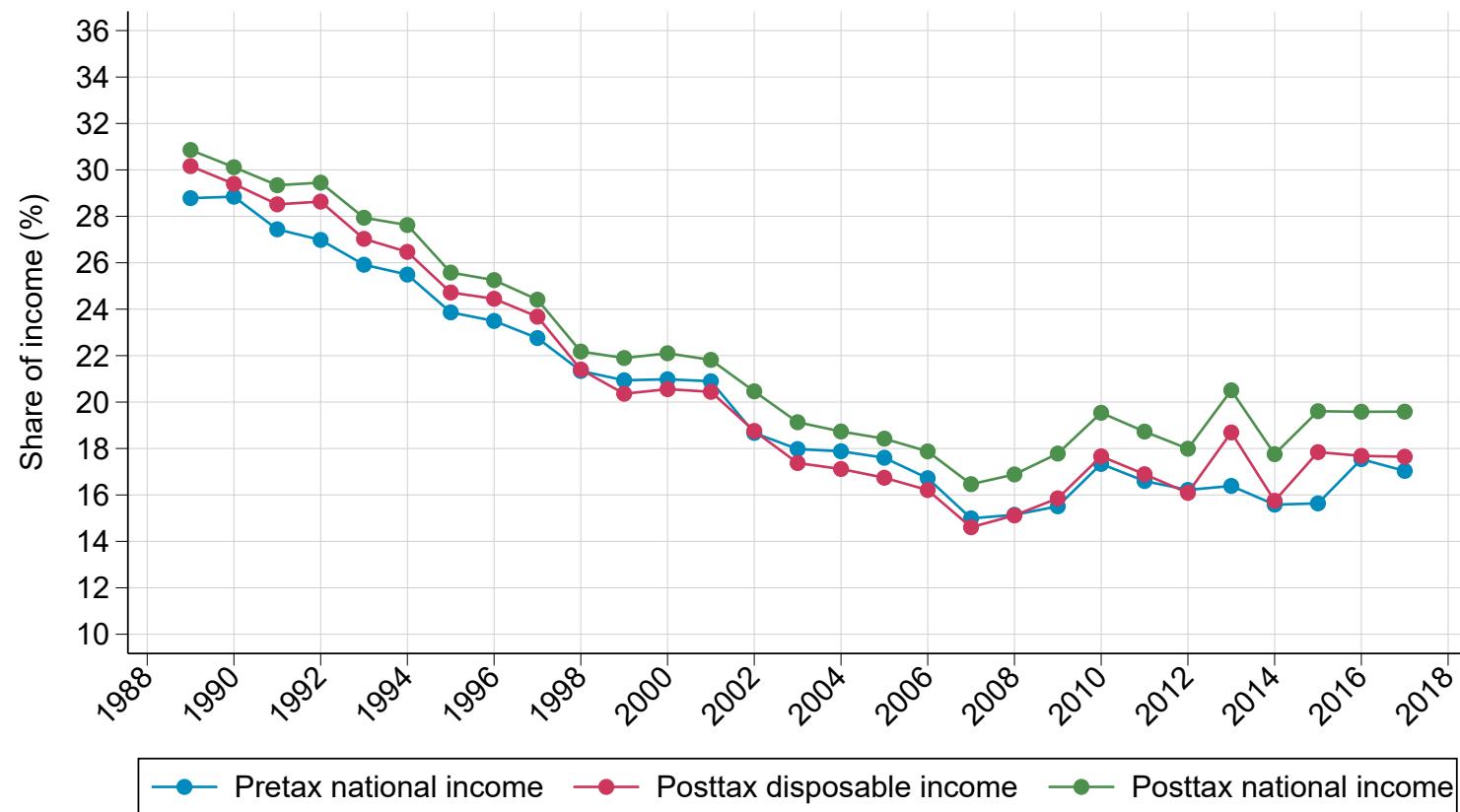
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.20.5**  
**Romania: from pretax national income to posttax national income**  
**Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.20.6**  
**Romania: from pretax national income to posttax national income**  
**Bottom 50% income share**



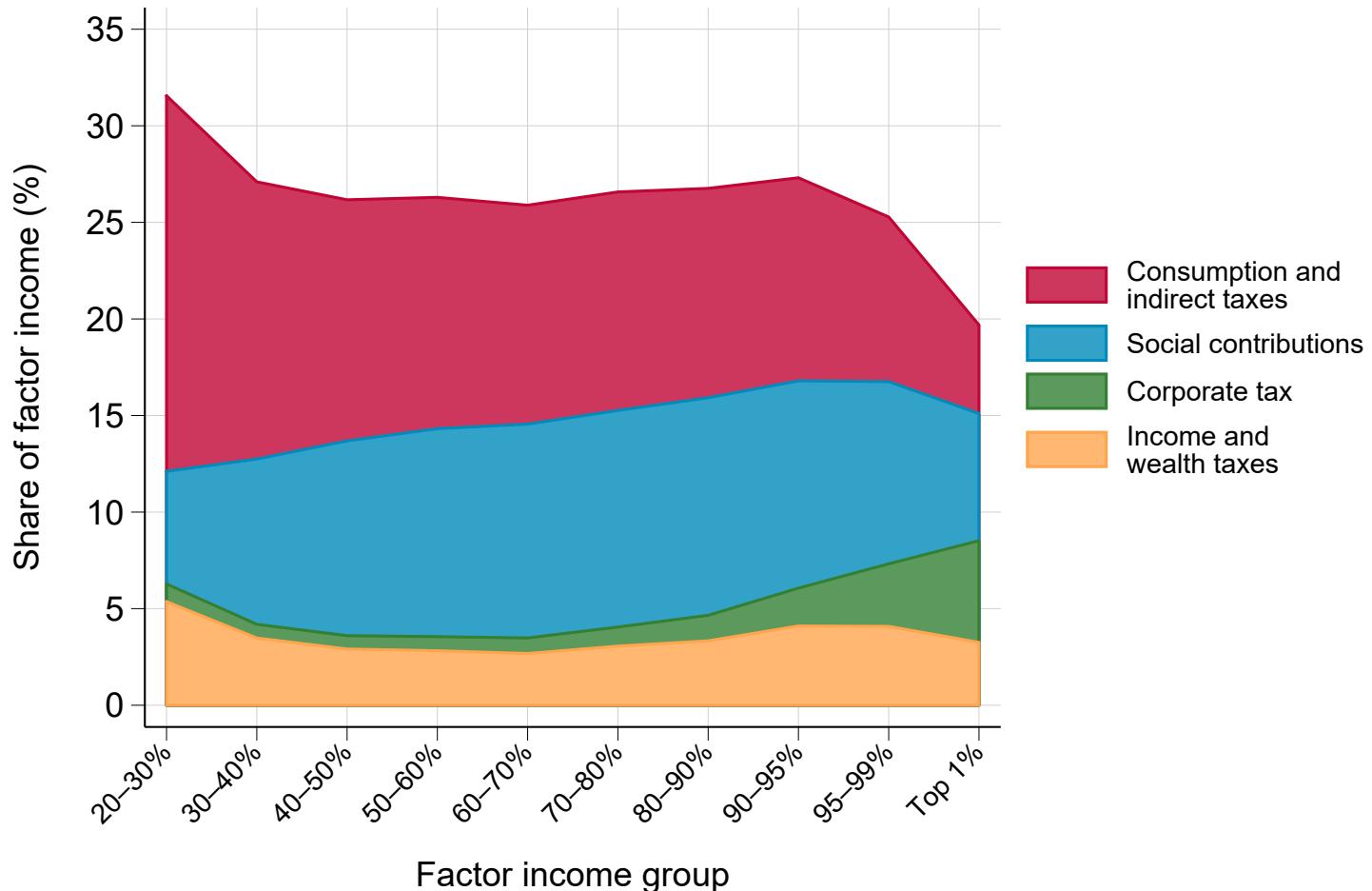
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.20.7**  
**Romania: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



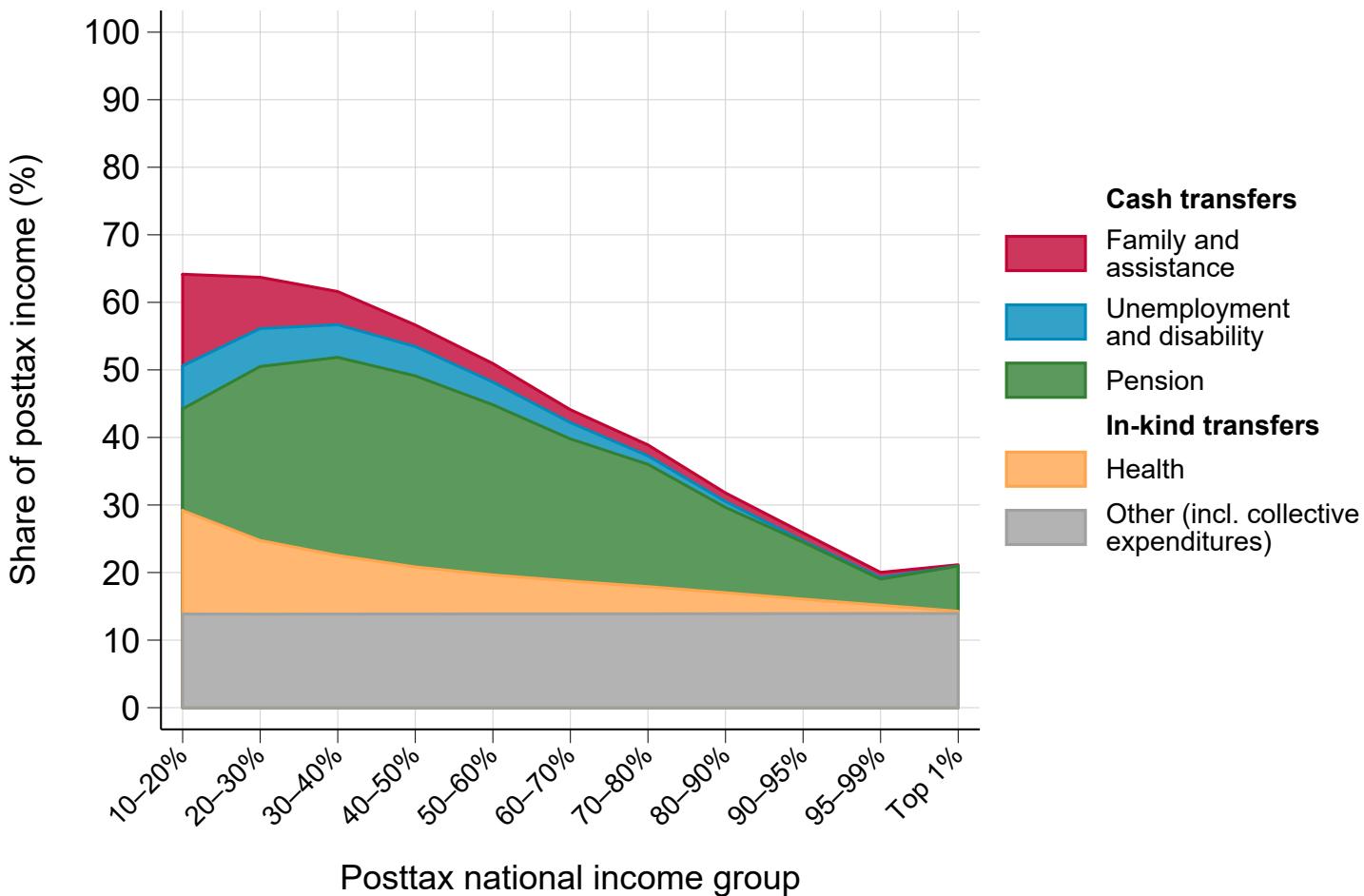
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses. Income and wealth taxes include non-contributory social contributions (no data to separate the two).

**Figure A.3.20.8**  
**Romania: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



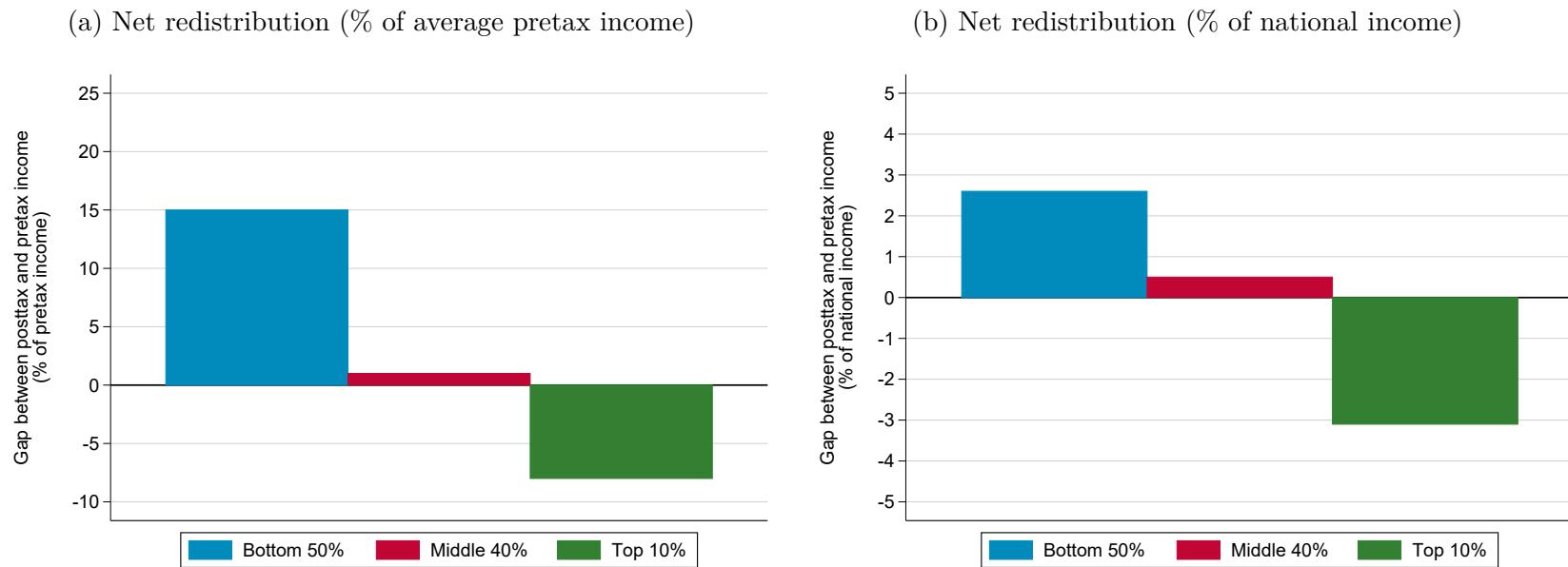
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses. Income and wealth taxes include social contributions (no data to separate the two).

**Figure A.3.20.9**  
**Romania: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.20.10**  
**Romania: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.20.1**  
**Romania: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988									
1989	x								x
1990	x					x	x	x	x
1991	x					x	x	x	x
1992	x					x	x	x	x
1993	x					x	x	x	x
1994	x					x	x	x	x
1995	x			x		x	x	x	x
1996				x		x	x	x	x
1997	x			x		x	x	x	x
1998	x			x		x	x	x	x
1999	x			x		x	x	x	x
2000	x			x		x	x	x	x
2001	x			x		x	x	x	x
2002	x			x		x	x	x	x
2003	x			x		x	x	x	x
2004	x			x		x	x	x	x
2005	x			x		x	x	x	x
2006	x			x		x	x	x	x
2007	x	x		x		x	x	x	x
2008	x	x		x		x	x	x	x
2009	x	x		x		x	x	x	x
2010	x	x		x		x	x	x	x
2011	x	x		x		x	x	x	x
2012	x	x		x		x	x	x	x
2013	x	x	x	x		x	x	x	x
2014				x		x	x	x	x
2015				x		x	x	x	x
2016	x	x		x		x	x	x	x
2017	x	x		x		x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

Table A.3.20.2

## Romania: methodology used to distribute factor income, pretax income, and posttax income

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			65.7%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	63.2%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	2.5%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	20.7%
(+)	Government primary income	National accounts	Proportional to pretax income	13.6%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	11.5%
(+)	Pension benefits	Survey + tax data	Observed	11%
(+)	Unemployment benefits	Survey + tax data	Observed	.5%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			21.2%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-0.3%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	4.3%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	14.4%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.8%
(+)	Transfers			21.5%
	<i>Cash transfers</i>	Survey + tax data	Observed	3.2%
	<i>Public health expenditures</i>	National accounts	Lump sum	4.7%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	13.6%
(+)	Budget balance	National accounts	Proportional to posttax income	-0.3%

Notes: The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.20.3**  
**Romania: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2006–2017)	See section 1.2.1.	
	Imputation of social contributions.	No data from the OECD, so we assume that social contributions are proportional to factor income.	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 92.0% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.00009 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (PovcalNet, 1998–2016); posttax income (SILC, 2007–2017; PovcalNet, 1989–1997; Transmonee 2004, 1989–2000); pretax income (SILC, 2007–2017; Milanovic 1998, 1989–1994)	See section 1.3.	Pretax and posttax incomes partially estimated from consumption. On average, the top 10% share is 2.8 pp. higher for posttax income than consumption and 4.7 pp. for pretax income than consumption.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	2013 (Oancea, Andrei, and Pirjol, 2017)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 4.3 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 4.7 pp. higher than in the raw survey. The top 1% share of posttax income is 4.2 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	Due to lack of data, we use the average European distribution for corporate stocks.  See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 16.9% of imputed rents, and account for 19.6% of consumption.  Undistributed corporate profits increase the top 10% share of income by 1.7 pp. on average; Imputed rents decrease the top 10% share of income by 0.4 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.6 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.3 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.20.4**  
**The distribution of national income in Romania, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€20,200	100%	€20,200	100%	€20,200	100%
Bottom 50%	€6,900	17.0%	€7,100	17.6%	€7,900	19.6%
Bottom 20%	€2,100	2.1%	€2,200	2.2%	€3,300	3.3%
Next 30%	€10,100	15.0%	€10,400	15.4%	€11,000	16.3%
Middle 40%	€22,600	44.8%	€23,100	45.7%	€22,900	45.3%
Top 10%	€77,100	38.2%	€74,100	36.7%	€70,900	35.1%
Top 1%	€253,000	12.5%	€218,000	10.8%	€205,000	10.1%
Top 0.1%	€833,000	4.1%	€643,000	3.2%	€593,000	2.9%
Top 0.01%	€2,740,000	1.4%	€1,890,000	0.9%	€1,710,000	0.8%
Top 0.001%	€9,010,000	0.4%	€5,580,000	0.3%	€4,960,000	0.2%

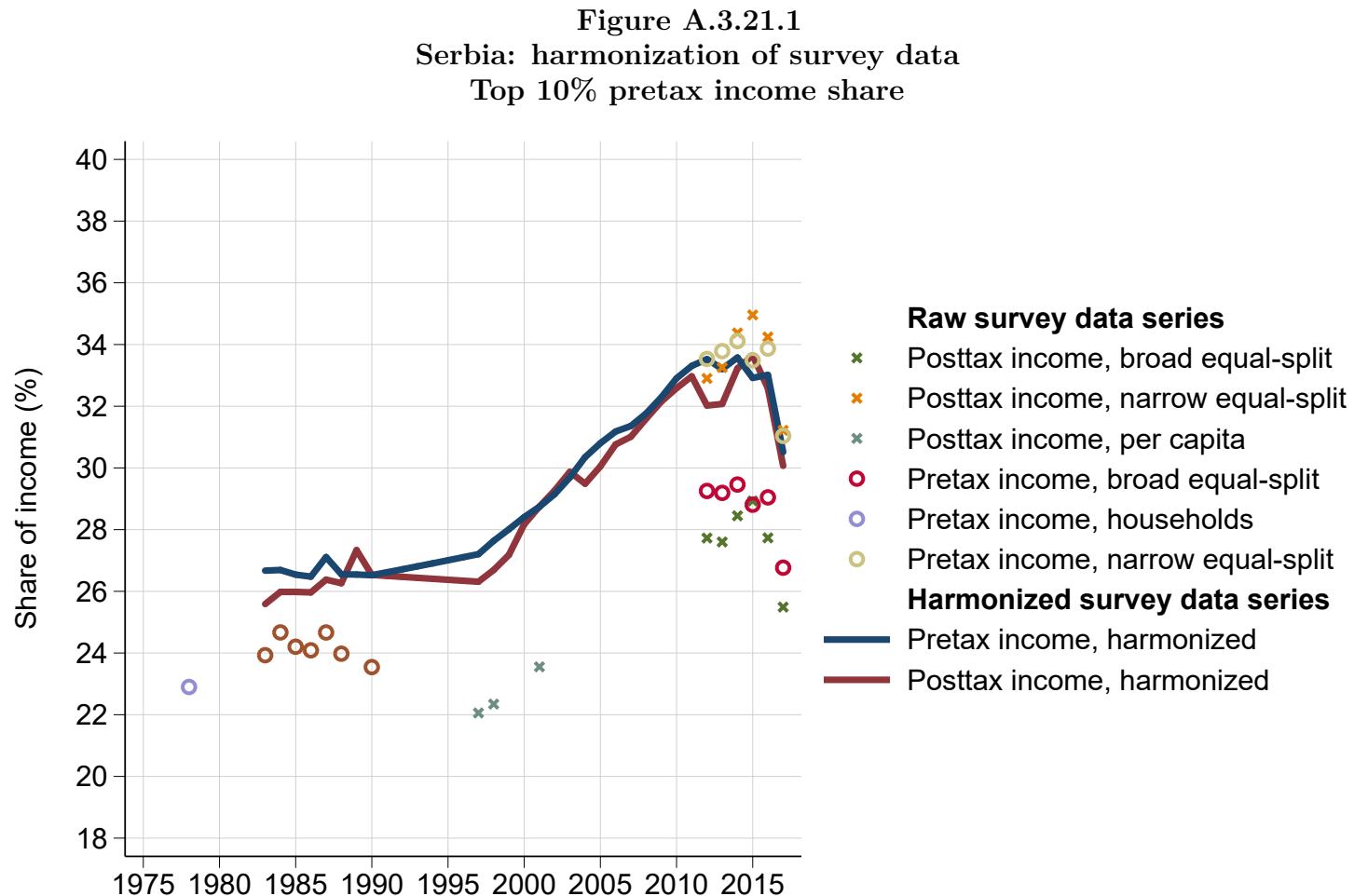
*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.20.5**  
**The distribution of national income growth in Romania, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.3%	2.8%	1.3%	2.8%	1.3%	2.8%
Bottom 50%	-0.1%	4.1%	-0.2%	4.7%	0.1%	4.6%
Bottom 20%	-1.9%	3.2%	-1.8%	4.7%	-0.9%	4.4%
Next 30%	0.3%	4.2%	0.2%	4.7%	0.3%	4.6%
Middle 40%	1.2%	3.7%	1.2%	3.8%	1.2%	3.7%
Top 10%	2.5%	1.3%	2.6%	1.0%	2.5%	0.9%
Top 1%	3.5%	-0.1%	3.4%	-1.0%	3.4%	-1.0%

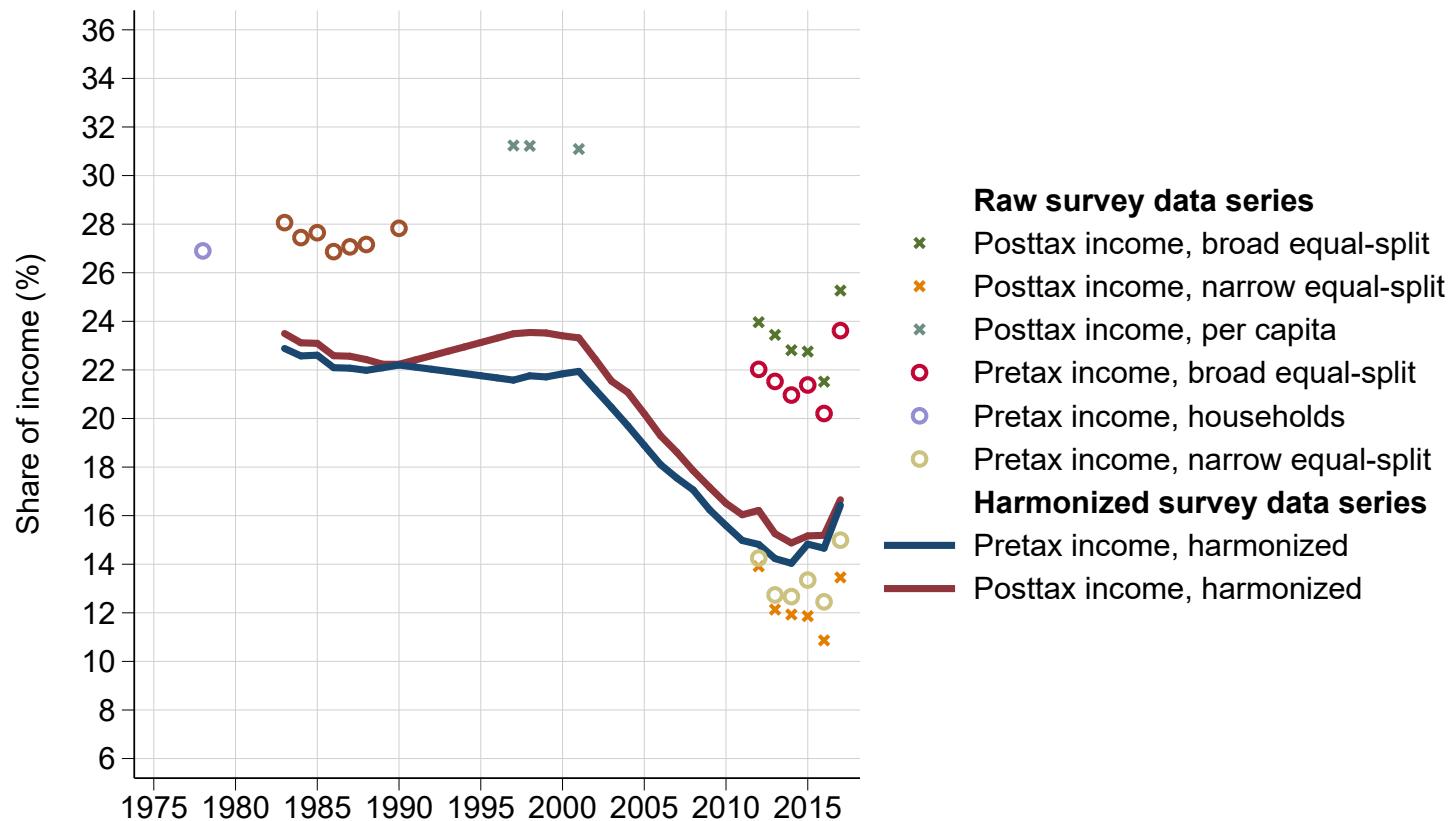
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

### 3.21 Serbia



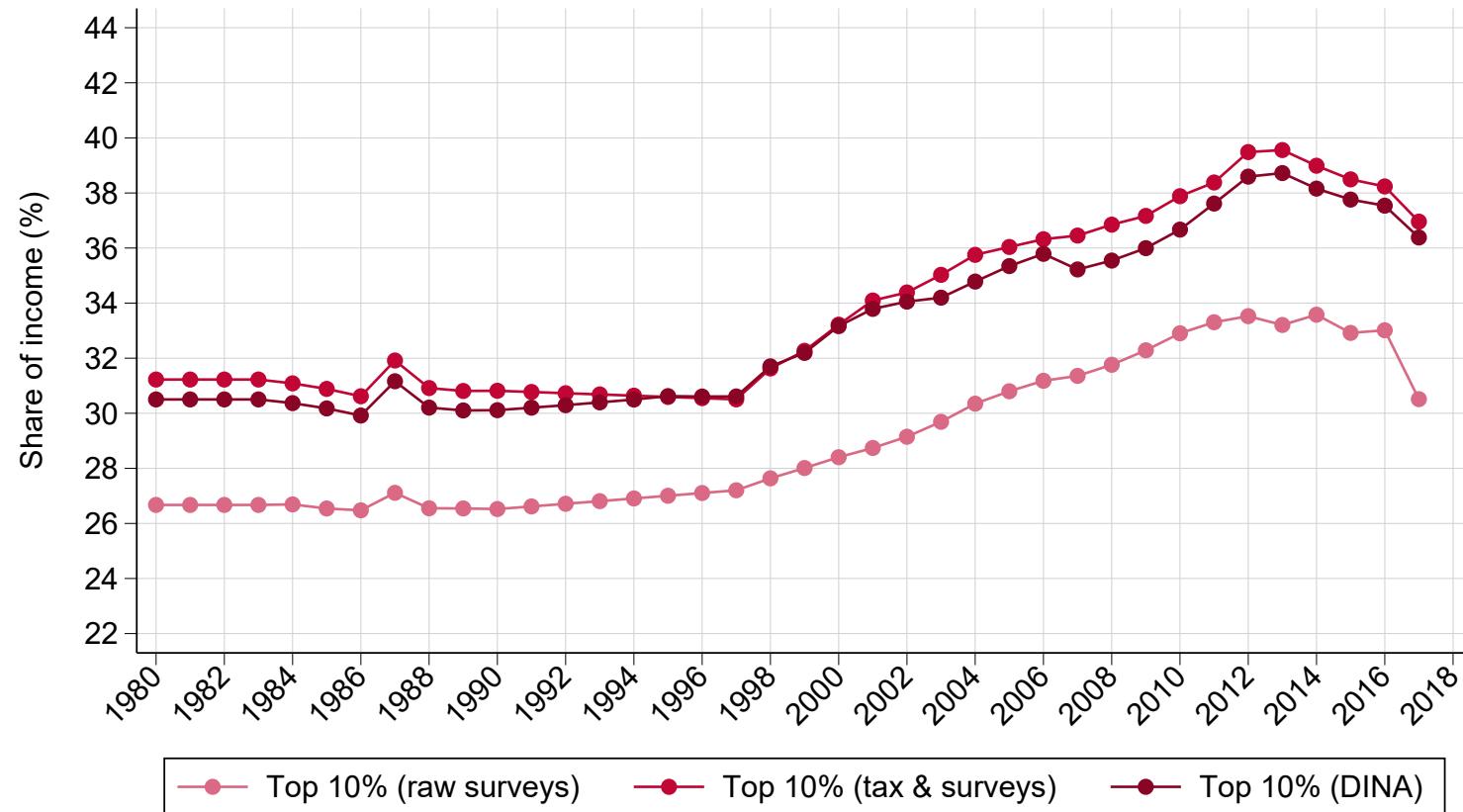
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.21.2**  
**Serbia: harmonization of survey data**  
**Bottom 50% pretax income share**



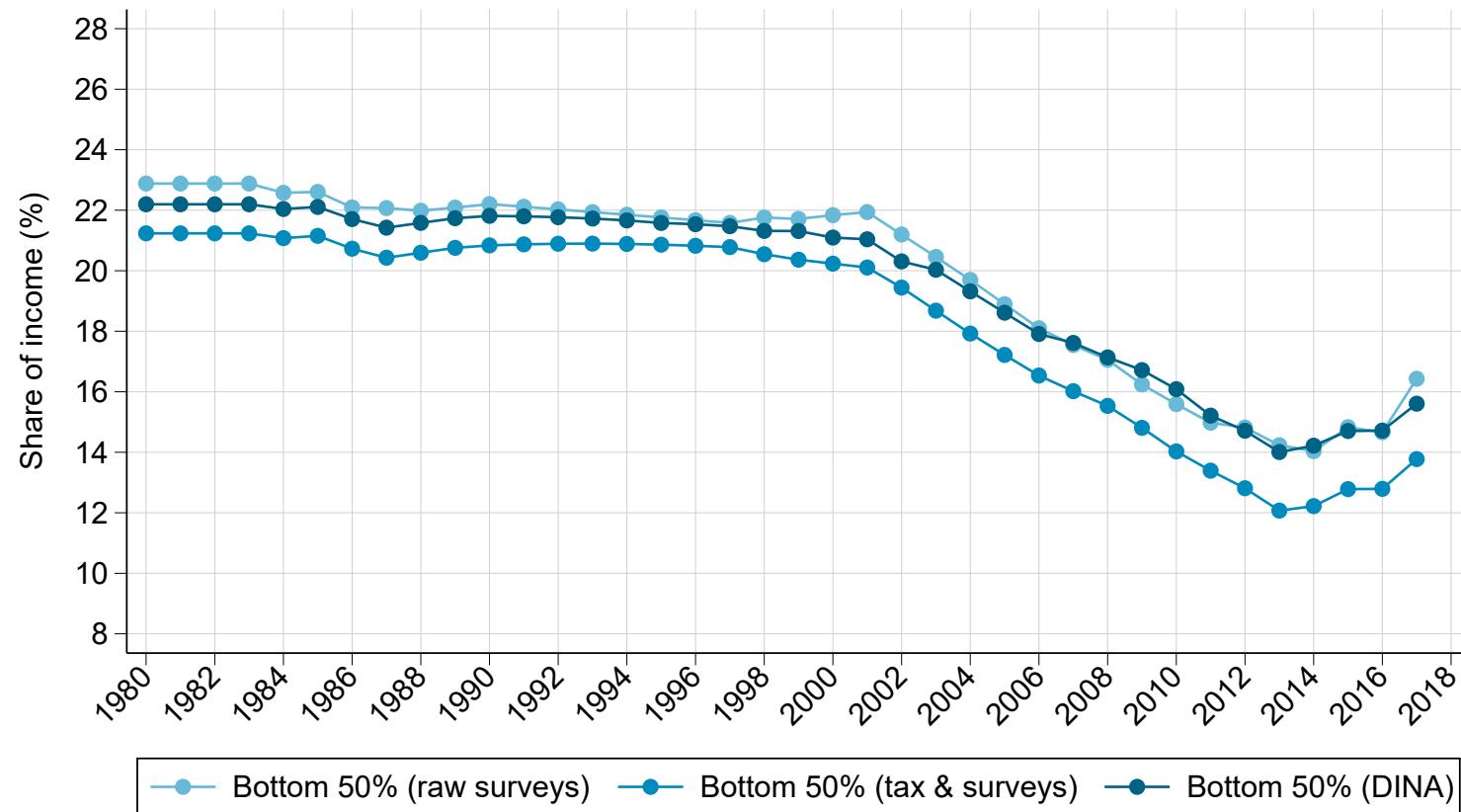
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.21.3**  
**Serbia: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



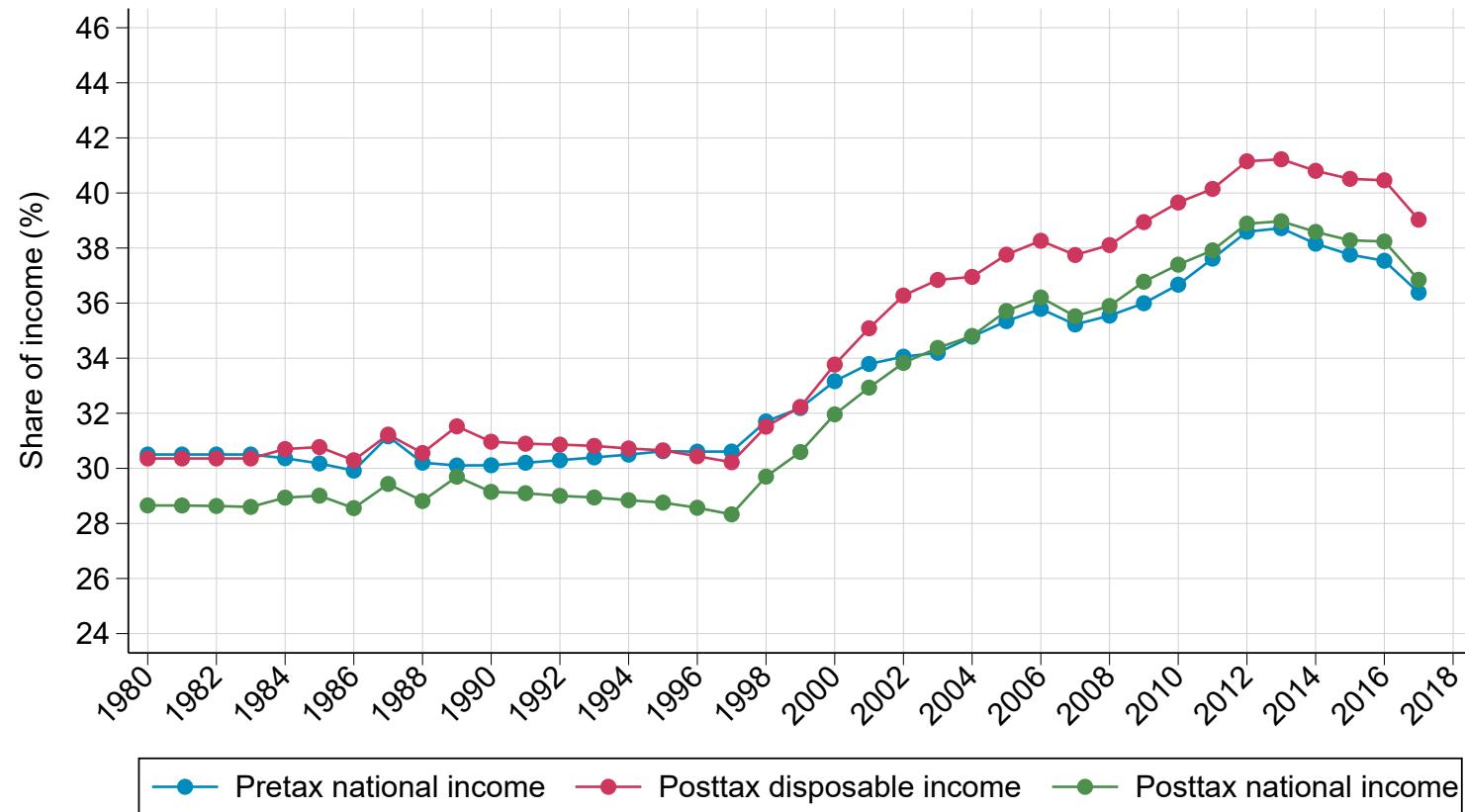
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.21.4**  
Serbia: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



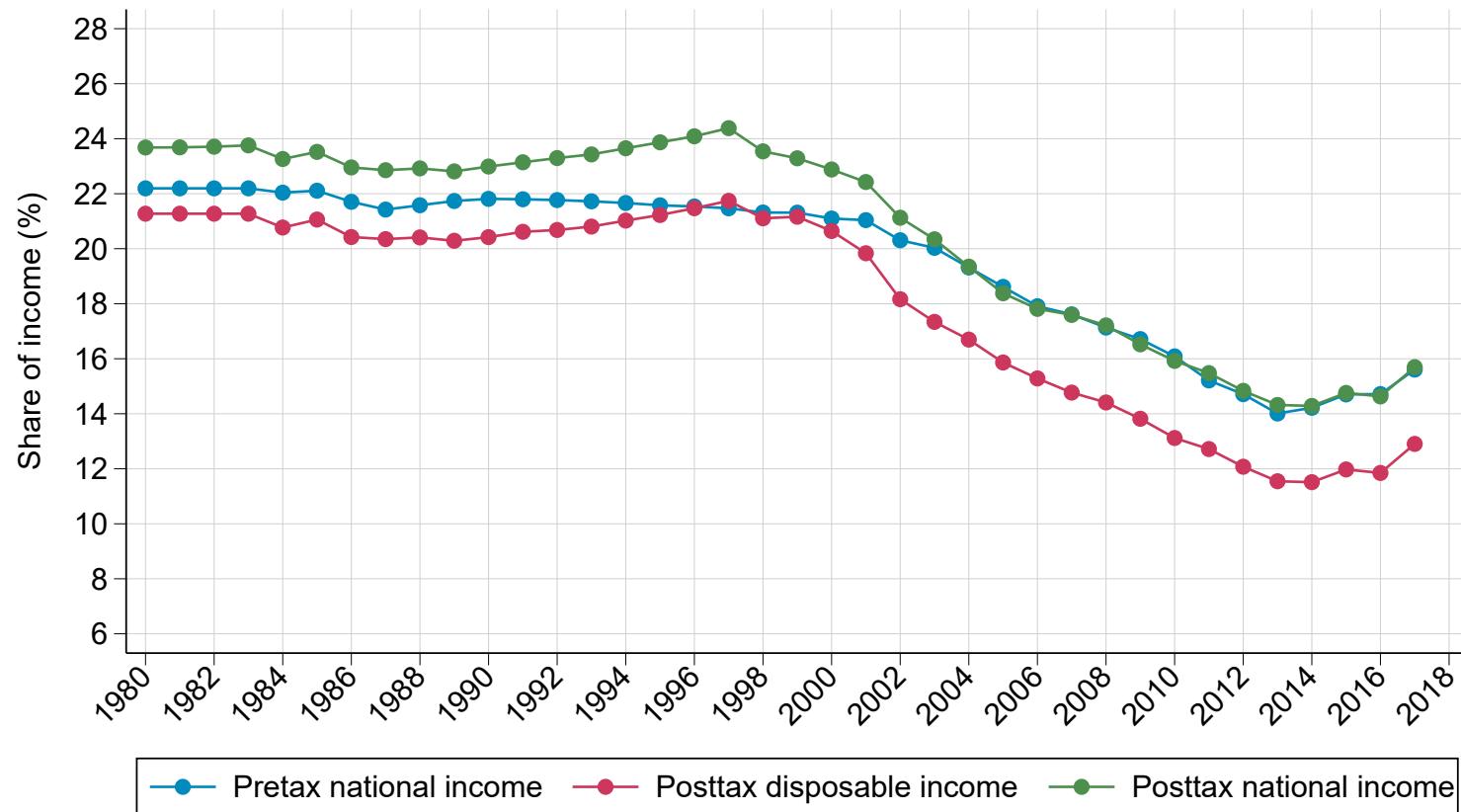
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.21.5  
Serbia: from pretax national income to posttax national income  
Top 10% income share



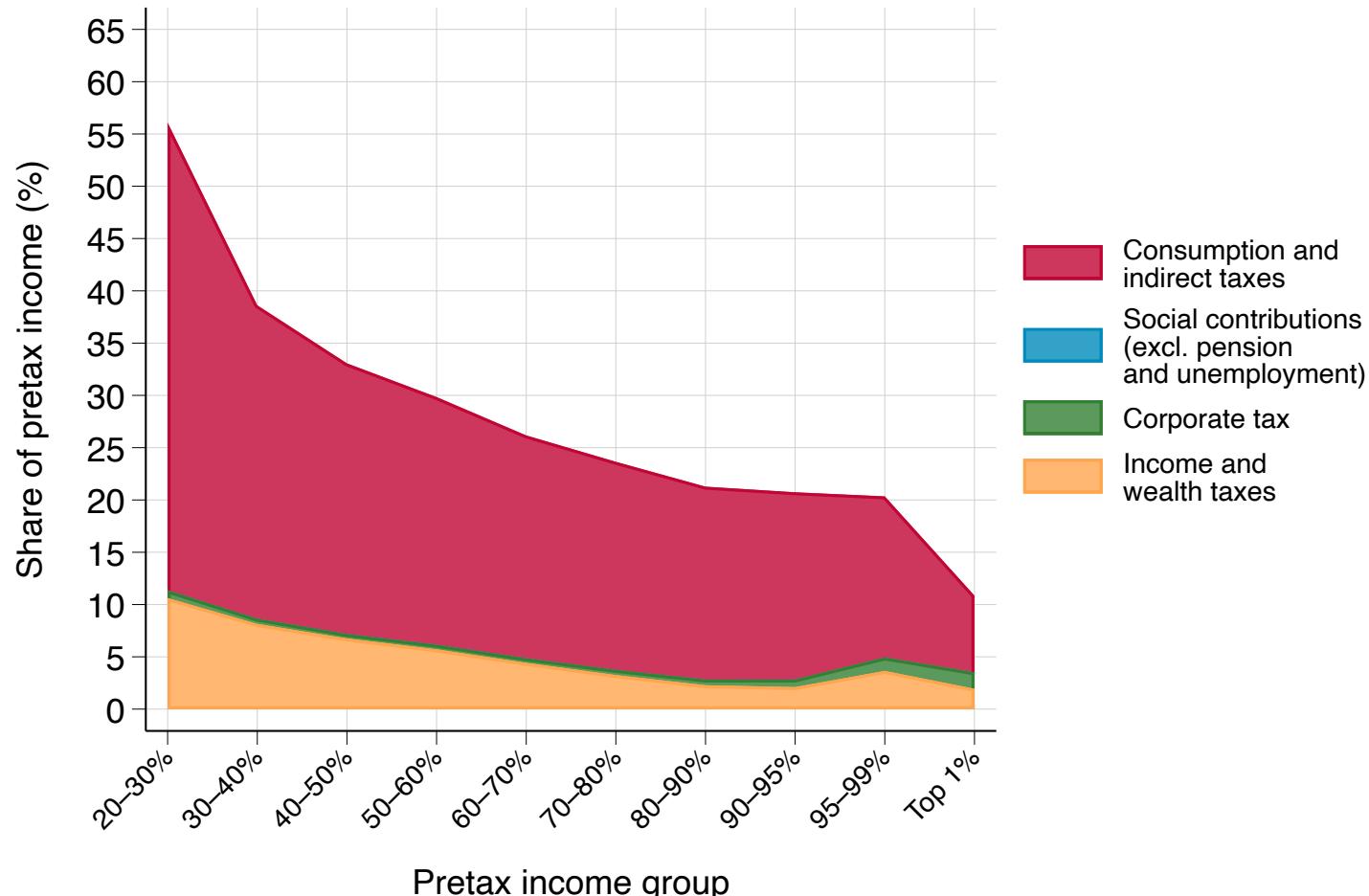
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.21.6  
Serbia: from pretax national income to posttax national income  
Bottom 50% income share



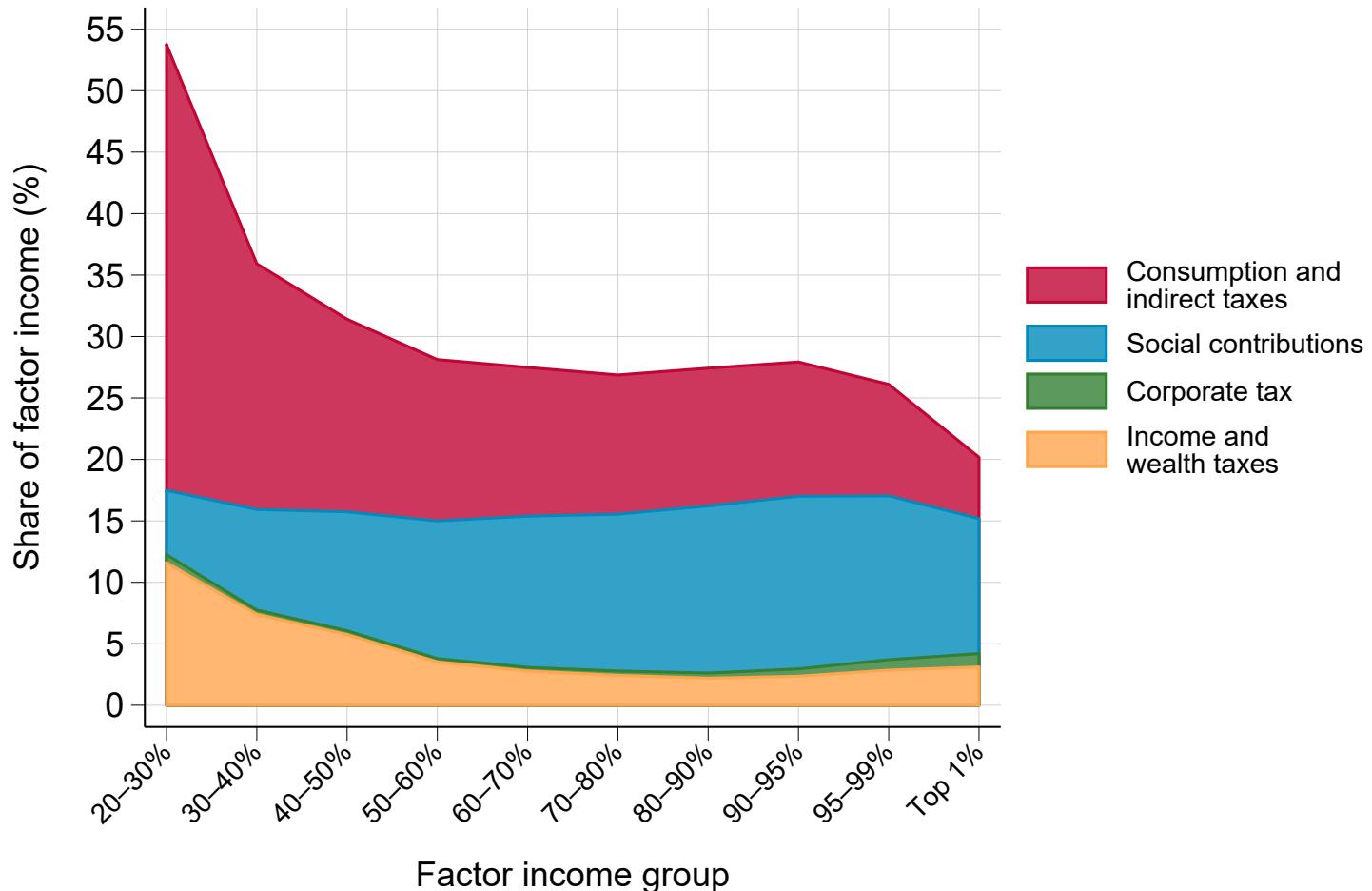
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.21.7**  
**Serbia: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



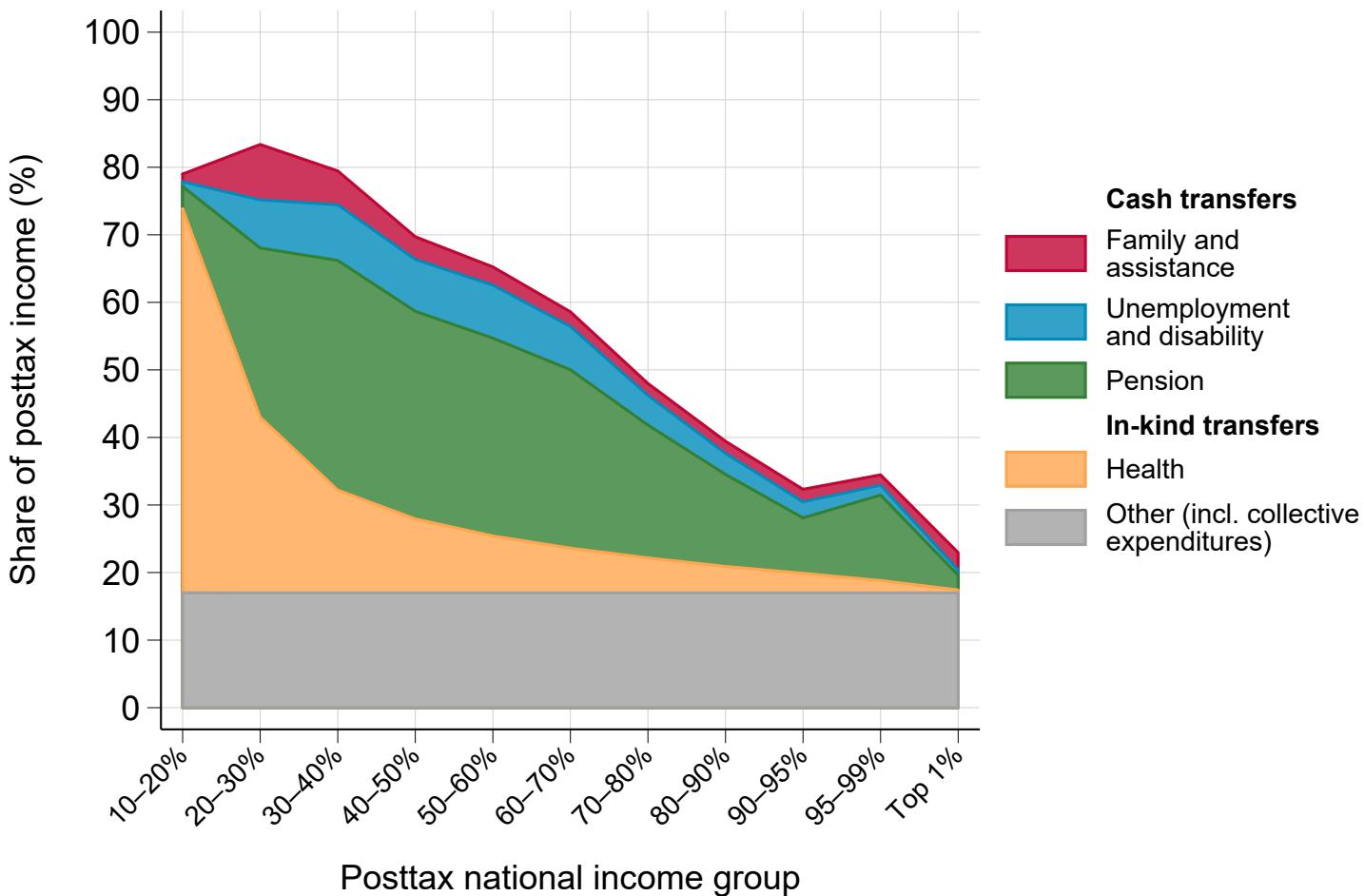
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.21.8**  
**Serbia: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

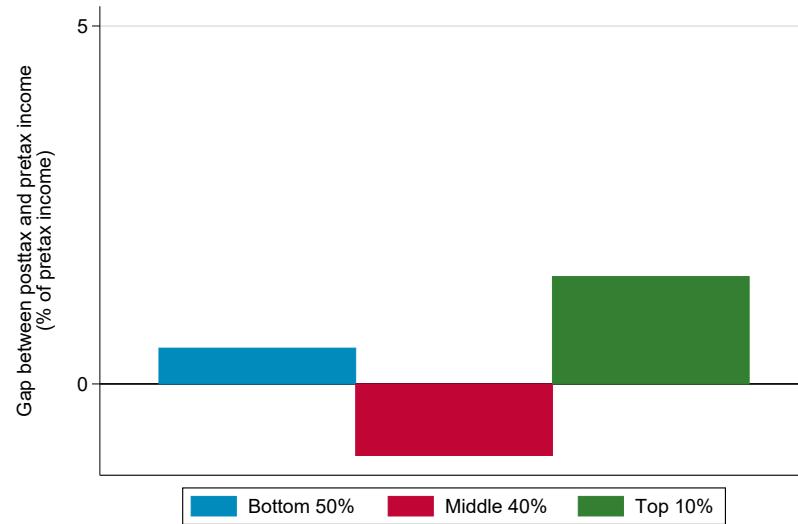
**Figure A.3.21.9**  
**Serbia: distribution of transfers**



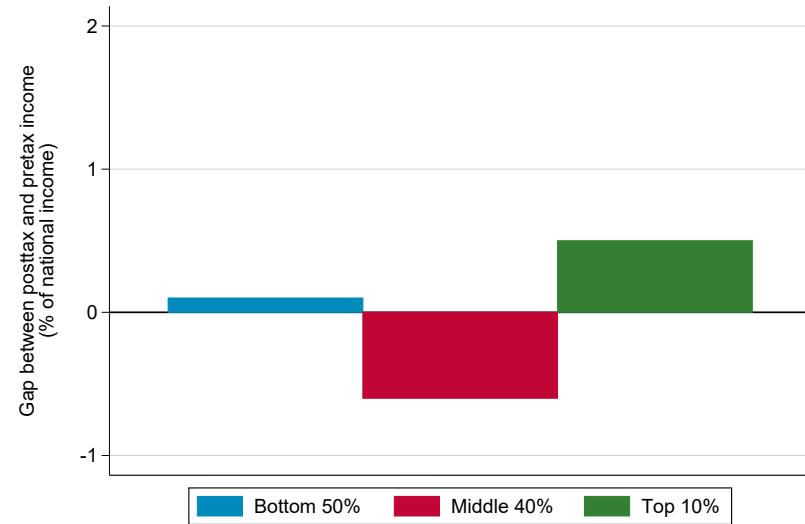
*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.21.10**  
**Serbia: net redistribution operated by the tax-and-transfer system**

(a) Net redistribution (% of average pretax income)



(b) Net redistribution (% of national income)



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.21.1**  
**Serbia: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1978	x								
1980									
1981									
1982									
1983	x								
1984	x								
1985	x								
1986	x								
1987	x								
1988	x								
1989									
1990	x								
1991									
1992									
1993									
1994									
1995									
1996									
1997	x					x	x		
1998	x					x	x		
1999						x	x		
2000			x			x	x	x	
2001	x		x			x	x	x	
2002			x			x	x	x	
2003			x			x	x	x	
2004			x			x	x	x	
2005			x			x	x	x	
2006			x			x	x	x	
2007			x			x	x	x	
2008			x			x	x	x	
2009			x			x	x	x	
2010			x			x	x	x	
2011			x			x	x	x	
2012	x	x							
2013	x	x							
2014	x	x							
2015	x	x							
2016	x	x							
2017	x	x	x						

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.21.2**  
**Serbia: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			
(+)	Household primary income			100%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	75%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	69.9%
			Proportional to equity ownership / wages and pension for equity held through pension funds	5.1%
(+)	Corporate primary income	National accounts		4.2%
(+)	Government primary income	National accounts	Proportional to pretax income	20.8%
	<b>Pretax national income</b>			
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	100%
(+)	Pension benefits	Survey + tax data	Observed	19.7%
(+)	Unemployment benefits	Survey + tax data	Observed	17.9%
				1.8%
	<b>Posttax national income</b>			
(+)	Pretax national income			100%
(-)	Taxes			100%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	23.7%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	-4.1%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	5.1%
			Proportional to equity ownership / wages and pension for equity held through pension funds	21.4%
	<i>Corporate income tax</i>	National accounts		1.3%
(+)	Transfers			27%
	<i>Cash transfers</i>	Survey + tax data	Observed	3.5%
	<i>Public health expenditures</i>	National accounts	Lump sum	6.5%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	17%
(+)	Budget balance	National accounts	Proportional to posttax income	-3.3%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.21.3**  
**Serbia: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2012–2017)	See section 1.2.1.	
	Imputation of social contributions.	No data from the OECD, so we assume that social contributions are proportional to factor income.	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that all social contributions, and also, on average, 81.0% of income taxes, are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.7 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (SILC, 2012–2017; Transmonee 2004, RS-ME, 1997–2001); pretax income (SILC, 2012–2017; Milanovic and Ying 1996, YU, 1983–1990; van Ginneken and Park 1984, YU, 1978)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 0.9 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	2017 (Authors)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 6.3 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 5.4 pp. higher than in the raw survey. The top 1% share of posttax income is 4.7 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	EU-SILC, 2012–2012 (imputed rents)	Due to lack of data, we use the average European distribution for corporate stocks and imputed rents.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 14.2% of imputed rents, and account for 19.0% of consumption.
			See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 0.3 pp. on average; Imputed rents decrease the top 10% share of income by 0.8 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.1 pp. on average; Taxes on products increase the top 10% share of posttax income by 2.5 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.9 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.21.4**  
**The distribution of national income in Serbia, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€12,100	100%	€12,100	100%	€12,100	100%
Bottom 50%	€3,800	15.6%	€3,100	12.9%	€3,800	15.7%
Bottom 20%	€700	1.2%	€300	0.5%	€1,200	2.0%
Next 30%	€5,800	14.4%	€5,000	12.4%	€5,500	13.7%
Middle 40%	€14,500	48.0%	€14,500	48.1%	€14,400	47.5%
Top 10%	€44,100	36.4%	€47,300	39.0%	€44,600	36.8%
Top 1%	€146,000	12.0%	€166,000	13.7%	€155,000	12.8%
Top 0.1%	€547,000	4.5%	€669,000	5.5%	€620,000	5.1%
Top 0.01%	€2,130,000	1.8%	€2,790,000	2.3%	€2,580,000	2.1%
Top 0.001%	€8,360,000	0.7%	€11,750,000	1.0%	€10,860,000	0.9%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

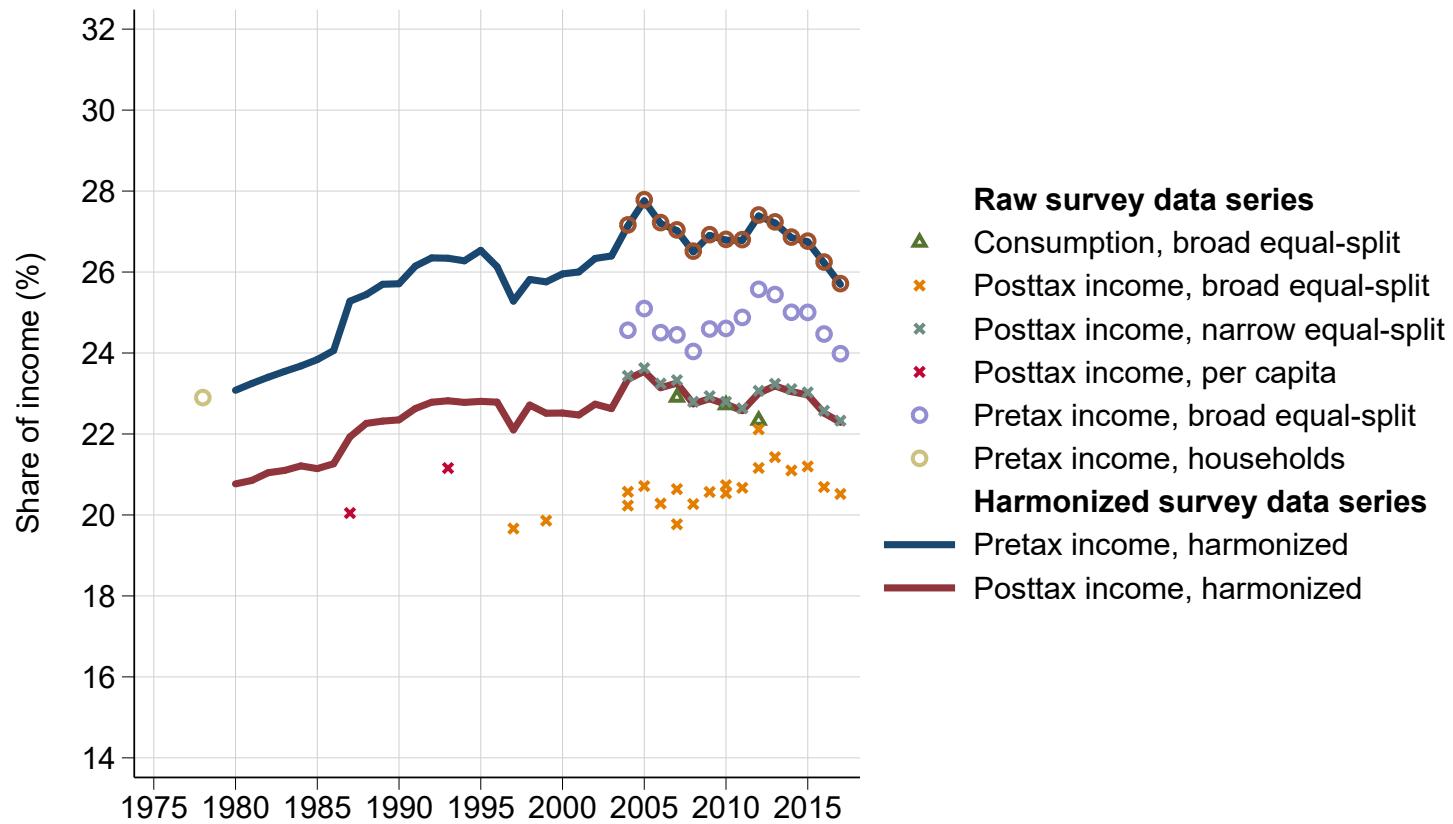
**Table A.3.21.5**  
**The distribution of national income growth in Serbia, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	-1.0%	0.9%	-1.0%	0.9%	-1.0%	0.9%
Bottom 50%	-2.0%	-0.3%	-2.4%	-0.5%	-2.1%	-0.3%
Bottom 20%	-4.4%	-5.4%	-6.0%	-5.9%	-3.5%	-1.7%
Next 30%	-1.6%	0.3%	-2.0%	-0.1%	-1.9%	0.0%
Middle 40%	-1.0%	1.1%	-1.1%	1.0%	-1.1%	1.0%
Top 10%	-0.6%	1.2%	-0.4%	1.2%	-0.4%	1.3%
Top 1%	-0.3%	1.4%	0.1%	2.3%	0.1%	2.4%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

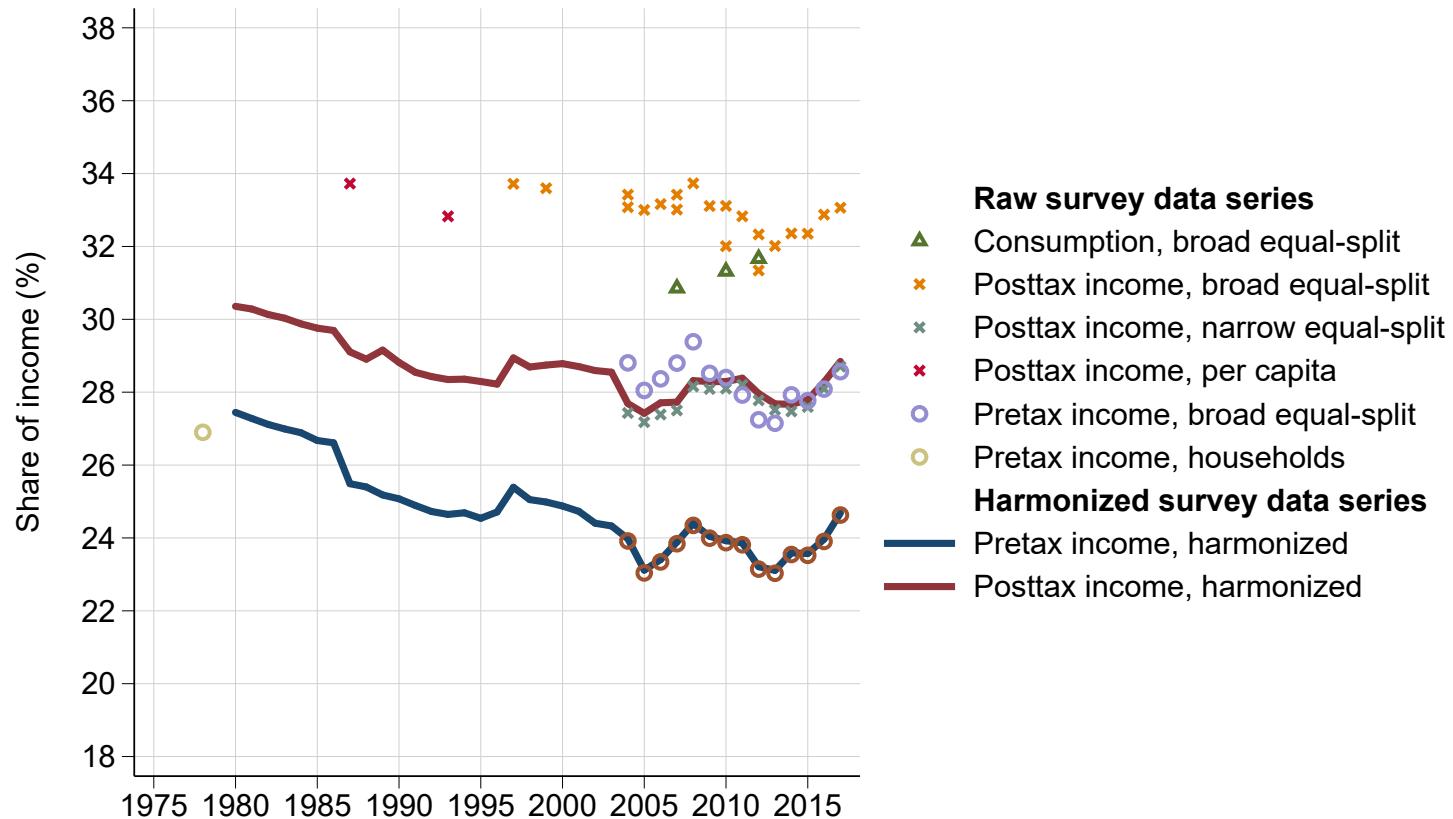
### 3.22 Slovenia

Figure A.3.22.1  
Slovenia: harmonization of survey data  
Top 10% pretax income share



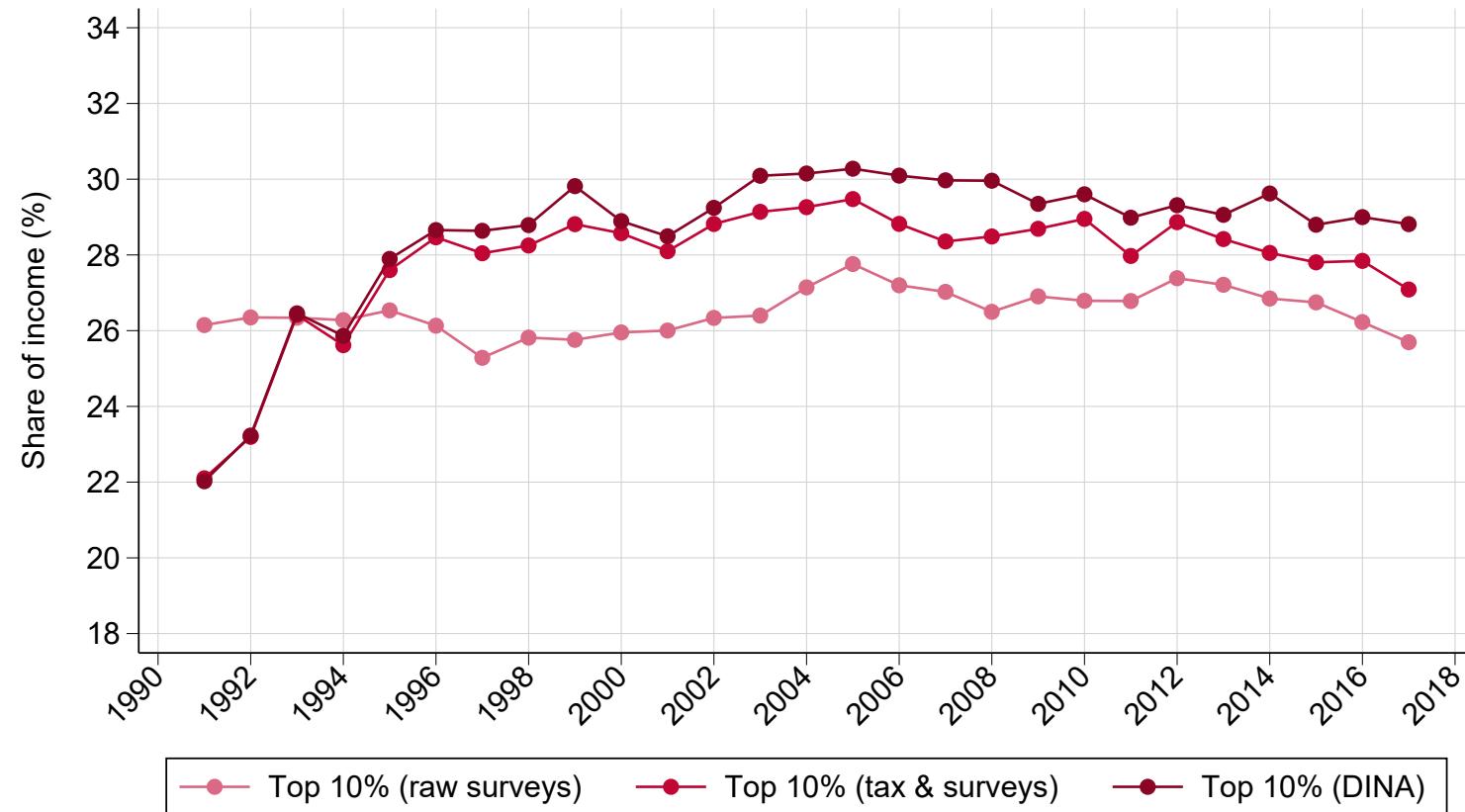
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.22.2**  
**Slovenia: harmonization of survey data**  
**Bottom 50% pretax income share**



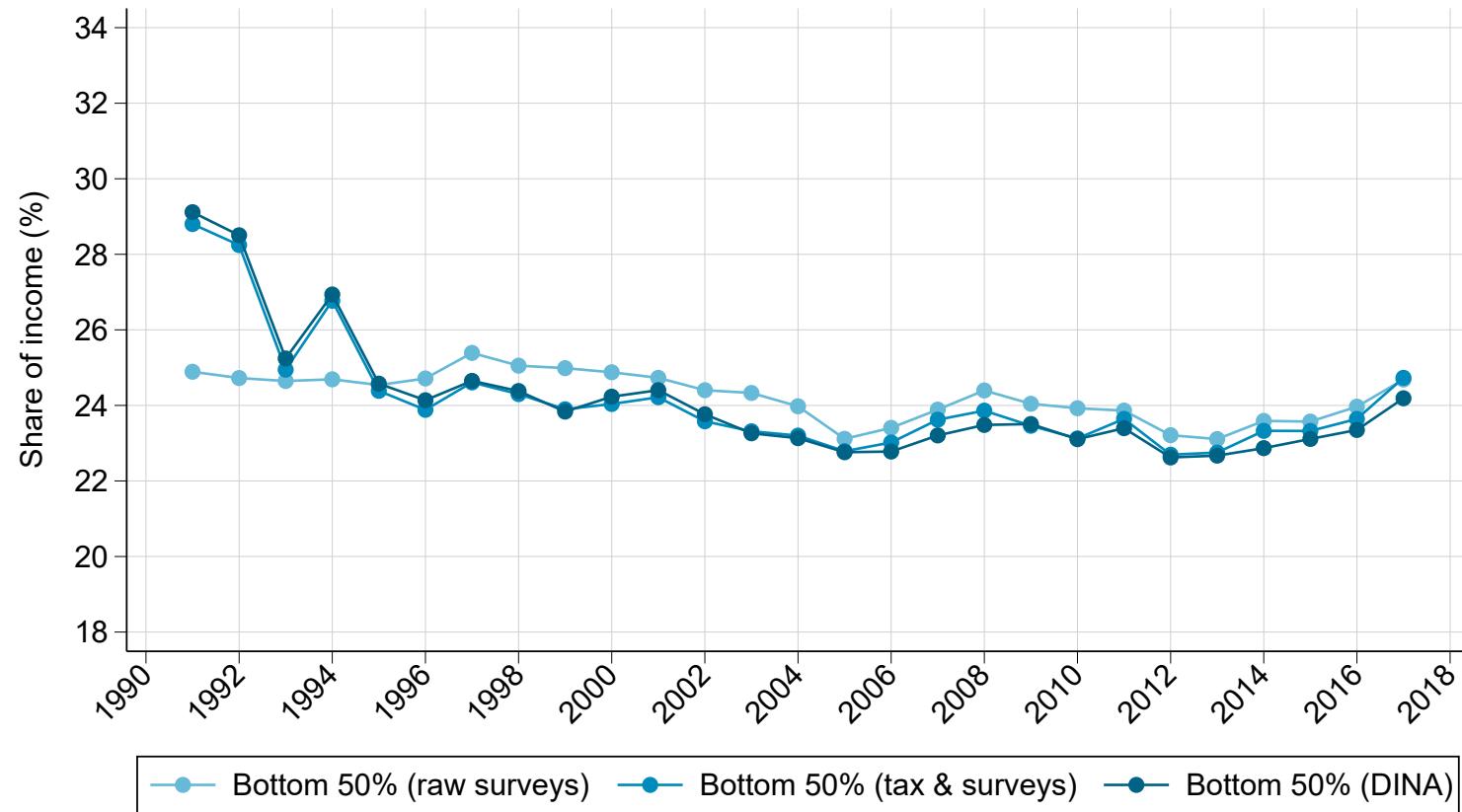
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.22.3**  
Slovenia: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



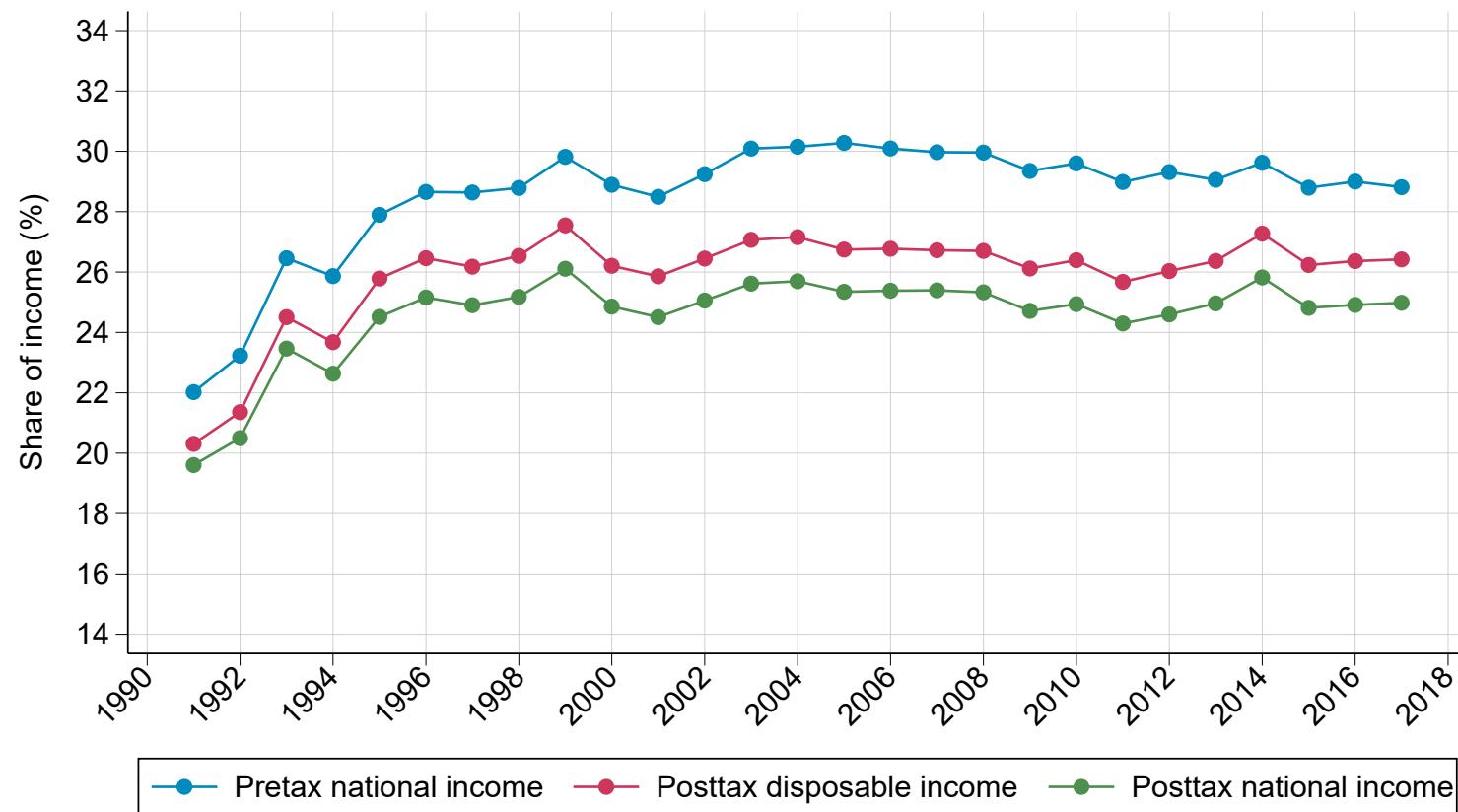
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.22.4  
Slovenia: from harmonized surveys to distributional national accounts  
Bottom 50% pretax income share



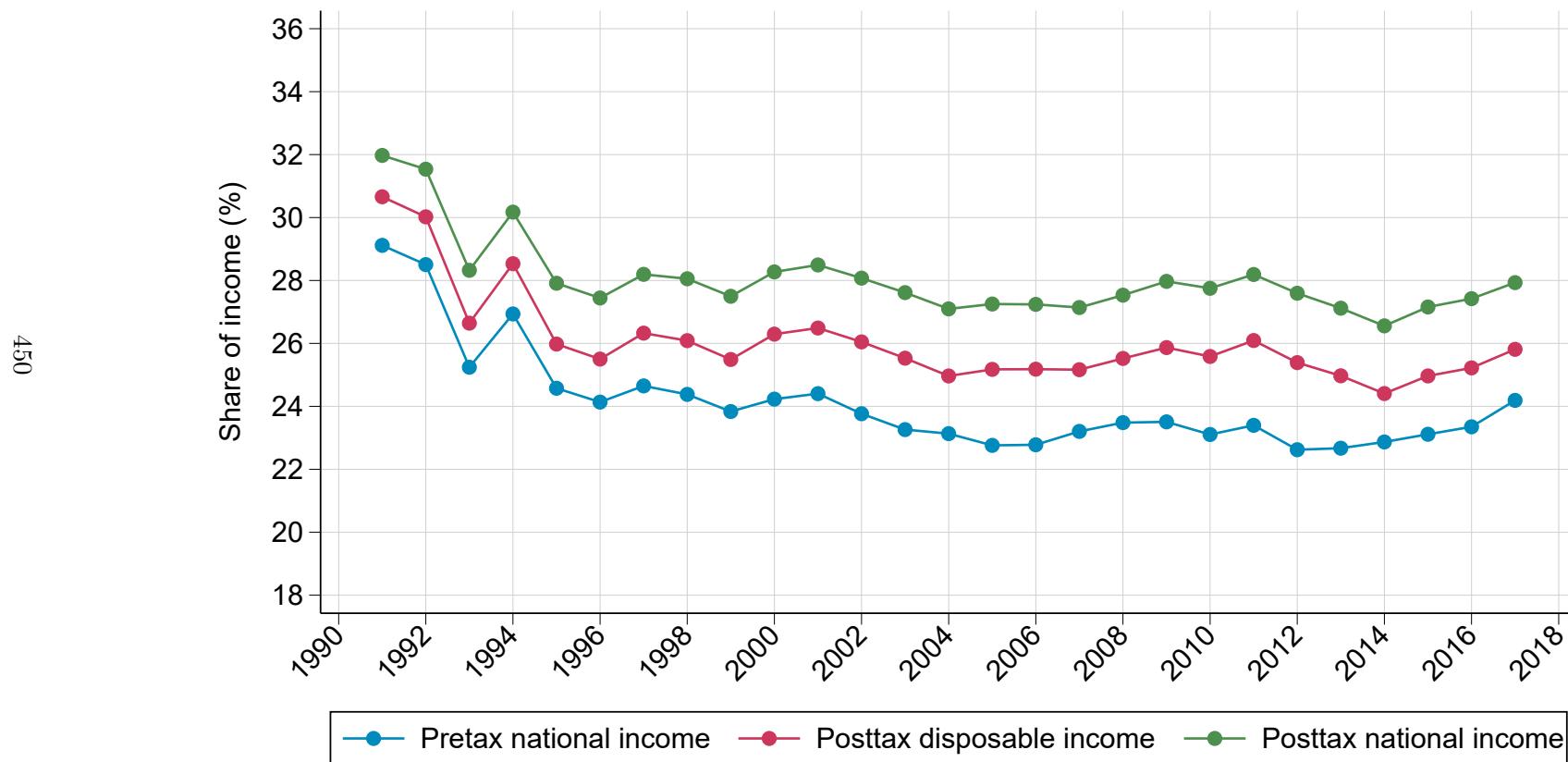
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.22.5**  
**Slovenia: from pretax national income to posttax national income**  
**Top 10% income share**



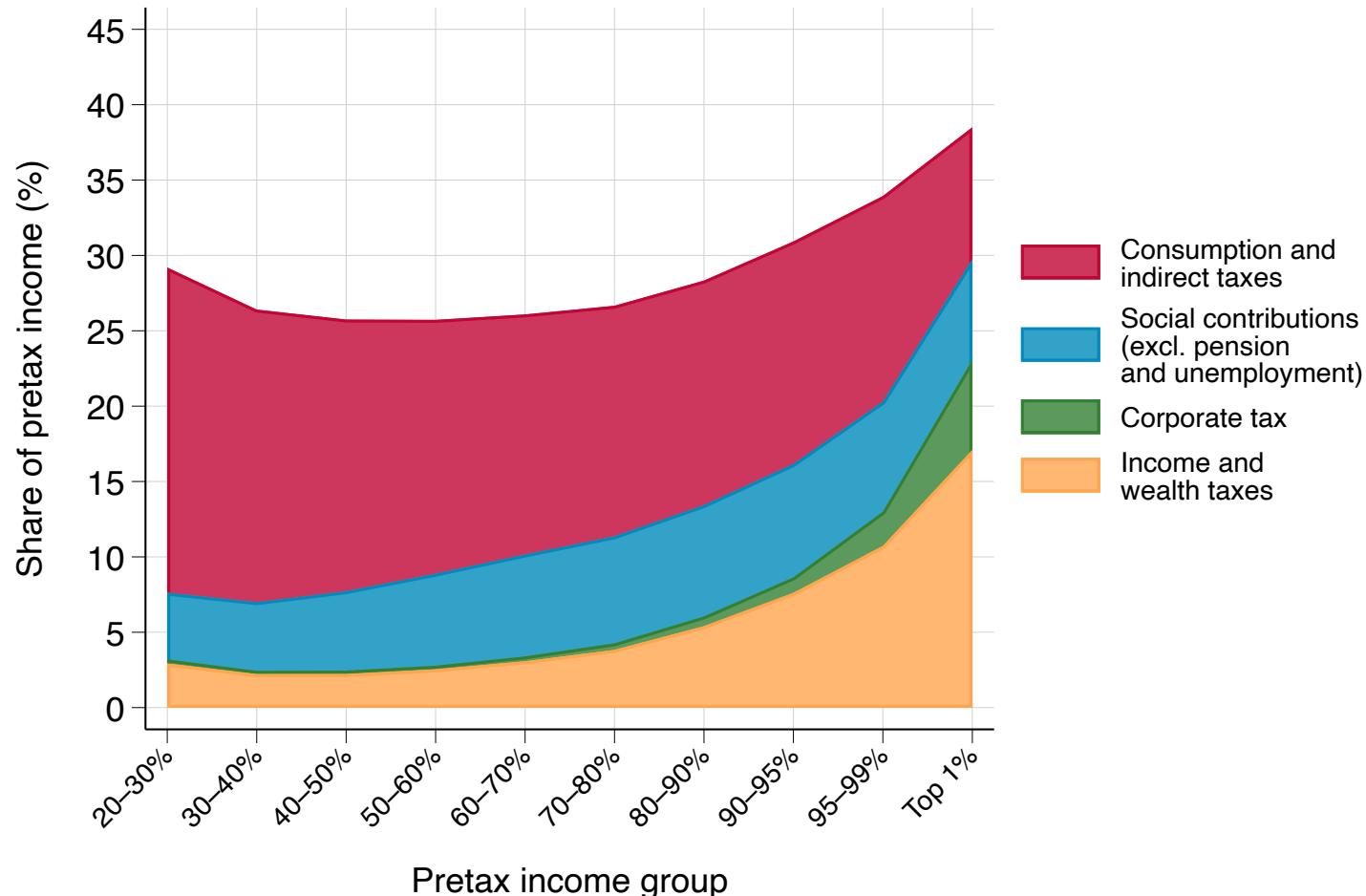
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.22.6**  
**Slovenia: from pretax national income to posttax national income**  
**Bottom 50% income share**



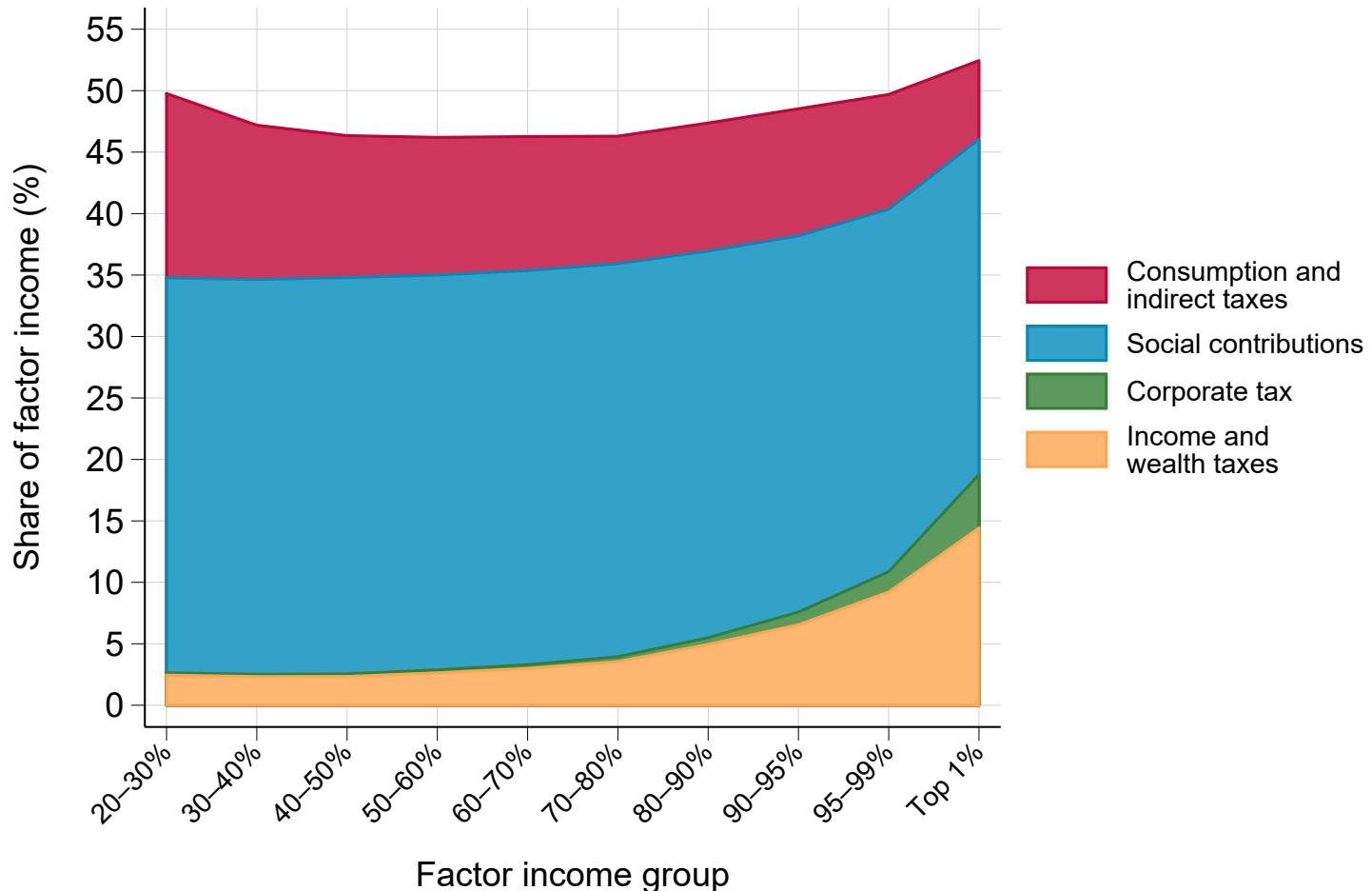
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.22.7**  
**Slovenia: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



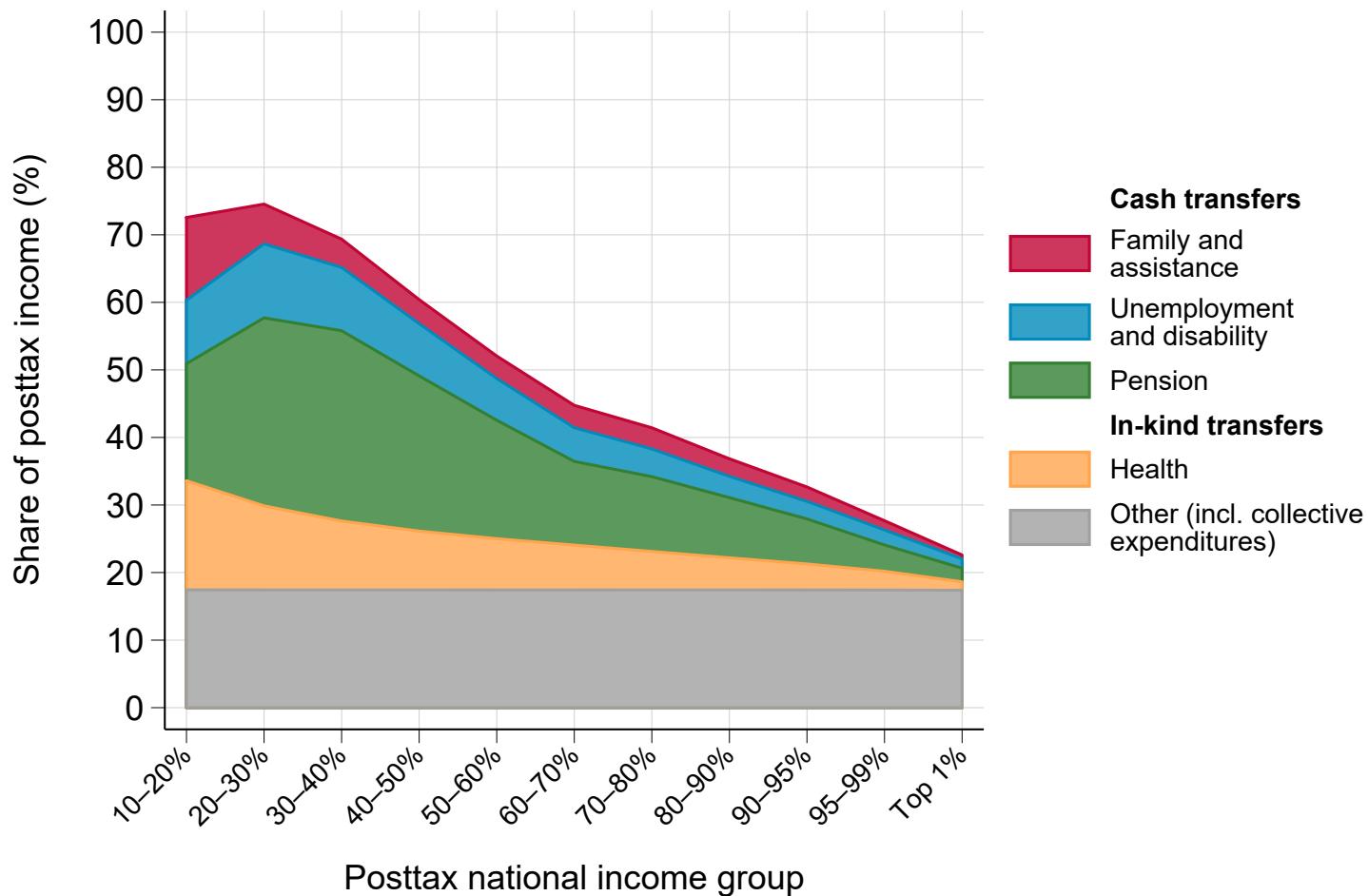
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.22.8**  
**Slovenia: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



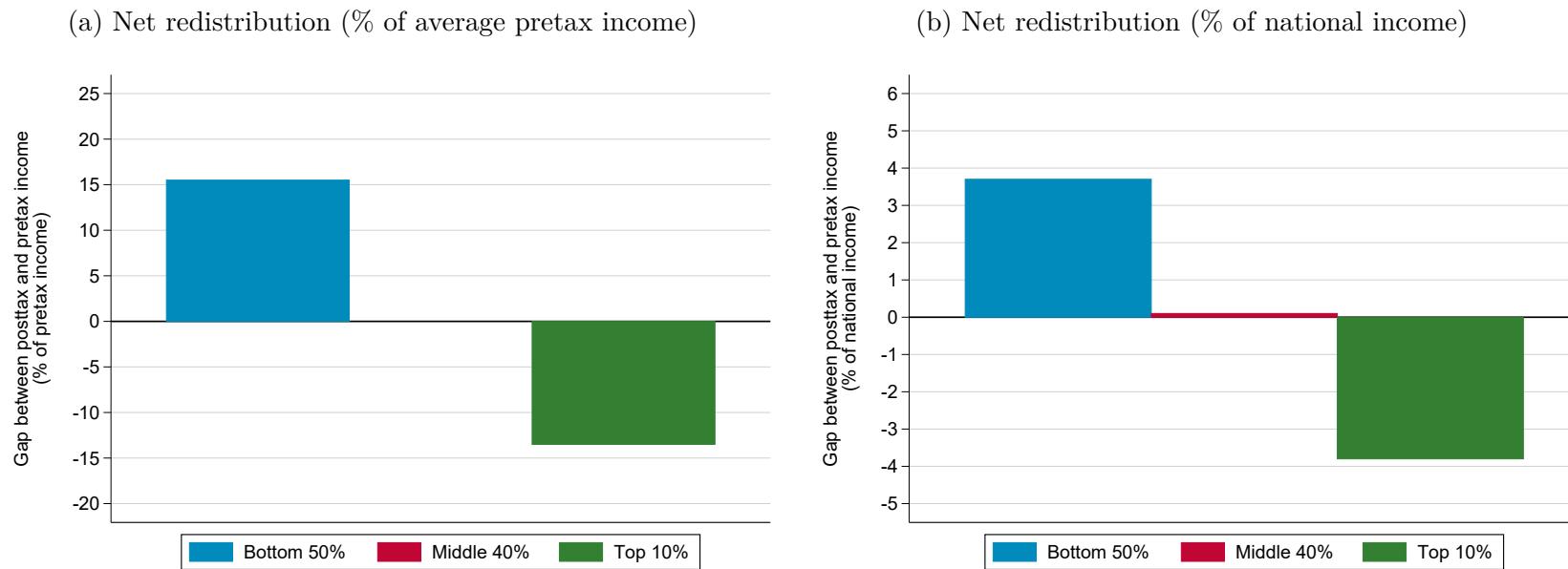
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.22.9**  
**Slovenia: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.22.10**  
**Slovenia: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.22.1**  
**Slovenia: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1978	x								
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987	x								x
1988									x
1989									x
1990									x
1991			x						x
1992			x						x
1993	x		x						x
1994			x						
1995			x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997	x	x	x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000			x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x		x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.22.2**  
**Slovenia: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			79.1%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	78.3%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	.8%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	5.3%
(+)	Government primary income	National accounts	Proportional to pretax income	15.6%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	18.4%
(+)	Pension benefits	Survey + tax data	Observed	17.5%
(+)	Unemployment benefits	Survey + tax data	Observed	1%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			30.1%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	3.3%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	7.5%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	17.3%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	1.9%
(+)	Transfers			31.1%
	<i>Cash transfers</i>	Survey + tax data	Observed	6%
	<i>Public health expenditures</i>	National accounts	Lump sum	7.3%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	17.8%
(+)	Budget balance	National accounts	Proportional to posttax income	-1.1%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.22.3**  
**Slovenia: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2004–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2004–2017); Employer contributions (OECD, 2004–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 82.9% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.5 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010; LIS, 2007–2012); posttax income (LIS, 1997–2012; SILC, 2004–2017; Milanovic 1998, 1987–1993); pretax income (SILC, 2004–2017; van Ginneken and Park 1984, YU, 1978)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 3.5 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1991–2012 (Kump and Novokmet, 2018)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 1.3 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 0.7 pp. higher than in the raw survey. The top 1% share of posttax income is 0.3 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2010, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 24.1% of stocks, capture 13.9% of imputed rents, and account for 18.3% of consumption.  Undistributed corporate profits increase the top 10% share of income by 0.5 pp. on average; Imputed rents decrease the top 10% share of income by 0.2 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.3 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.4 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.22.4**  
**The distribution of national income in Slovenia, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€26,500	100%	€26,500	100%	€26,500	100%
Bottom 50%	€12,800	24.2%	€13,700	25.8%	€14,800	27.9%
Bottom 20%	€7,000	5.3%	€7,300	5.5%	€9,000	6.8%
Next 30%	€16,700	18.9%	€17,900	20.3%	€18,700	21.1%
Middle 40%	€31,100	47.0%	€31,600	47.8%	€31,200	47.1%
Top 10%	€76,400	28.8%	€70,000	26.4%	€66,200	25.0%
Top 1%	€198,000	7.5%	€170,000	6.4%	€158,000	6.0%
Top 0.1%	€539,000	2.0%	€452,000	1.7%	€414,000	1.6%
Top 0.01%	€1,490,000	0.6%	€1,240,000	0.5%	€1,130,000	0.4%
Top 0.001%	€4,140,000	0.2%	€3,440,000	0.1%	€3,140,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

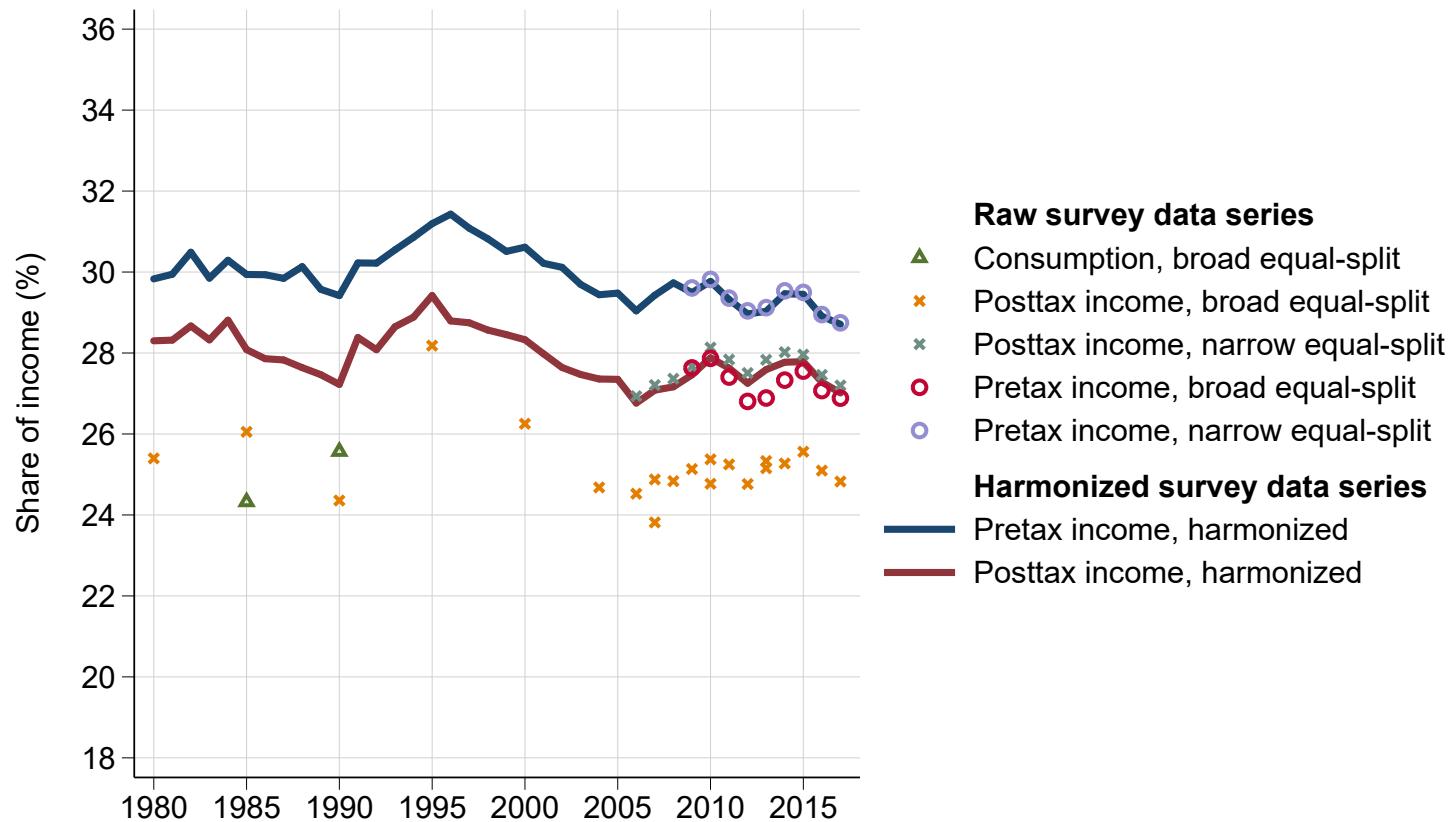
**Table A.3.22.5**  
**The distribution of national income growth in Slovenia, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	0.5%	0.2%	0.5%	0.2%	0.5%	0.2%
Bottom 50%	0.0%	0.6%	0.0%	0.5%	0.1%	0.5%
Bottom 20%	0.0%	2.1%	-0.1%	1.6%	0.1%	1.4%
Next 30%	-0.1%	0.2%	0.0%	0.2%	0.1%	0.2%
Middle 40%	0.4%	0.2%	0.4%	0.1%	0.4%	0.1%
Top 10%	1.2%	-0.2%	1.2%	0.1%	1.1%	0.0%
Top 1%	2.1%	-0.3%	2.0%	0.4%	1.9%	0.4%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

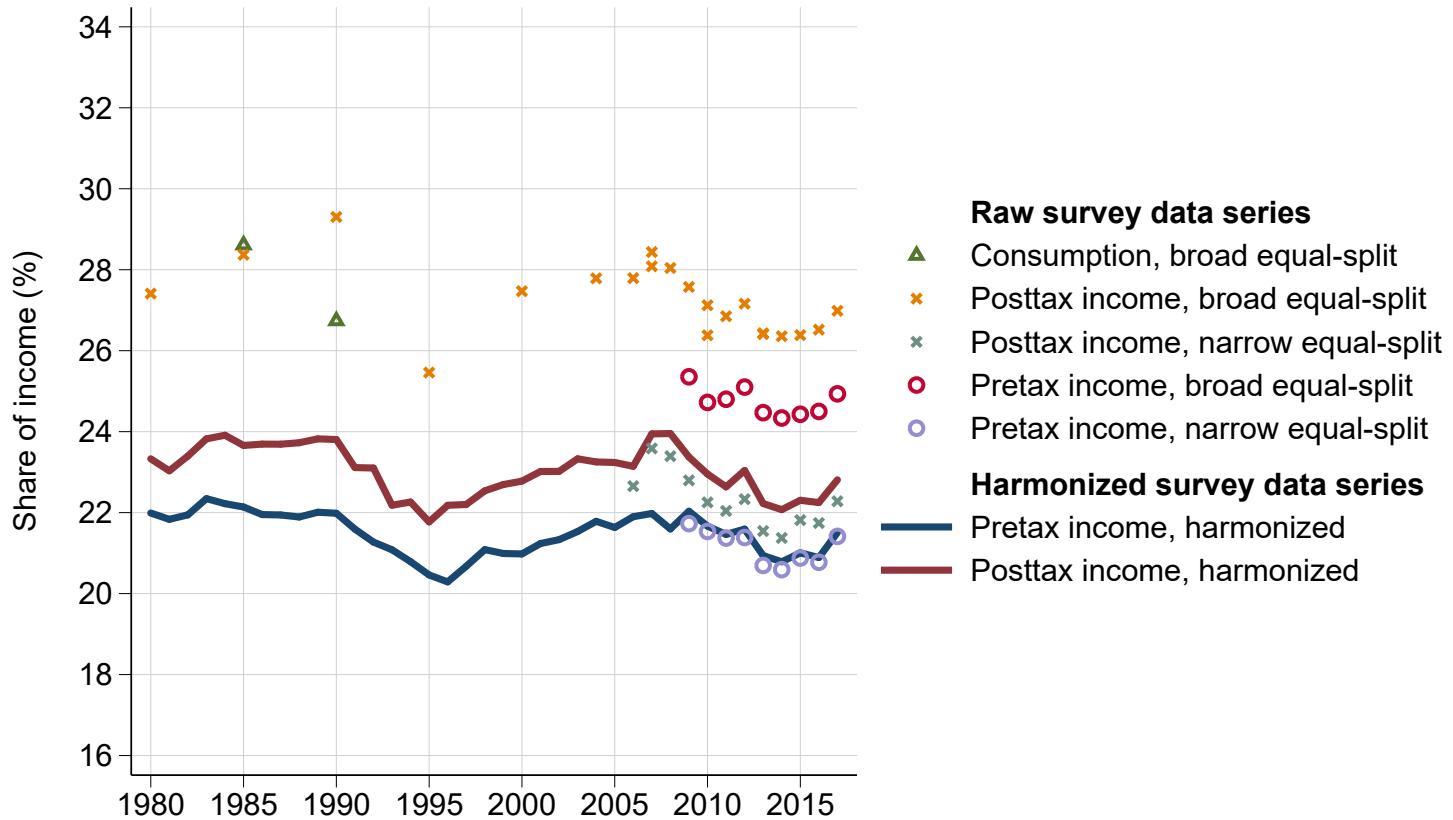
### 3.23 Spain

Figure A.3.23.1  
Spain: harmonization of survey data  
Top 10% pretax income share



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

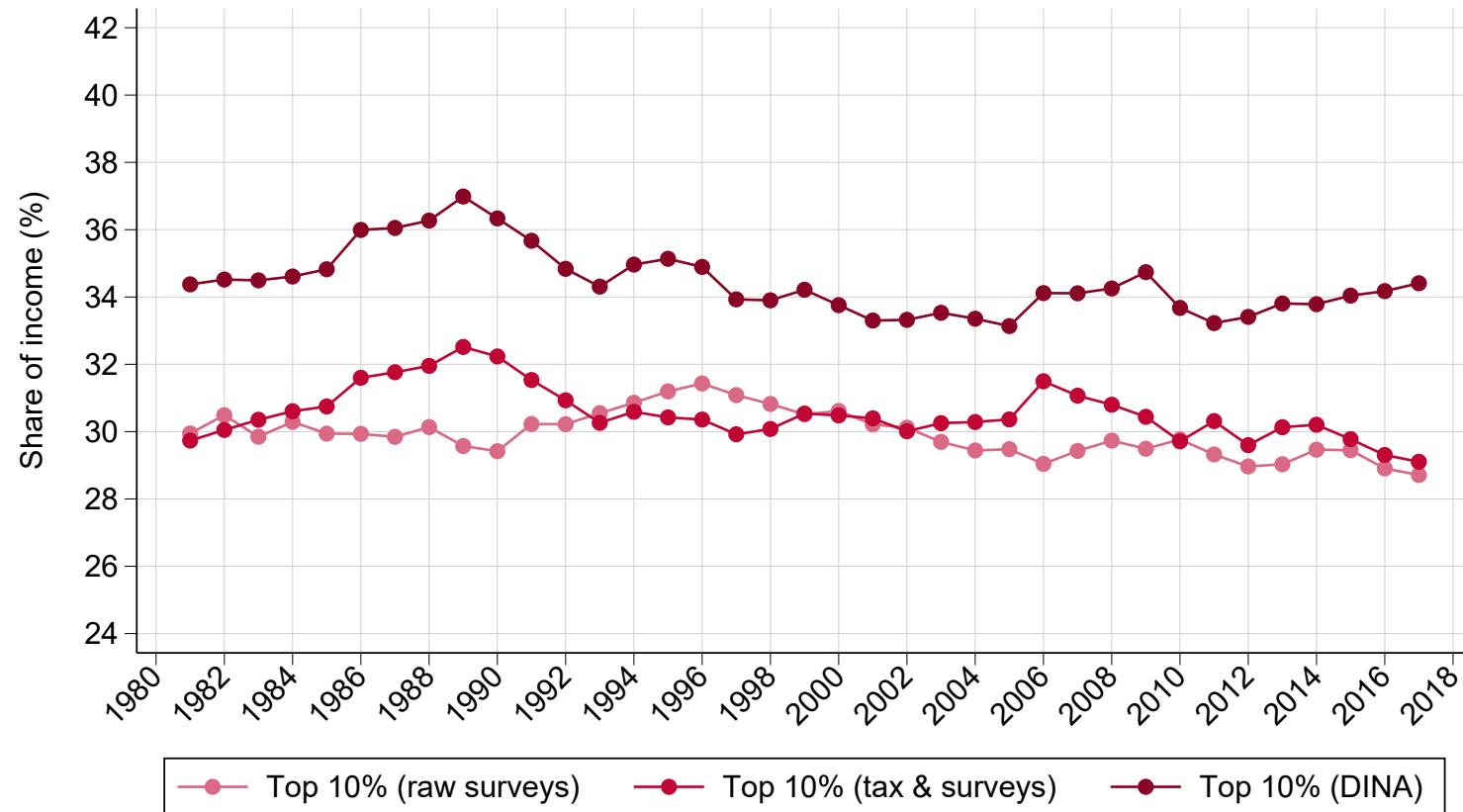
**Figure A.3.23.2**  
**Spain: harmonization of survey data**  
**Bottom 50% pretax income share**



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

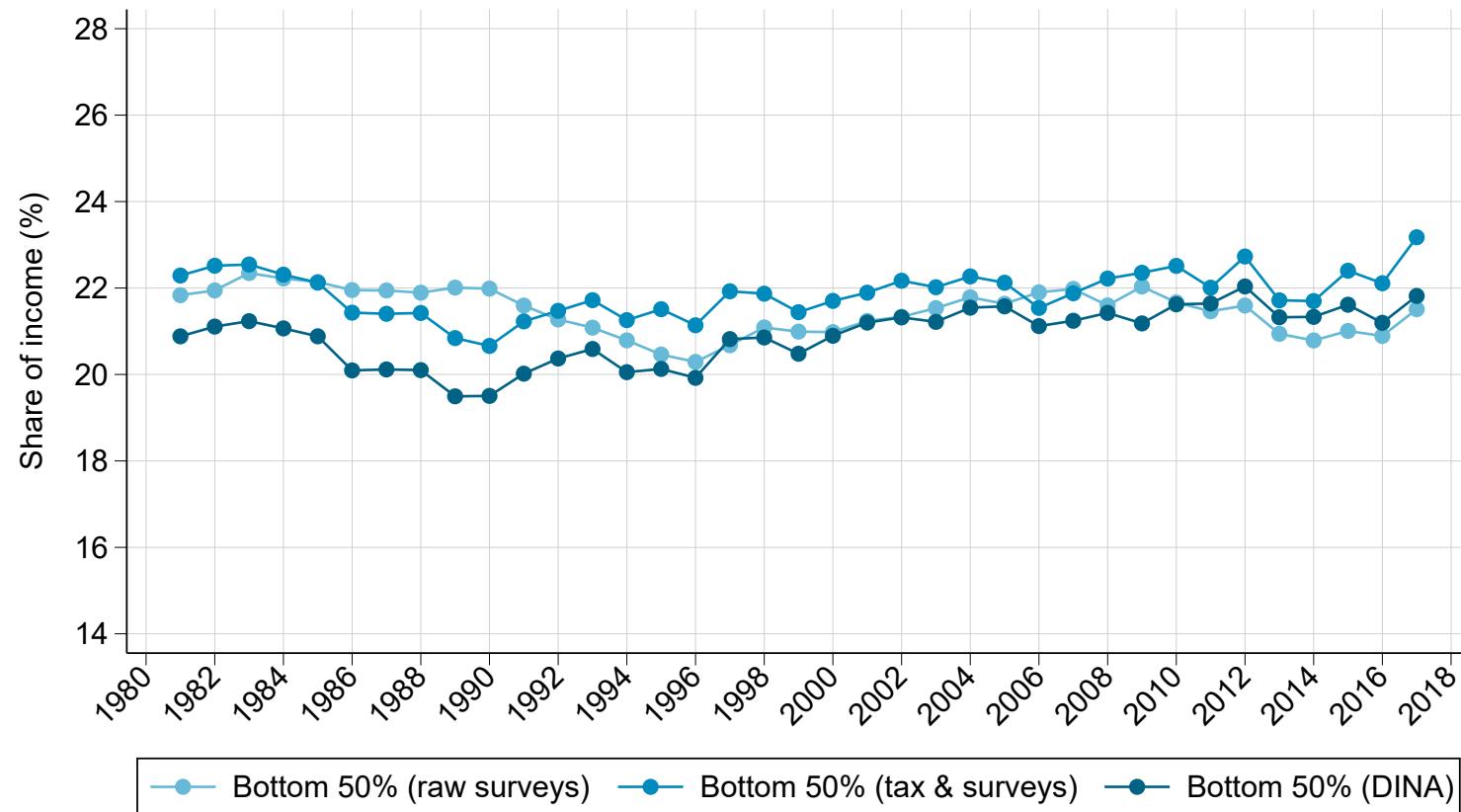
**Figure A.3.23.3**  
**Spain: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**

197



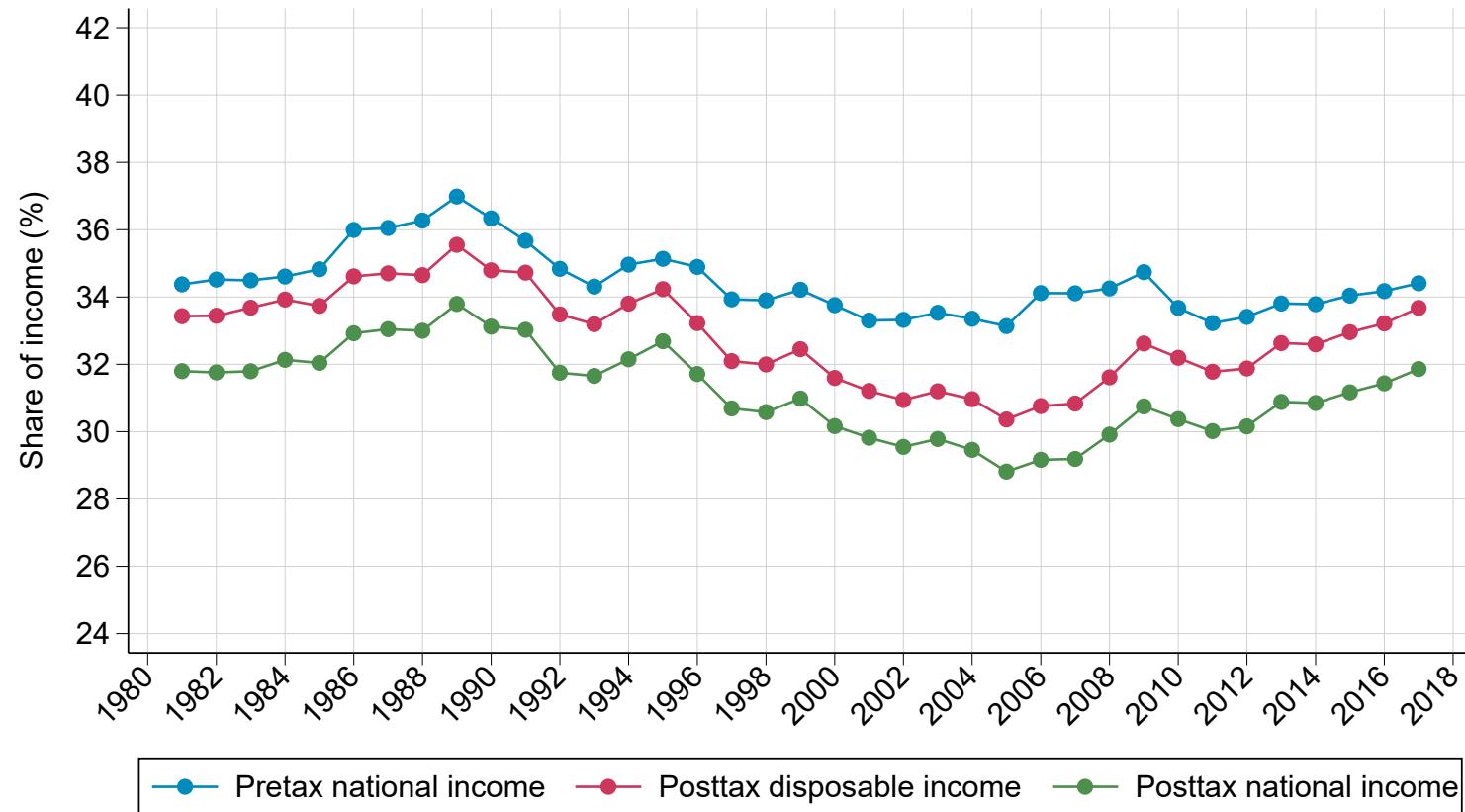
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.23.4**  
**Spain: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



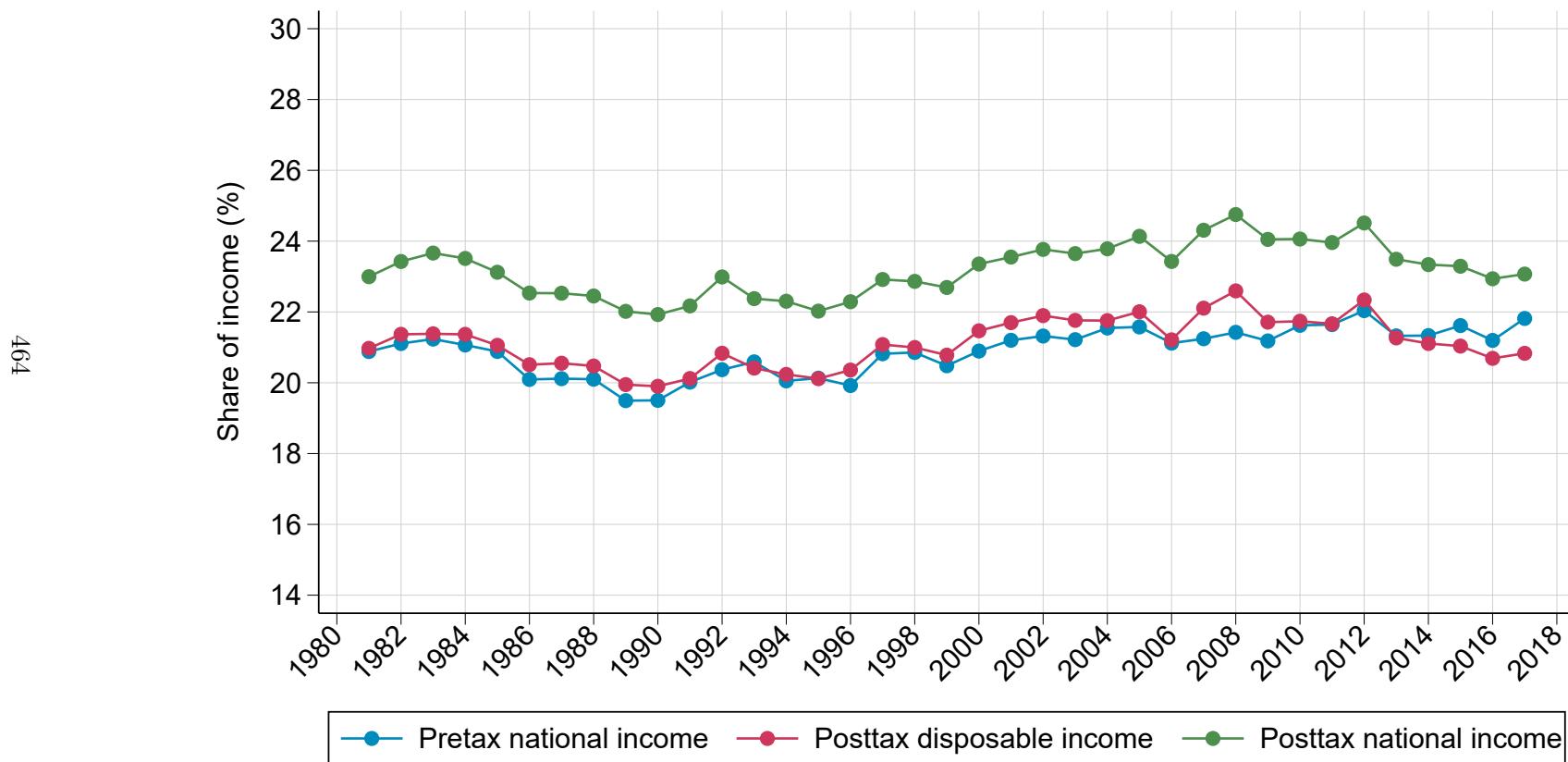
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.23.5**  
**Spain: from pretax national income to posttax national income**  
**Top 10% income share**



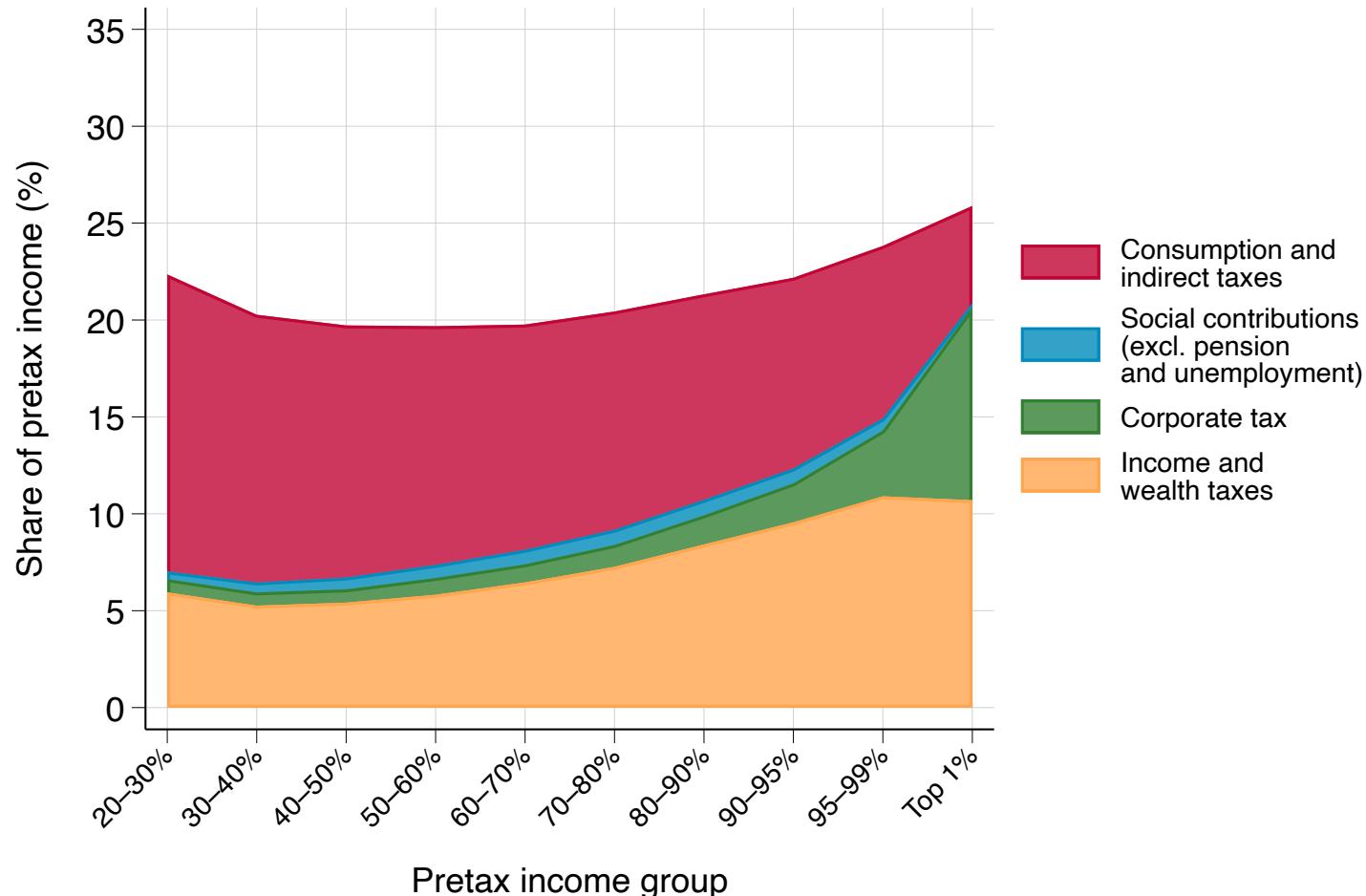
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.23.6**  
**Spain: from pretax national income to posttax national income**  
**Bottom 50% income share**



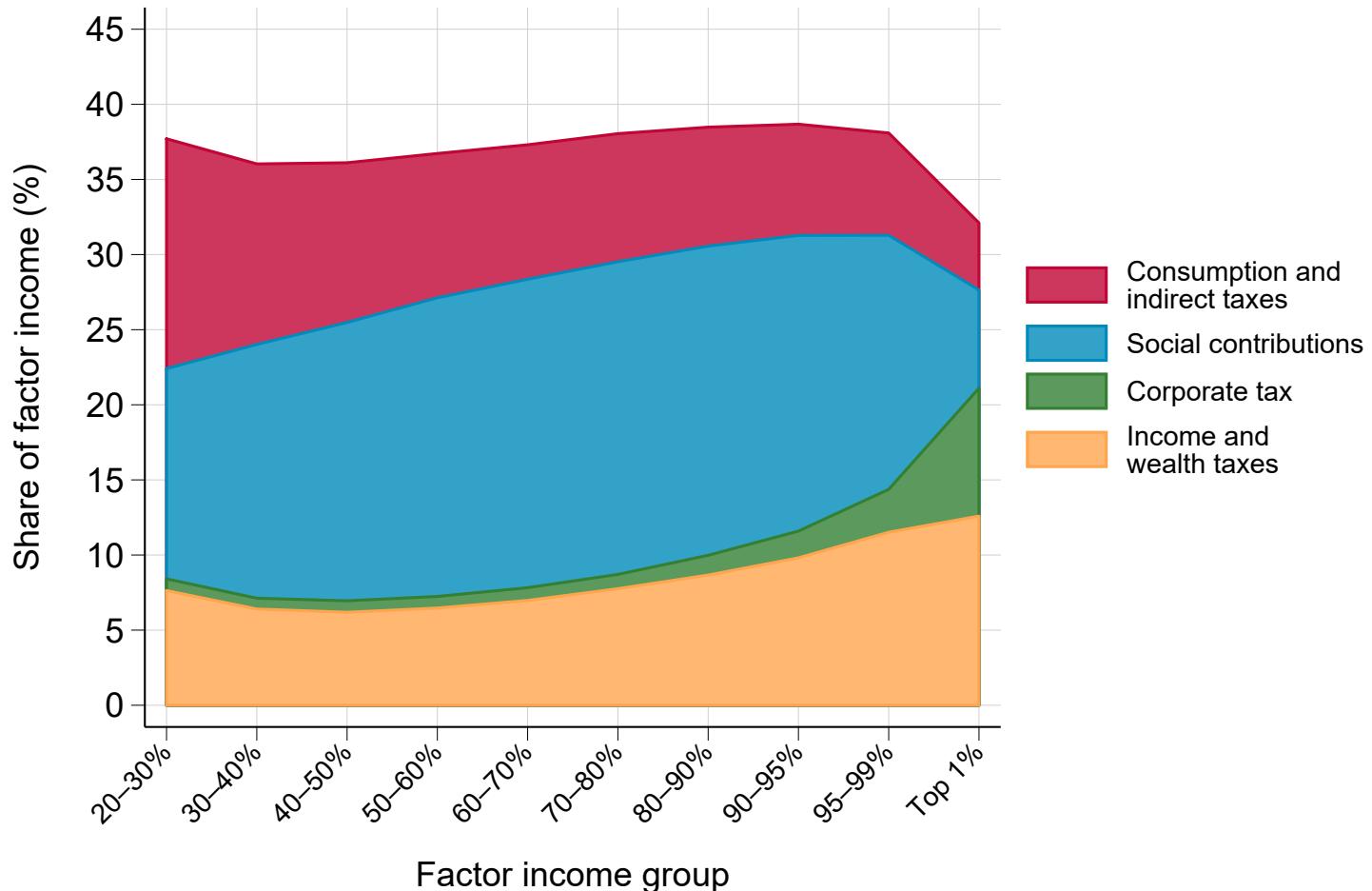
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.23.7**  
**Spain: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



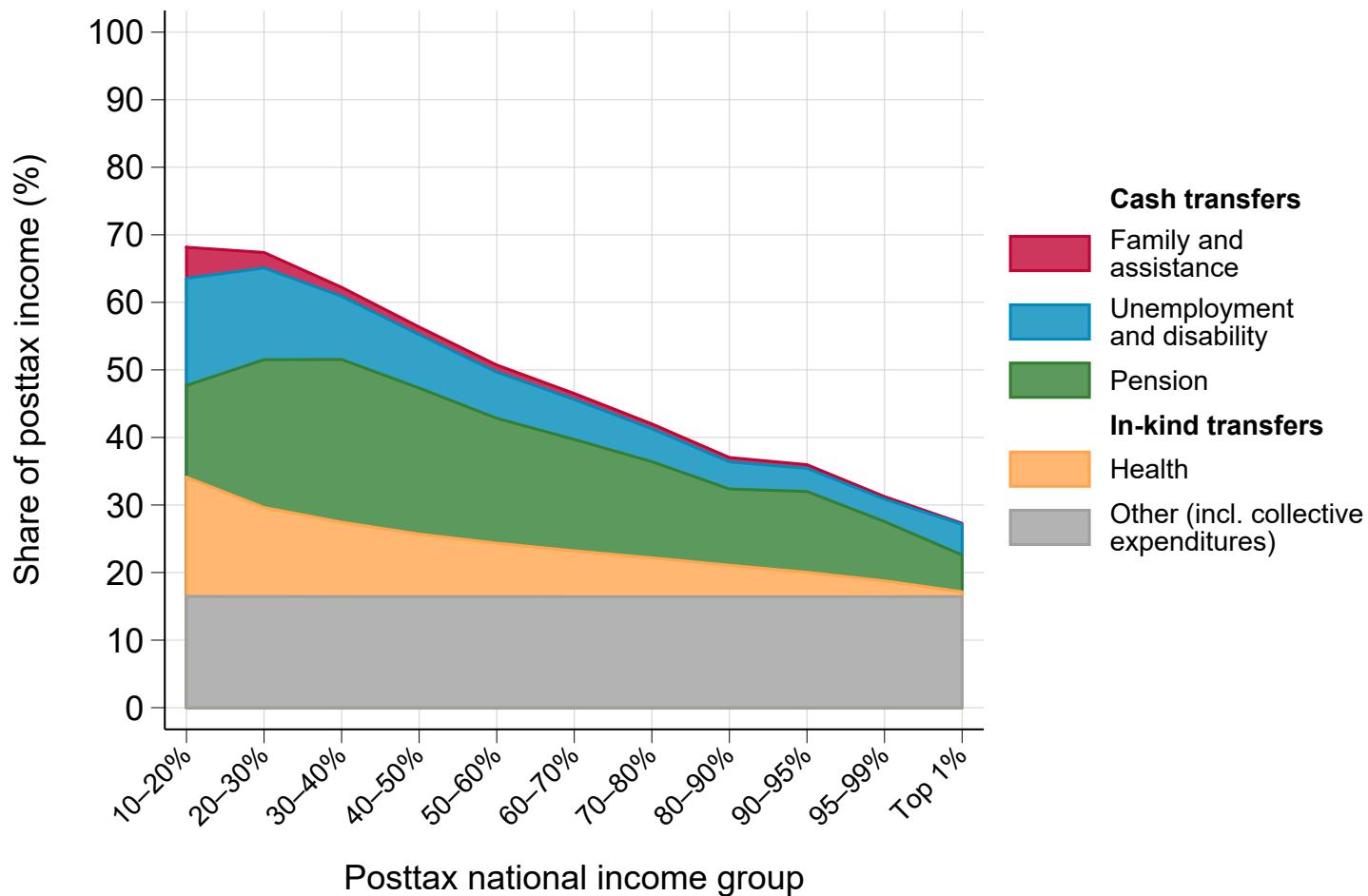
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.23.8**  
**Spain: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



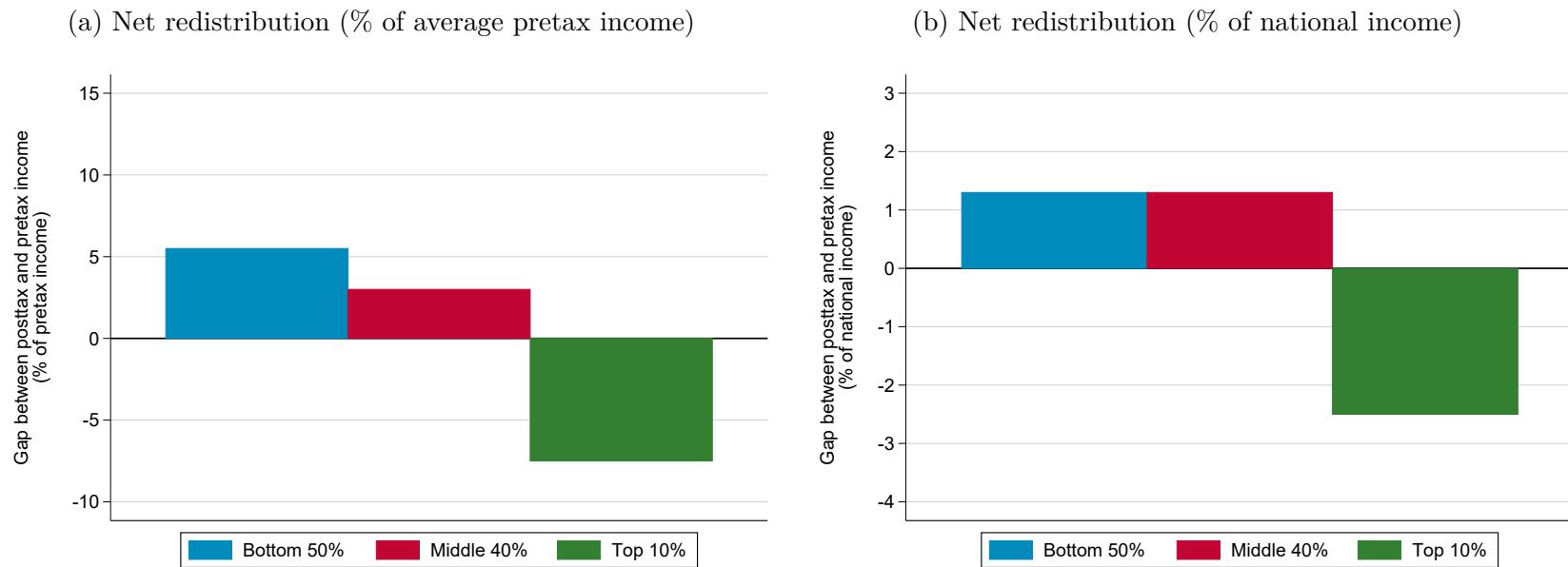
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.23.9**  
**Spain: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.23.10**  
**Spain: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.23.1**  
**Spain: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980	x	x			x				x
1981			x		x				x
1982			x		x				x
1983			x		x				x
1984			x		x				x
1985	x	x	x		x				x
1986			x		x				x
1987			x		x				x
1988			x		x				x
1989			x		x				x
1990	x	x	x		x				x
1991			x		x				x
1992			x		x				x
1993			x		x				x
1994			x		x				x
1995	x	x	x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999			x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005			x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x		x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.23.2**  
**Spain: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			78.1%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	73.2%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	4.9%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	12.4%
(+)	Government primary income	National accounts	Proportional to pretax income	9.6%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	19.2%
(+)	Pension benefits	Survey + tax data	Observed	15.6%
(+)	Unemployment benefits	Survey + tax data	Observed	3.6%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			20.7%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-2.9%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	9.3%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	11.8%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.5%
(+)	Transfers			25.9%
	<i>Cash transfers</i>	Survey + tax data	Observed	2.3%
	<i>Public health expenditures</i>	National accounts	Lump sum	7%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	16.6%
(+)	Budget balance	National accounts	Proportional to posttax income	-5.2%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.23.3**  
**Spain: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (pretax, 2005–2017; posttax, 2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2005–2017); Employer contributions (OECD, 2005–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 94.9% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.5 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010; LIS, 1985–1990); posttax income (LIS, 1980–2013; SILC, 2006–2017); pretax income (SILC, 2009–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.0 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1981–2012 ( <a href="#">Alvaredo and Saez, 2010</a> )	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 1.9 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 1.3 pp. higher than in the raw survey. The top 1% share of posttax income is 0.7 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2008, 2012 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 32.7% of stocks, capture 15.2% of imputed rents, and account for 18.8% of consumption.  Undistributed corporate profits increase the top 10% share of income by 3.2 pp. on average; Imputed rents decrease the top 10% share of income by 0.5 pp. on average; The corporate tax increase the top 10% share of pretax income by 1.0 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.3 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.6 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.23.4**  
**The distribution of national income in Spain, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€30,400	100%	€30,400	100%	€30,400	100%
Bottom 50%	€13,200	21.8%	€12,600	20.8%	€14,000	23.1%
Bottom 20%	€6,900	4.5%	€4,700	3.1%	€6,600	4.4%
Next 30%	€17,500	17.3%	€18,000	17.8%	€18,900	18.7%
Middle 40%	€33,200	43.8%	€34,500	45.5%	€34,200	45.1%
Top 10%	€104,000	34.4%	€102,000	33.7%	€96,700	31.9%
Top 1%	€376,000	12.4%	€351,000	11.6%	€327,000	10.8%
Top 0.1%	€1,490,000	4.9%	€1,330,000	4.4%	€1,230,000	4.1%
Top 0.01%	€6,030,000	2.0%	€5,190,000	1.7%	€4,790,000	1.6%
Top 0.001%	€24,630,000	0.8%	€20,370,000	0.7%	€18,800,000	0.6%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

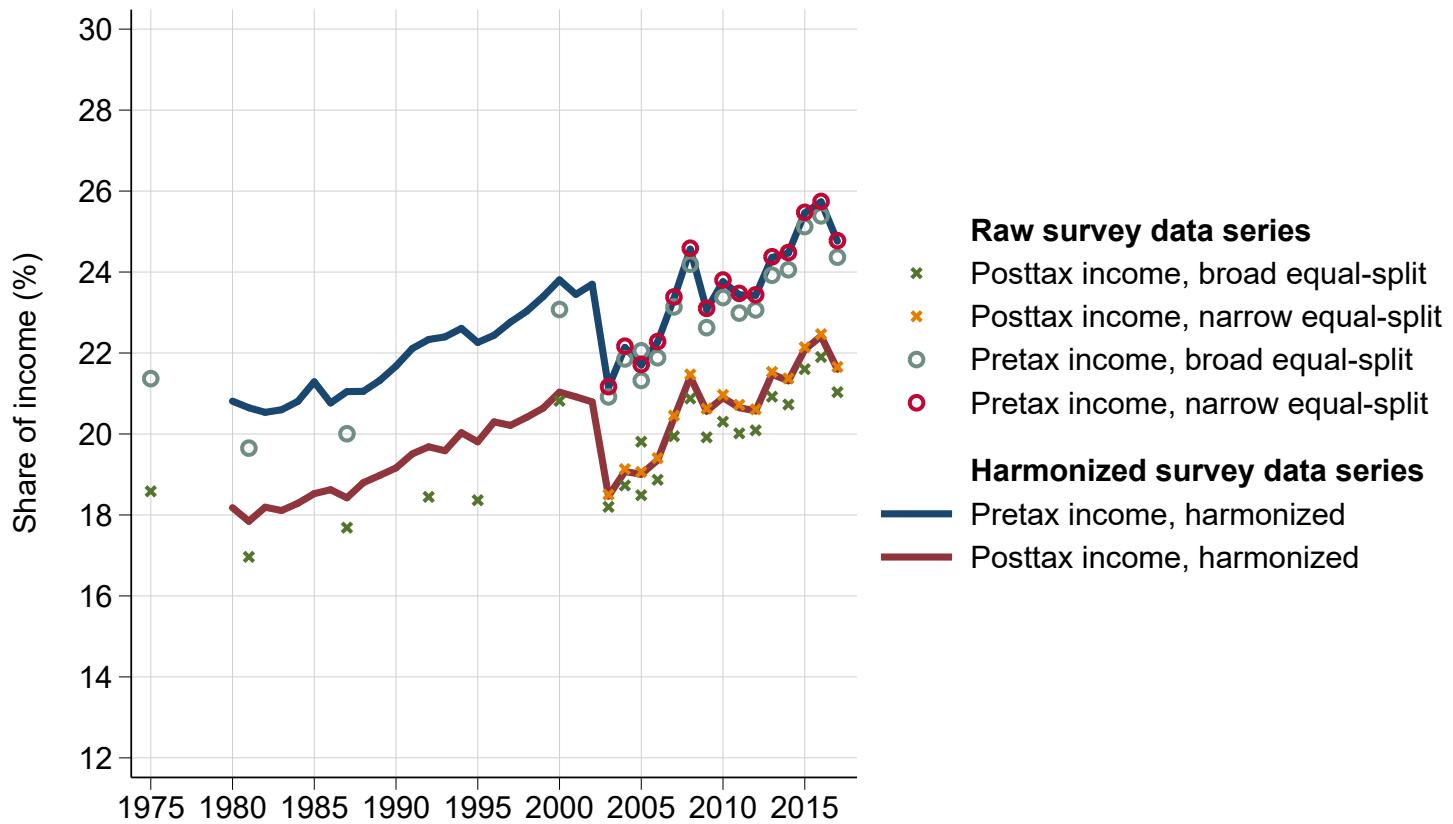
**Table A.3.23.5**  
**The distribution of national income growth in Spain, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.2%	0.4%	1.2%	0.4%	1.2%	0.4%
Bottom 50%	1.3%	0.7%	1.2%	-0.2%	1.2%	-0.1%
Bottom 20%	1.7%	1.2%	1.0%	-2.6%	1.1%	-1.7%
Next 30%	1.2%	0.5%	1.2%	0.3%	1.2%	0.3%
Middle 40%	1.1%	0.2%	1.2%	0.1%	1.2%	0.1%
Top 10%	1.2%	0.5%	1.2%	1.3%	1.2%	1.3%
Top 1%	1.5%	1.5%	1.4%	4.0%	1.4%	4.0%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

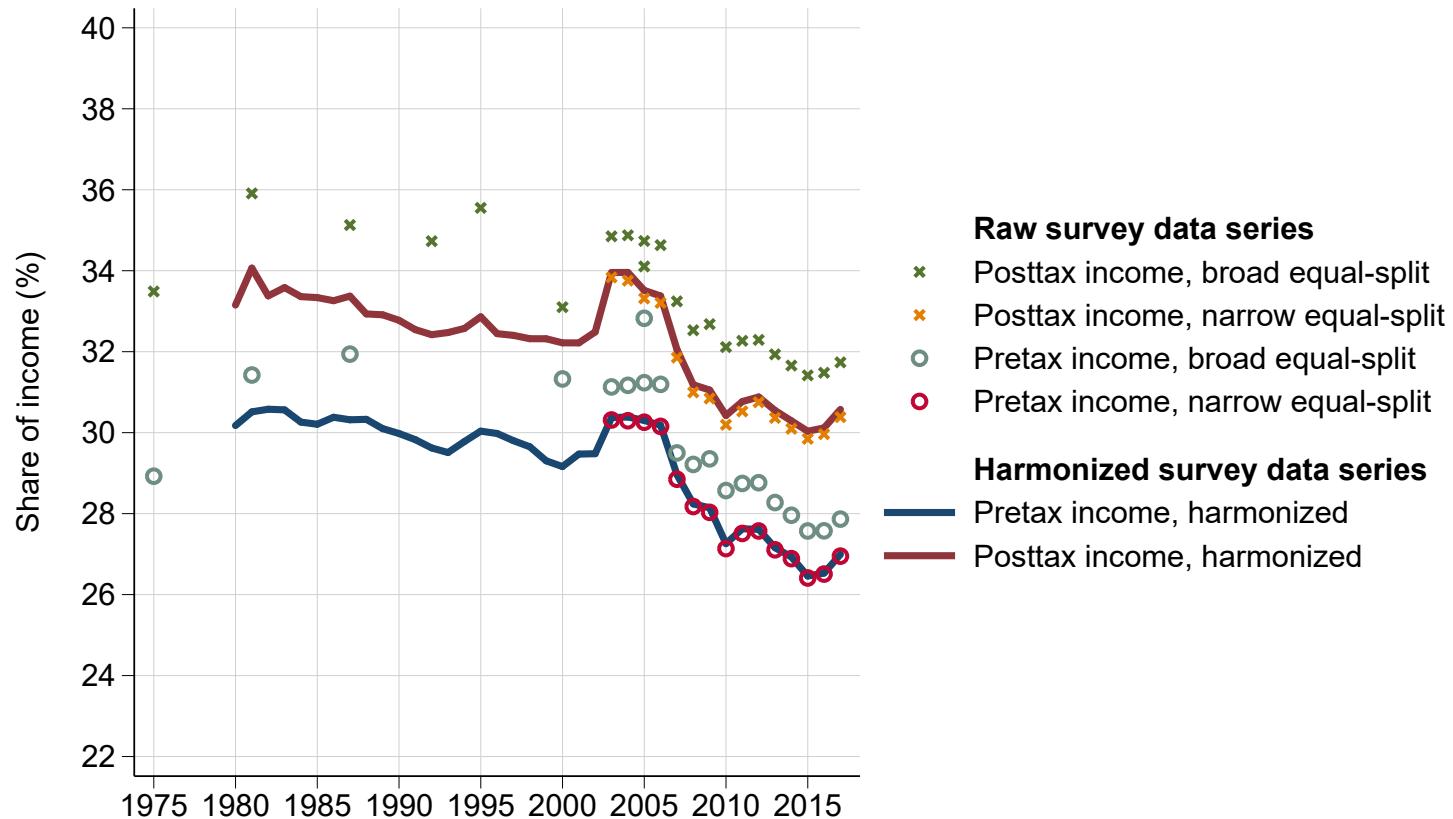
### 3.24 Sweden

Figure A.3.24.1  
Sweden: harmonization of survey data  
Top 10% pretax income share



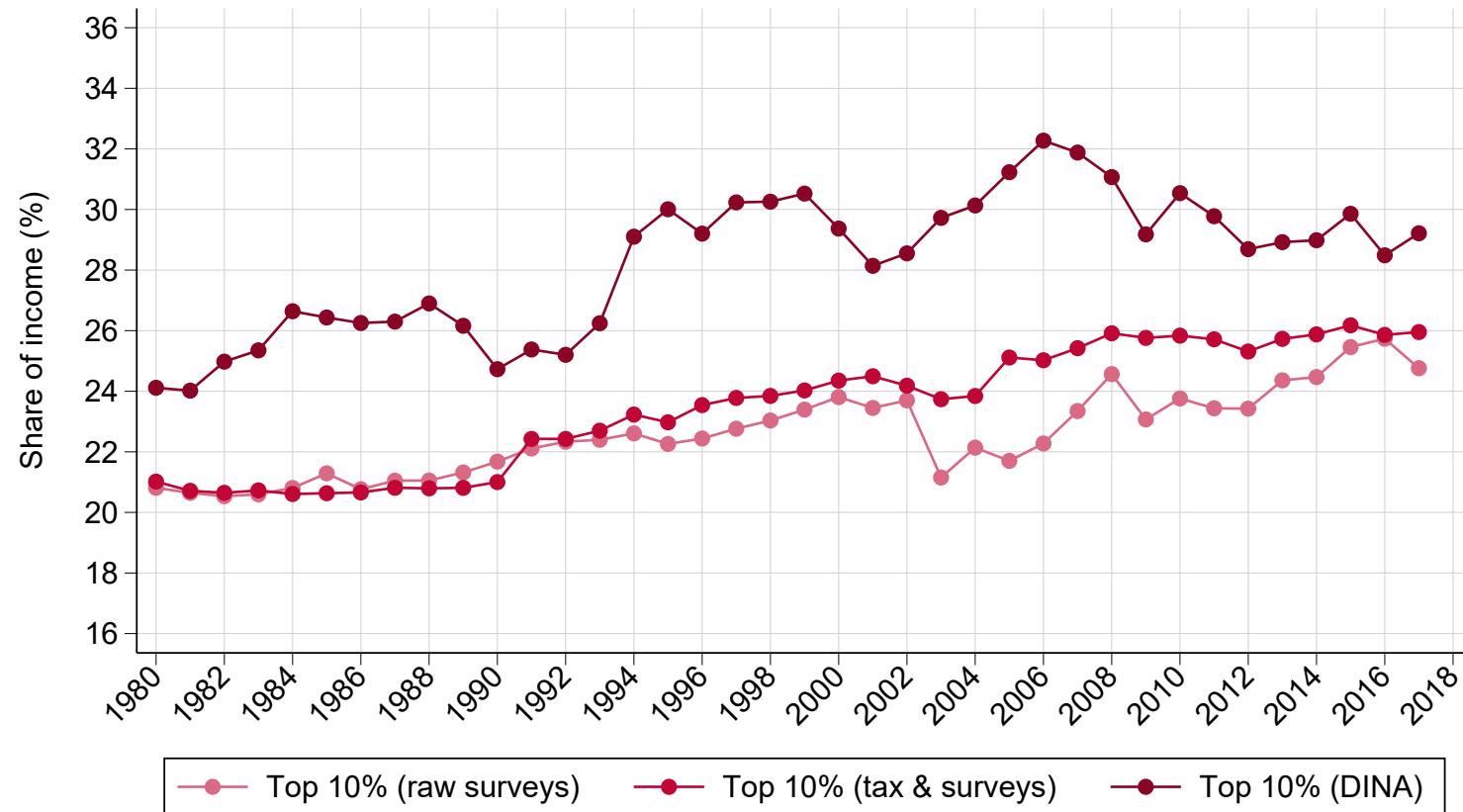
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.24.2**  
**Sweden: harmonization of survey data**  
**Bottom 50% pretax income share**



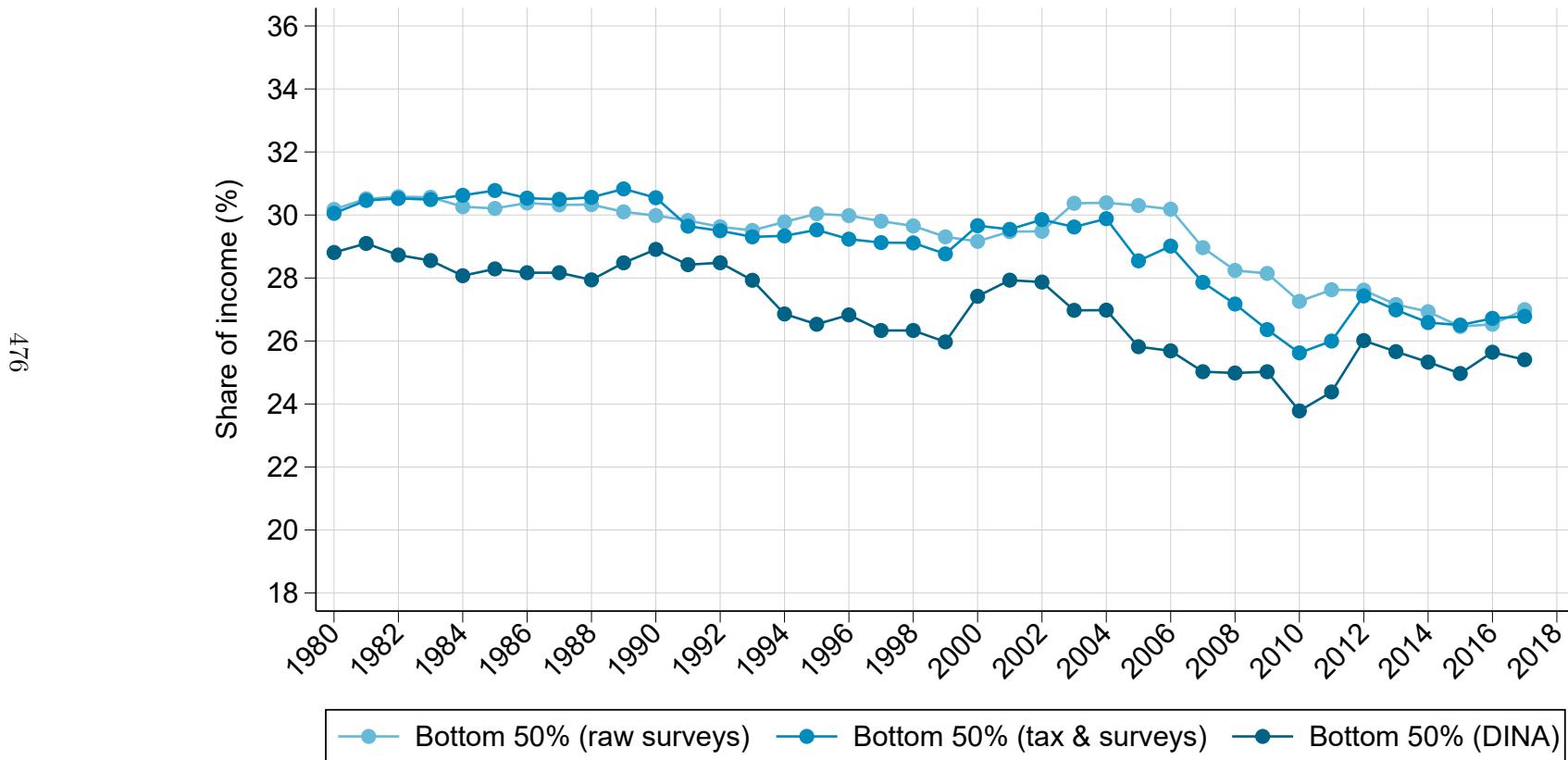
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.3.24.3  
Sweden: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

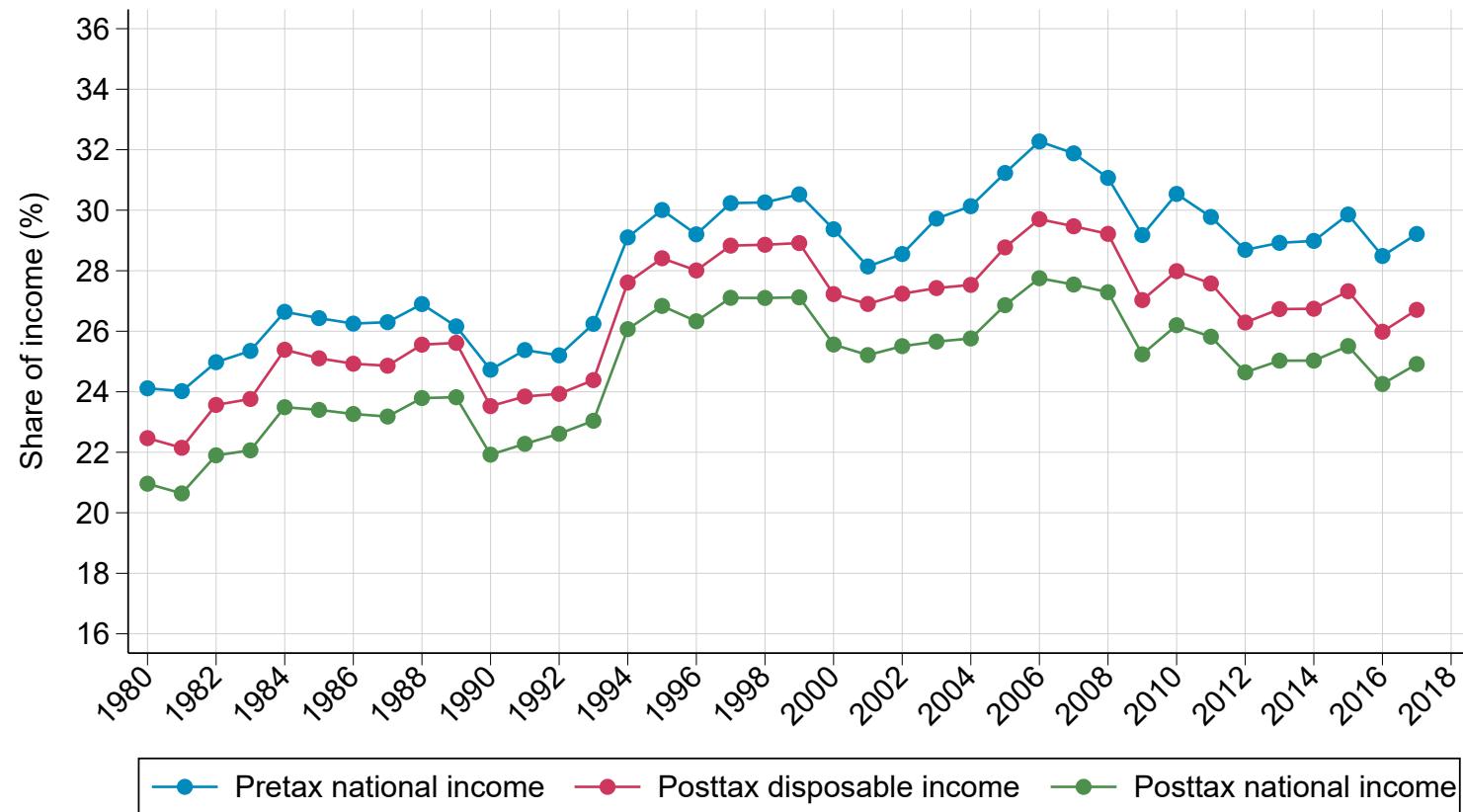
**Figure A.3.24.4**  
Sweden: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

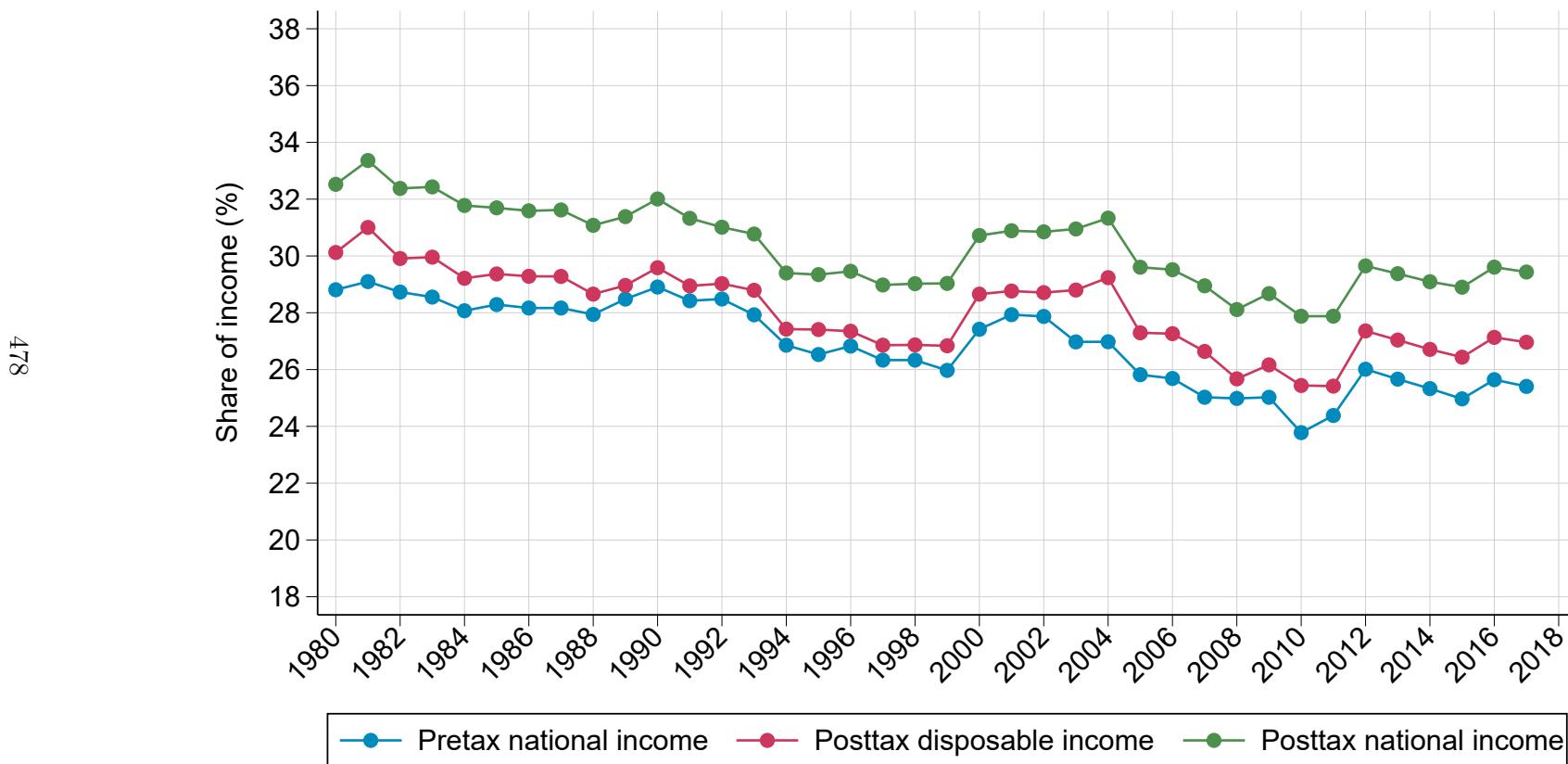
**Figure A.3.24.5**  
**Sweden: from pretax national income to posttax national income**  
**Top 10% income share**

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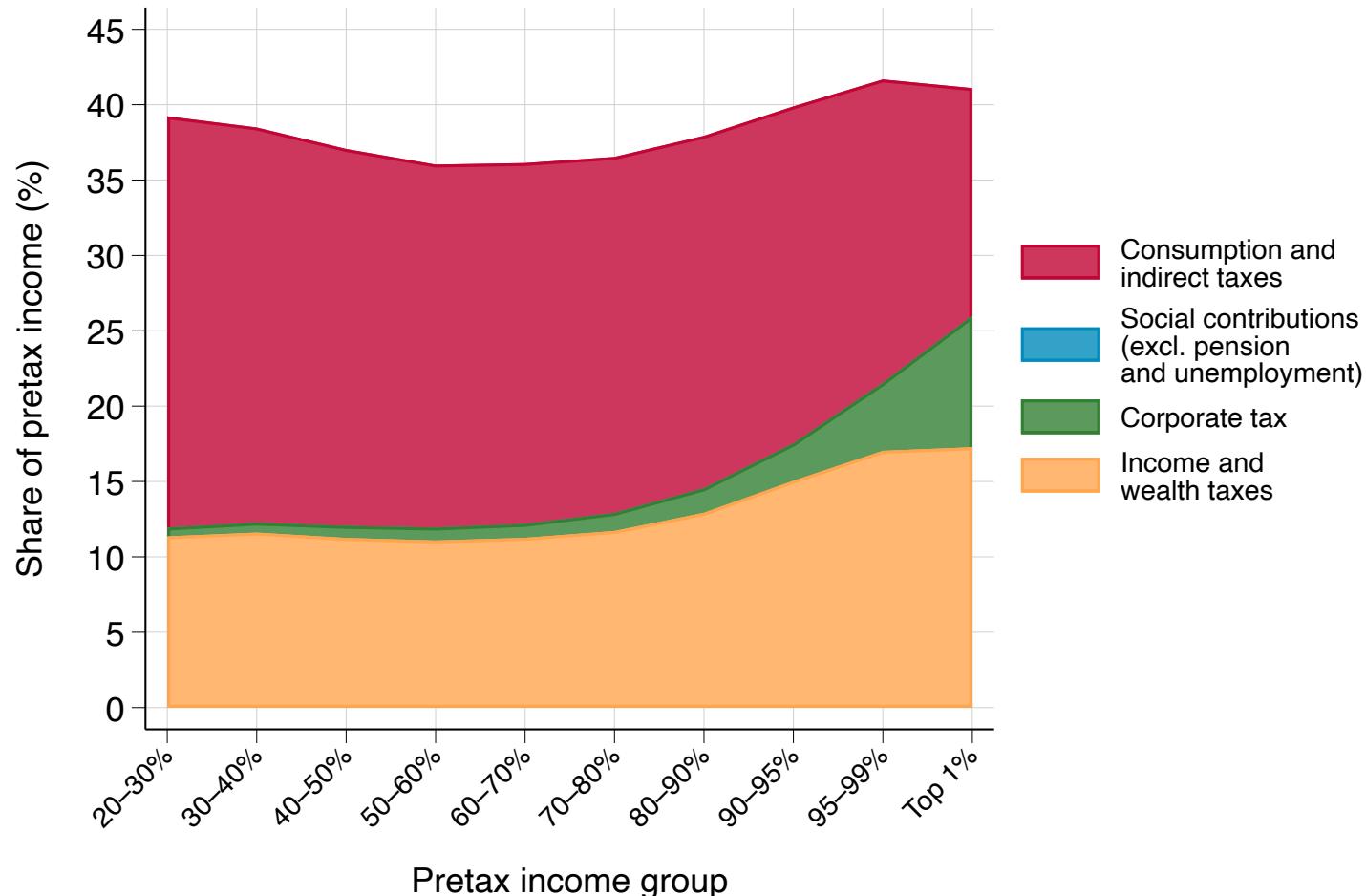
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.24.6**  
**Sweden: from pretax national income to posttax national income**  
**Bottom 50% income share**



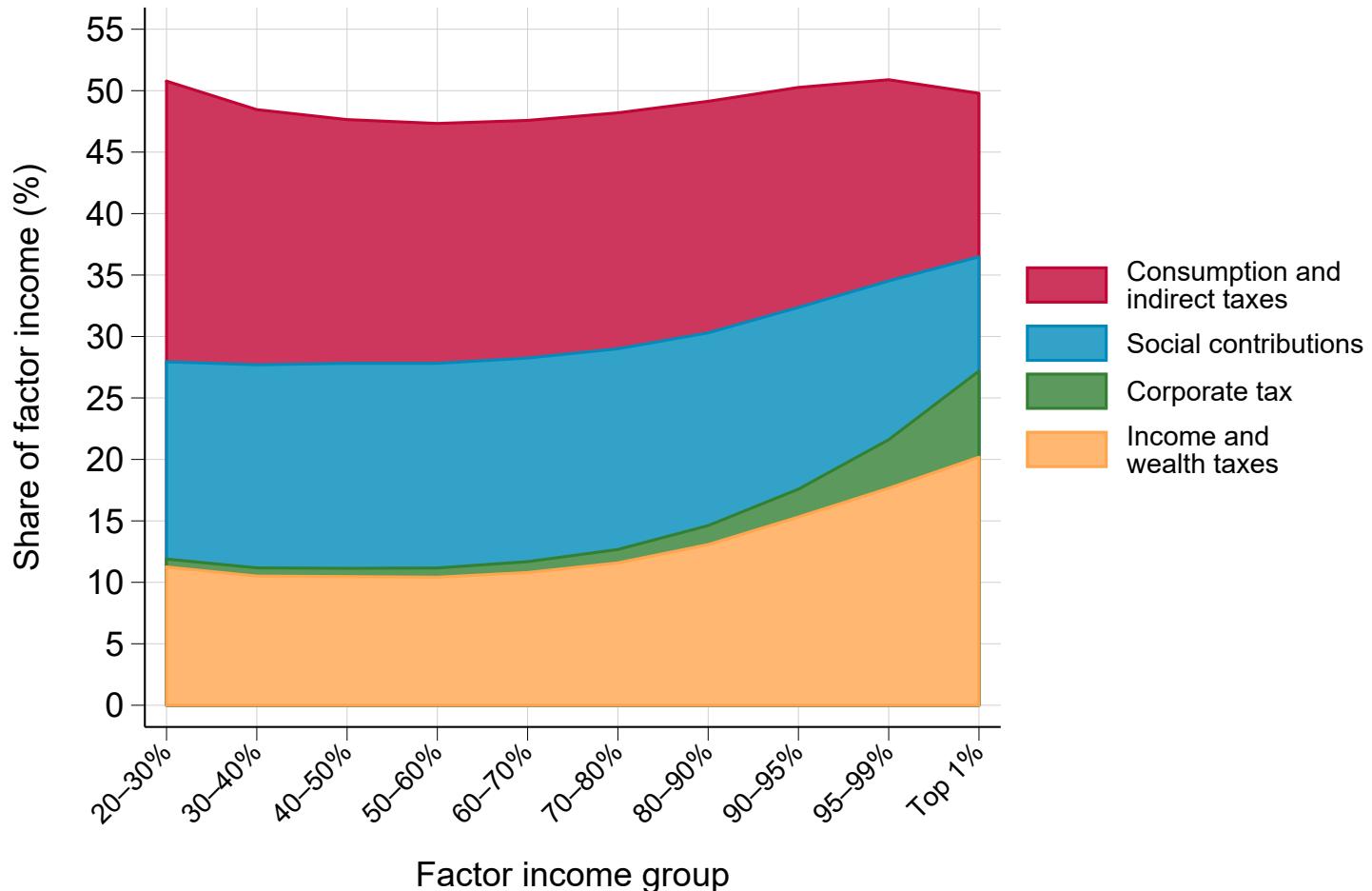
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.24.7**  
**Sweden: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



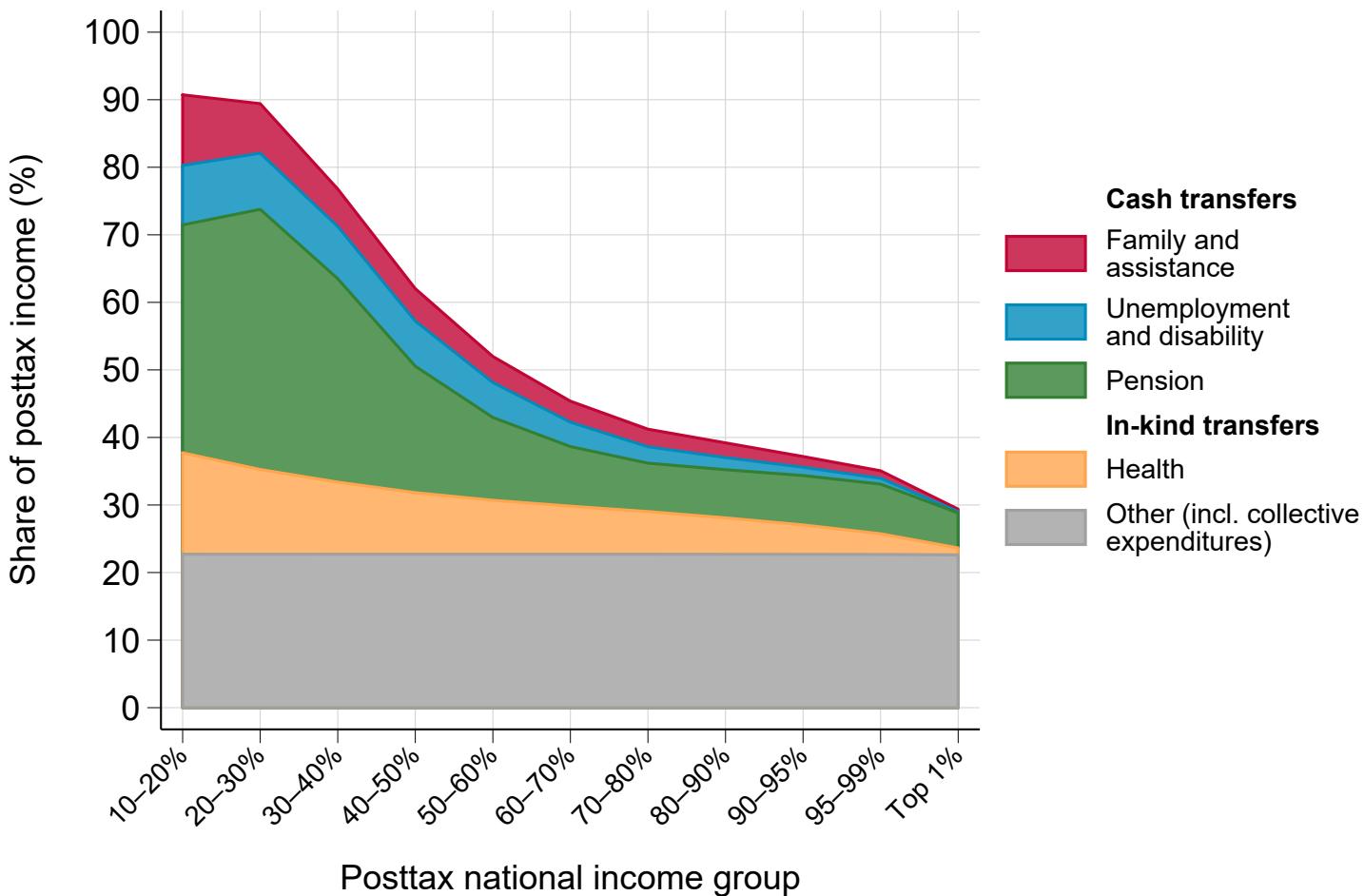
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.24.8**  
**Sweden: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



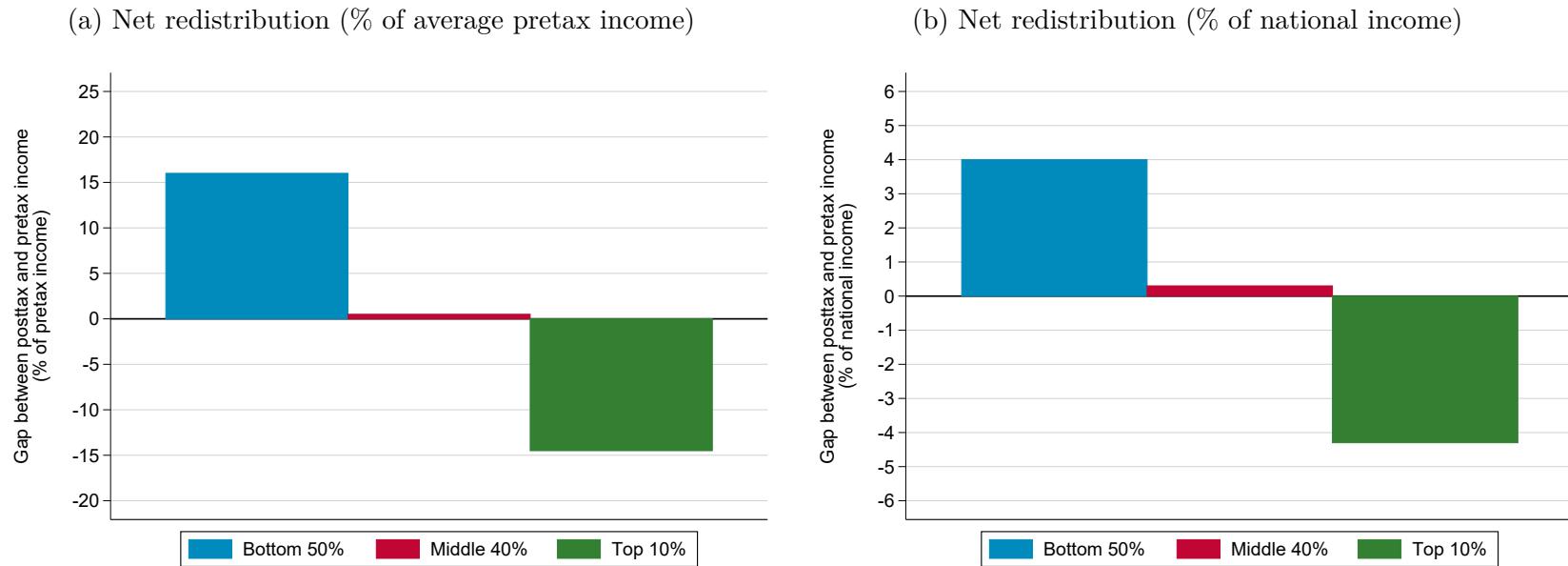
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.24.9**  
Sweden: distribution of transfers



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.24.10**  
**Sweden: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.24.1**  
**Sweden: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1975	x	x							
1980			x	x		x	x	x	x
1981	x	x	x	x		x	x	x	x
1982			x	x		x	x	x	x
1983			x	x		x	x	x	x
1984			x	x		x	x	x	x
1985			x	x		x	x	x	x
1986			x	x		x	x	x	x
1987	x	x	x	x		x	x	x	x
1988			x	x		x	x	x	x
1989			x	x		x	x	x	x
1990			x	x		x	x	x	x
1991			x	x		x	x	x	x
1992	x	x	x	x		x	x	x	x
1993			x	x		x	x	x	x
1994			x	x		x	x	x	x
1995	x	x	x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999			x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003	x	x	x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x		x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.24.2**  
**Sweden: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			67.2%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	66.6%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	.6%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	8.1%
(+)	Government primary income	National accounts	Proportional to pretax income	24.8%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	16.1%
(+)	Pension benefits	Survey + tax data	Observed	15.3%
(+)	Unemployment benefits	Survey + tax data	Observed	.7%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			36.6%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	-6.1%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	15.9%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	23.8%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	2.9%
(+)	Transfers			36.3%
	<i>Cash transfers</i>	Survey + tax data	Observed	5.4%
	<i>Public health expenditures</i>	National accounts	Lump sum	7.7%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	23.3%
(+)	Budget balance	National accounts	Proportional to posttax income	.2%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.24.3**  
**Sweden: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2003–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2003–2017); Employer contributions (OECD, 2003–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that all social contributions, and also, on average, 40.3% of income taxes, are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.2 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (LIS, 1975–2005; SILC, 2003–2017); pretax income (LIS, 1975–2005; SILC, 2003–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 2.9 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1980–2013 (Roine and Waldenström, 2010)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 1.1 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 0.3 pp. higher than in the raw survey. The top 1% share of posttax income is 0.2 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	EU-SILC, 2003–2017 (imputed rents); HBS, 2010 (consumption)	Due to lack of data, we use the average European distribution for corporate stocks.  See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 16.6% of imputed rents, and account for 15.4% of consumption.  Undistributed corporate profits increase the top 10% share of income by 2.8 pp. on average; Imputed rents decrease the top 10% share of income by 0.2 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.8 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.5 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.7 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.24.4**  
**The distribution of national income in Sweden, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€43,000	100%	€43,000	100%	€43,000	100%
Bottom 50%	€21,900	25.4%	€23,200	27.0%	€25,300	29.4%
Bottom 20%	€11,200	5.2%	€13,400	6.2%	€16,600	7.7%
Next 30%	€29,000	20.2%	€29,700	20.7%	€31,100	21.7%
Middle 40%	€48,800	45.4%	€49,800	46.3%	€49,100	45.6%
Top 10%	€126,000	29.2%	€115,000	26.7%	€107,000	24.9%
Top 1%	€387,000	9.0%	€331,000	7.7%	€300,000	7.0%
Top 0.1%	€1,310,000	3.0%	€1,110,000	2.6%	€999,000	2.3%
Top 0.01%	€4,530,000	1.1%	€3,950,000	0.9%	€3,530,000	0.8%
Top 0.001%	€15,890,000	0.4%	€14,240,000	0.3%	€12,710,000	0.3%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

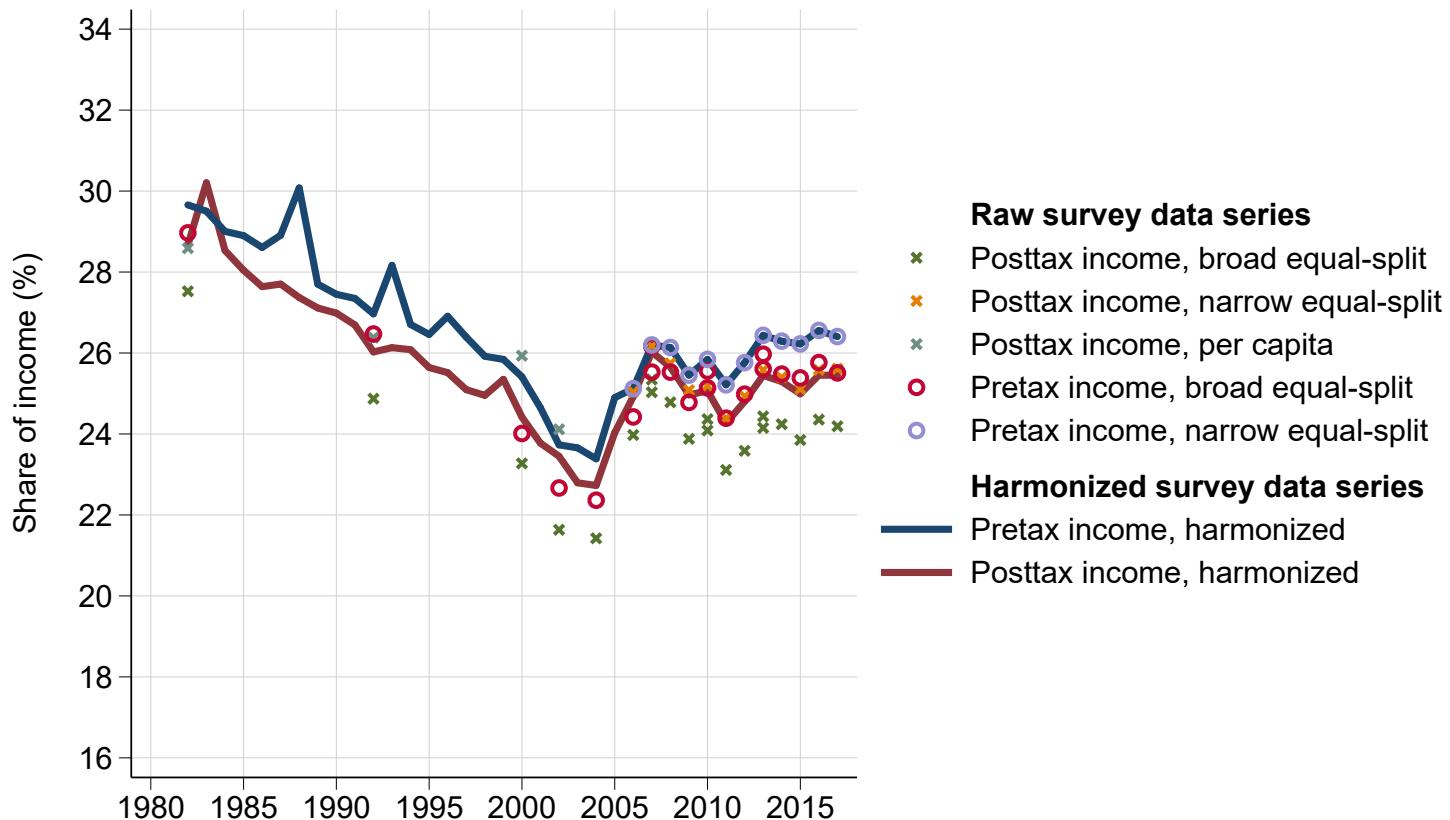
**Table A.3.24.5**  
**The distribution of national income growth in Sweden, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.8%	1.1%	1.8%	1.1%	1.8%	1.1%
Bottom 50%	1.5%	1.3%	1.5%	1.2%	1.5%	1.3%
Bottom 20%	1.1%	0.7%	1.3%	0.5%	1.4%	0.8%
Next 30%	1.5%	1.4%	1.5%	1.5%	1.6%	1.4%
Middle 40%	1.7%	1.6%	1.7%	1.7%	1.7%	1.6%
Top 10%	2.3%	0.2%	2.3%	0.1%	2.3%	0.1%
Top 1%	2.9%	-1.1%	2.6%	-1.5%	2.6%	-1.5%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

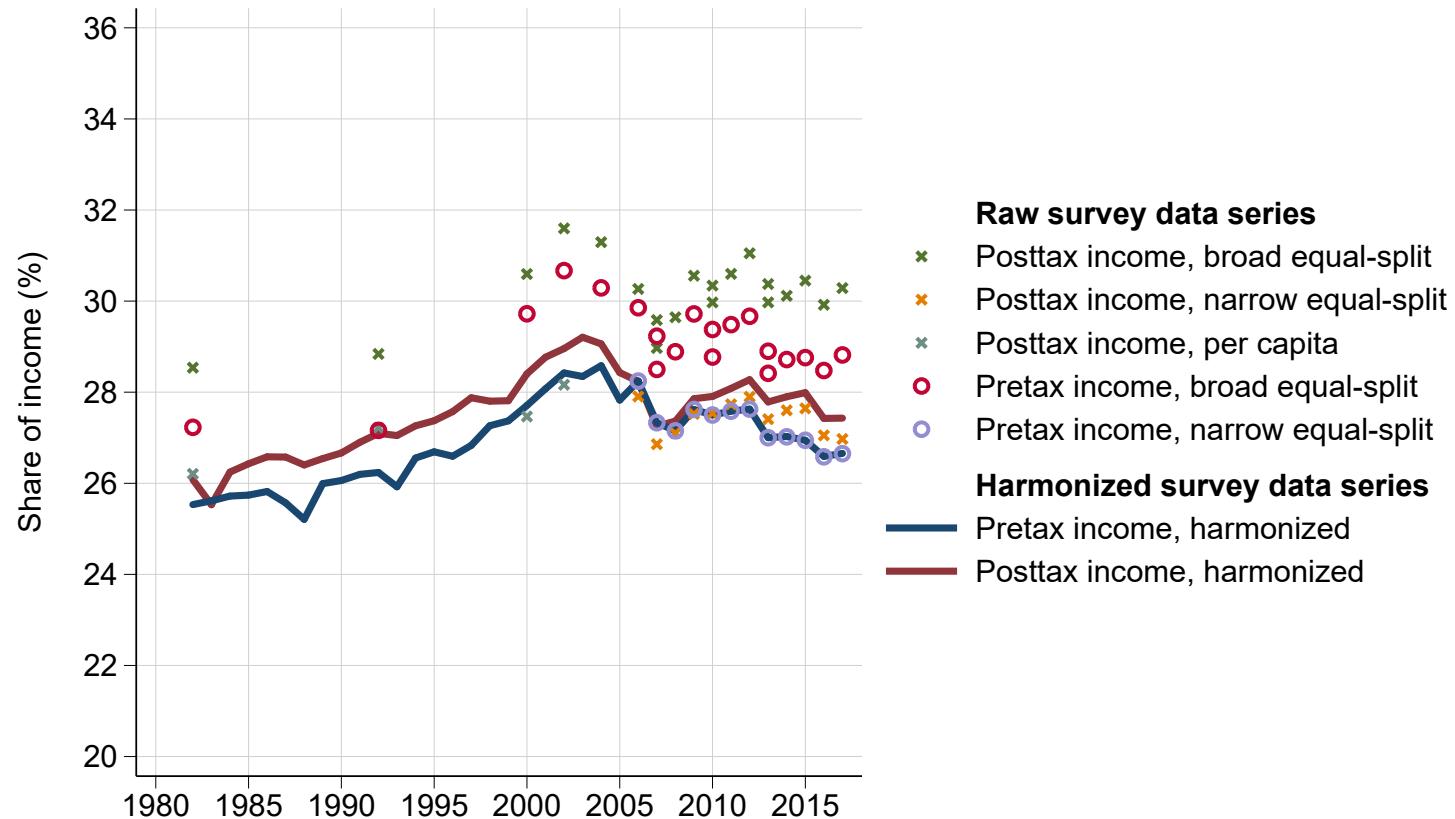
### 3.25 Switzerland

**Figure A.3.25.1**  
Switzerland: harmonization of survey data  
Top 10% pretax income share



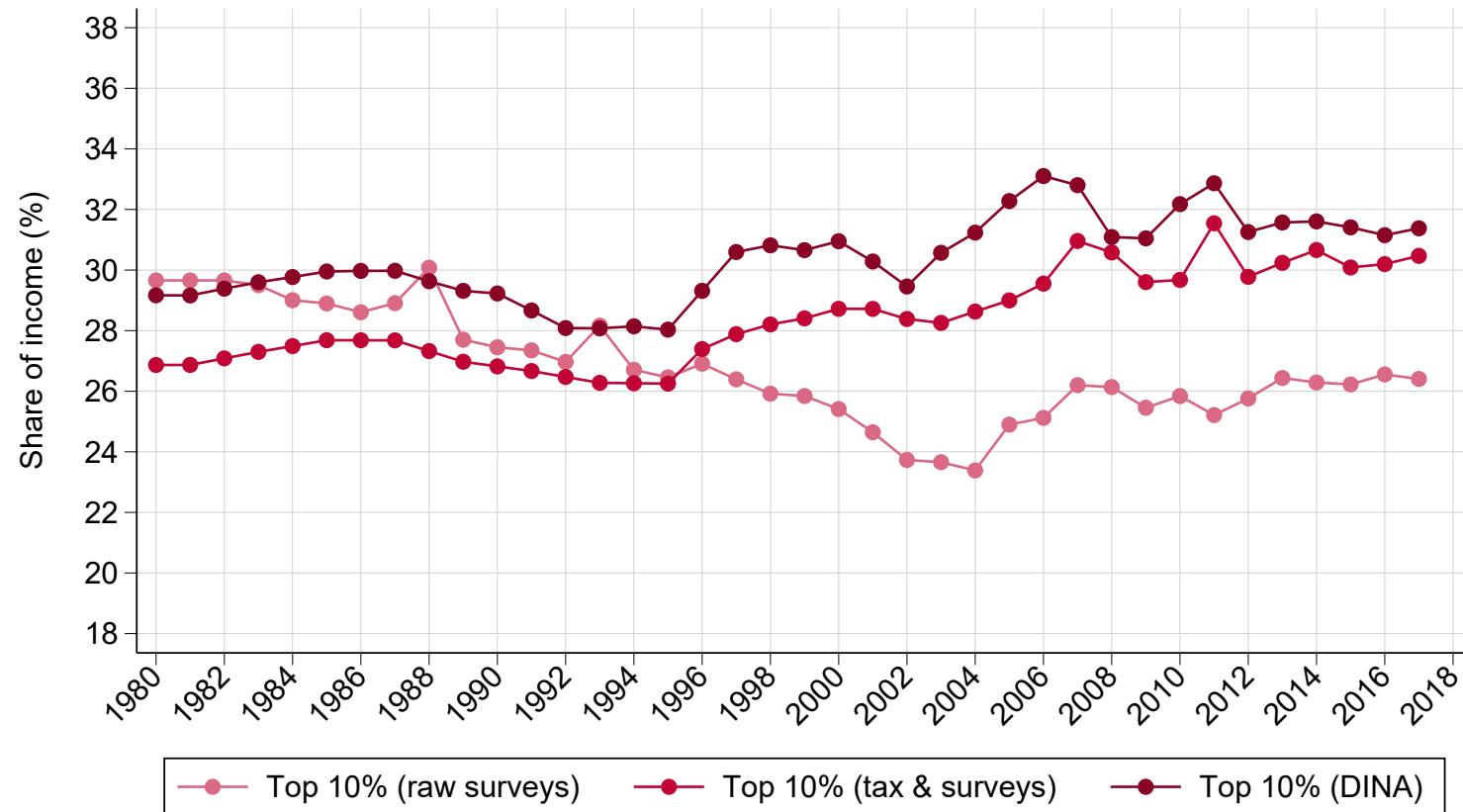
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.25.2**  
**Switzerland: harmonization of survey data**  
**Bottom 50% pretax income share**



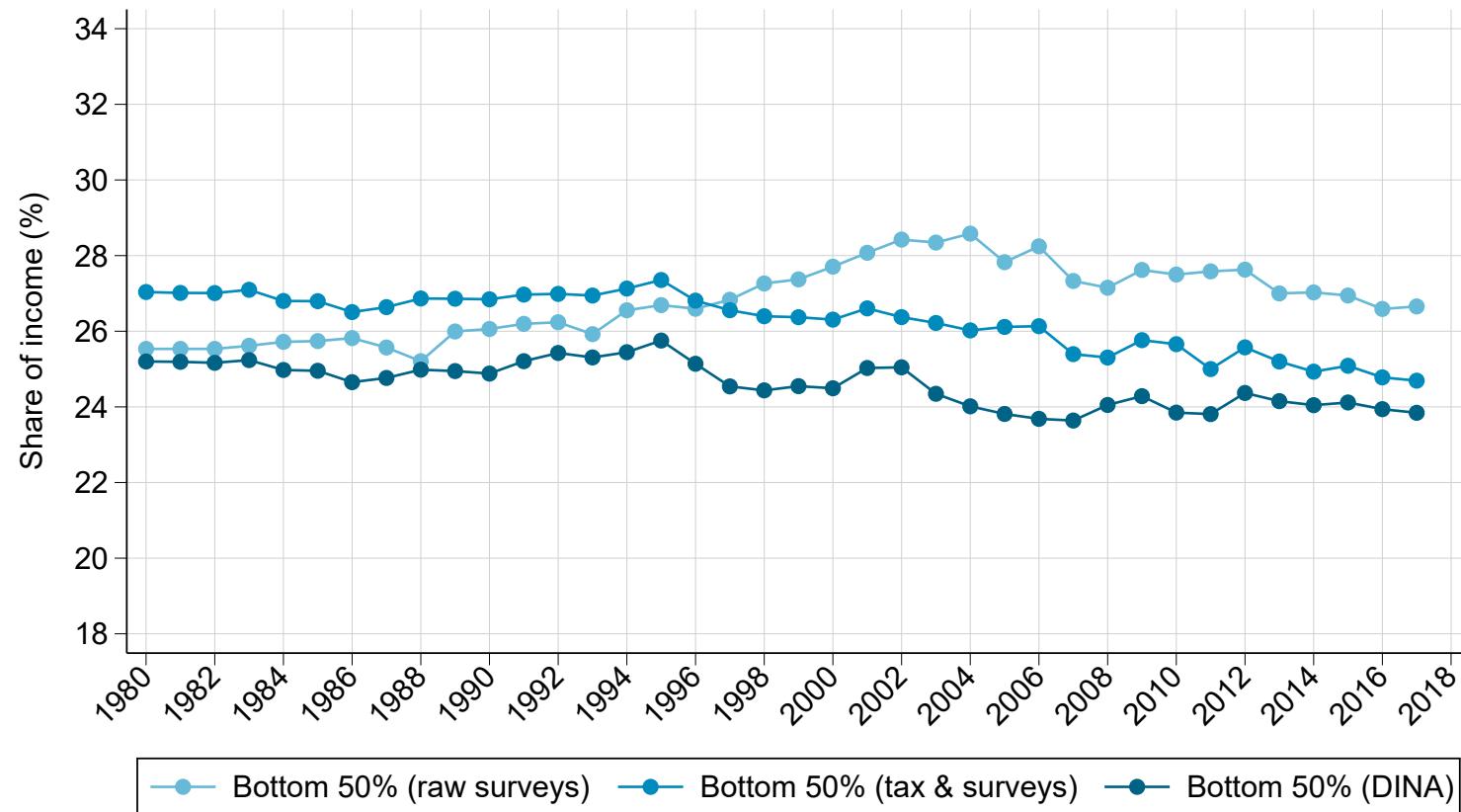
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.3.25.3  
Switzerland: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



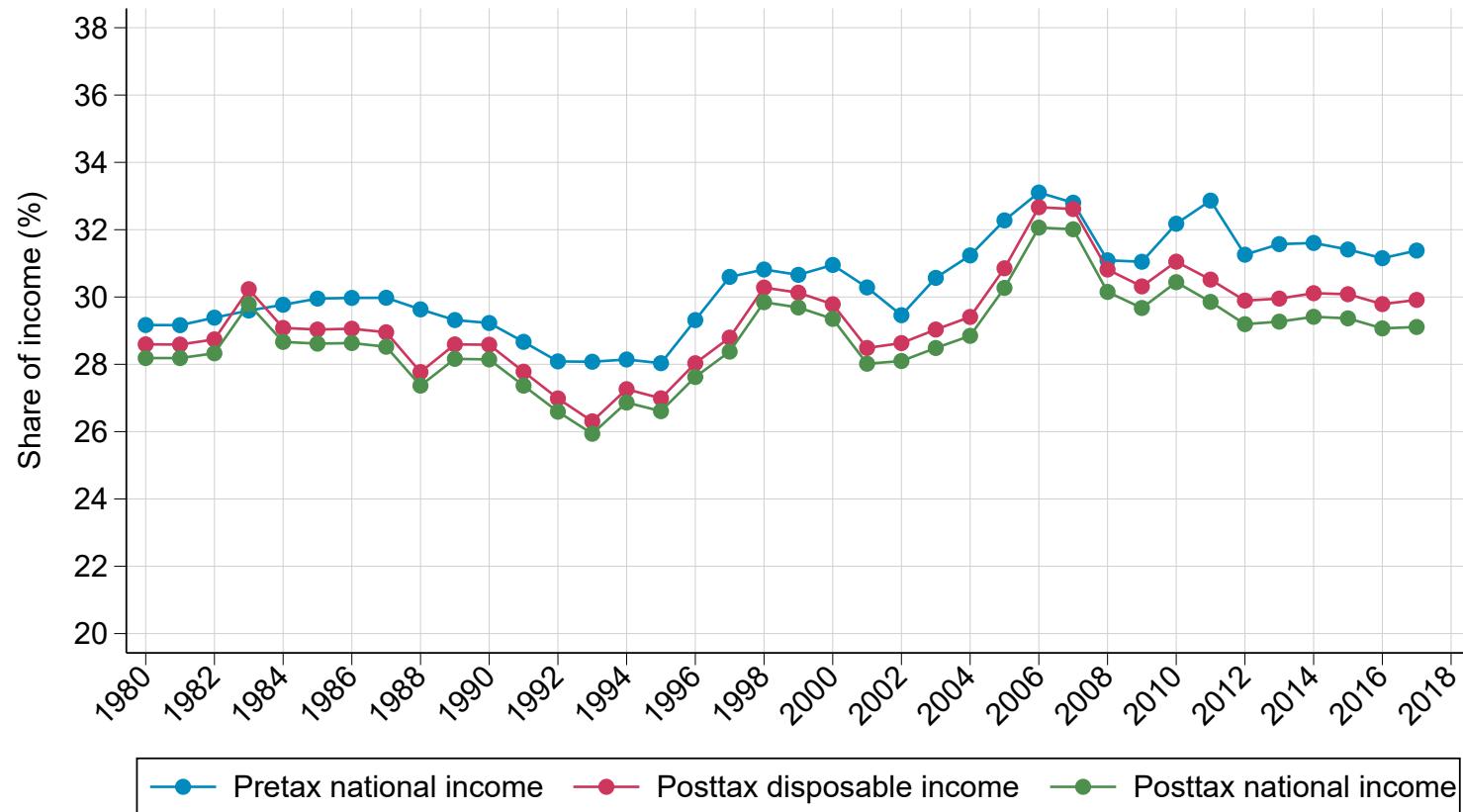
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.25.4  
Switzerland: from harmonized surveys to distributional national accounts  
Bottom 50% pretax income share



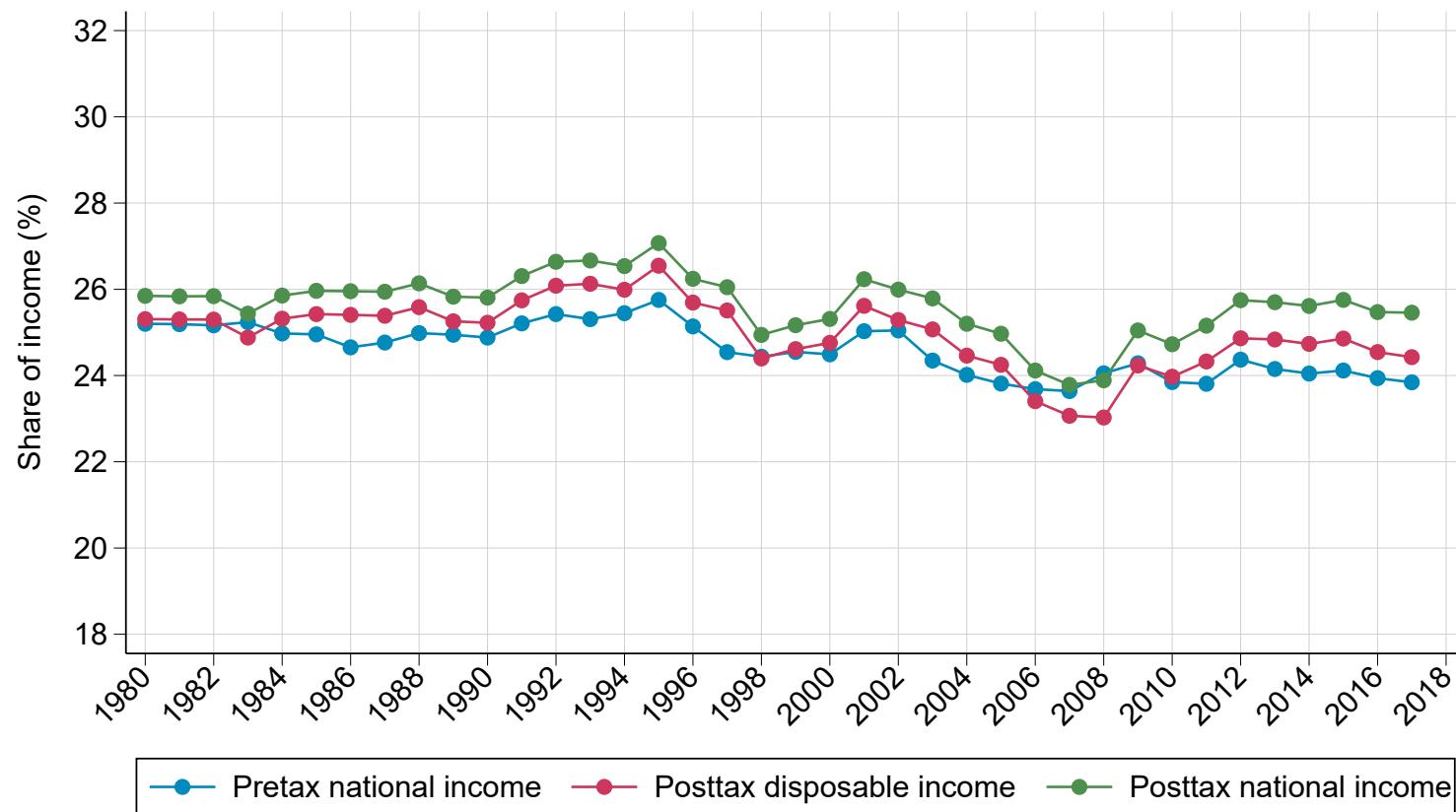
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.3.25.5  
Switzerland: from pretax national income to posttax national income  
Top 10% income share



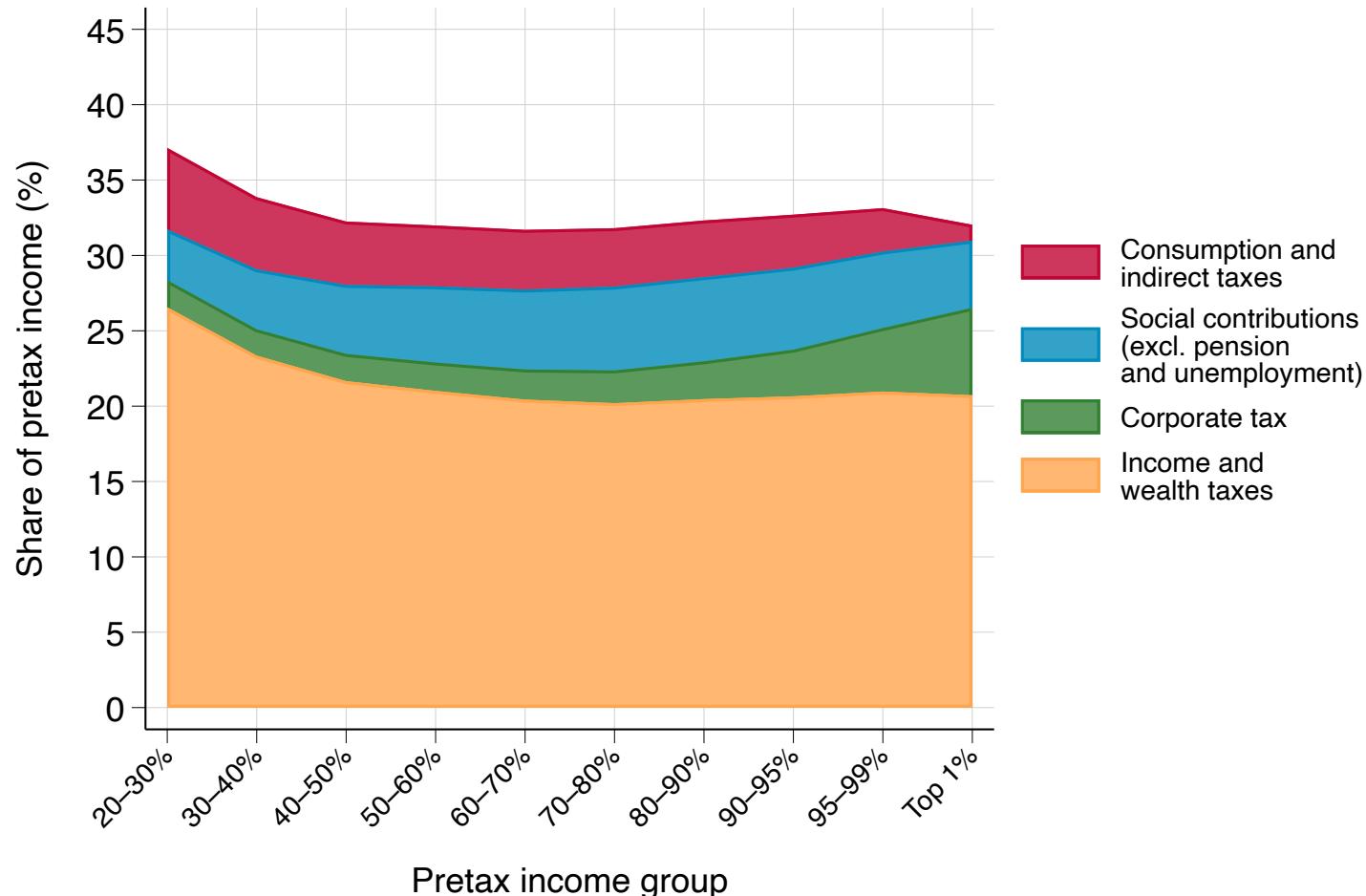
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.25.6**  
**Switzerland: from pretax national income to posttax national income**  
**Bottom 50% income share**



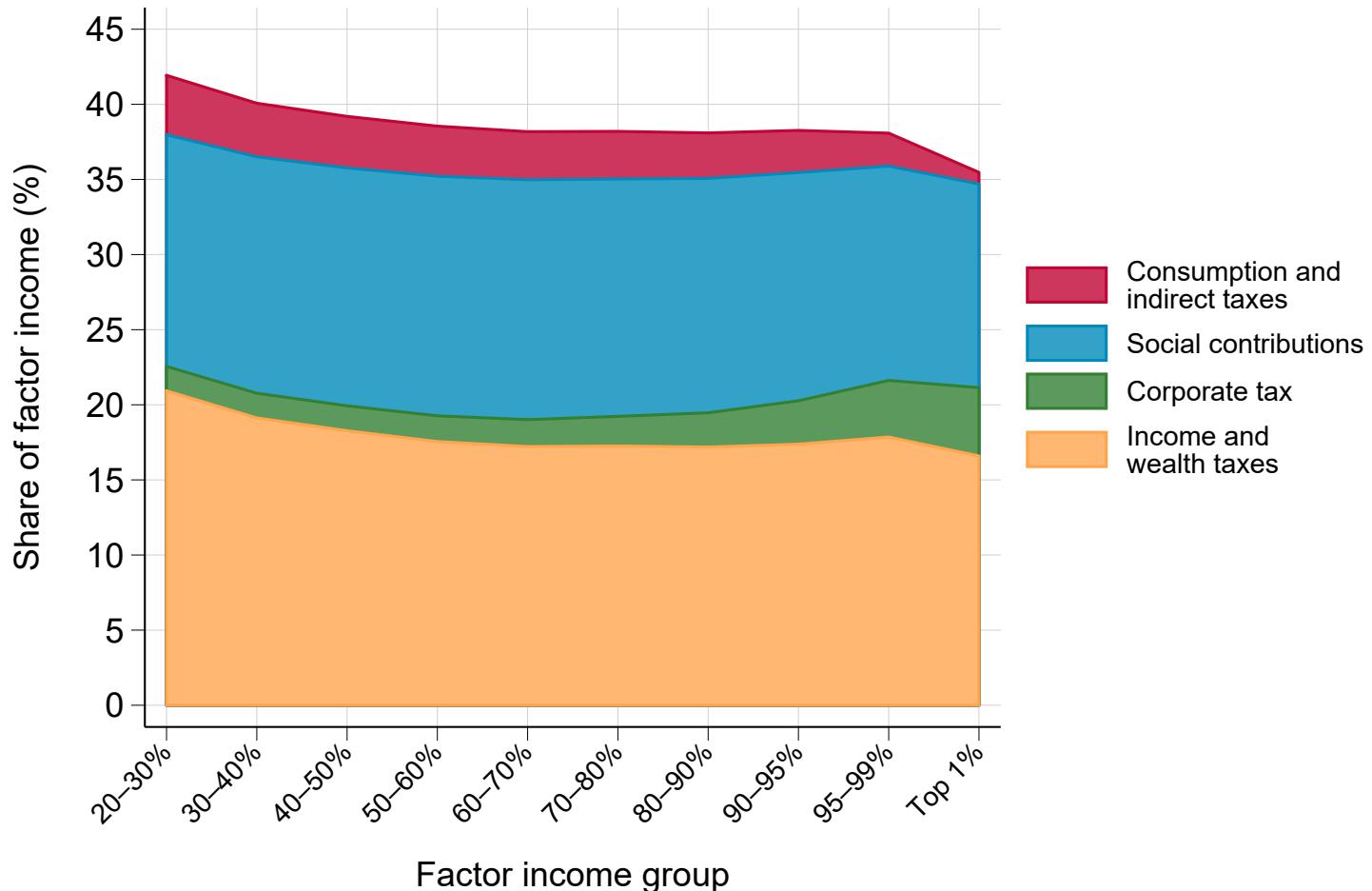
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.25.7**  
**Switzerland: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



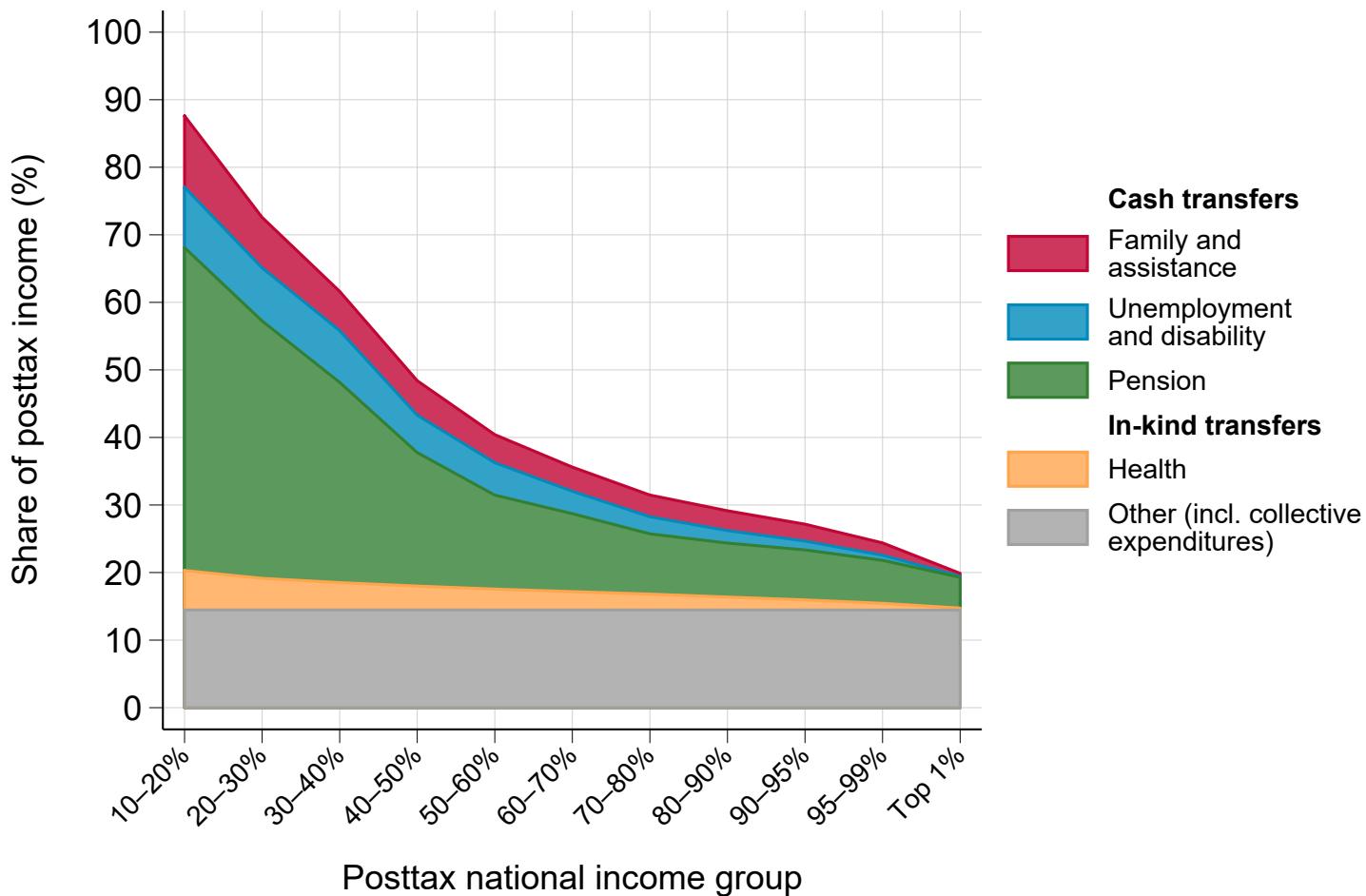
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.25.8**  
**Switzerland: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



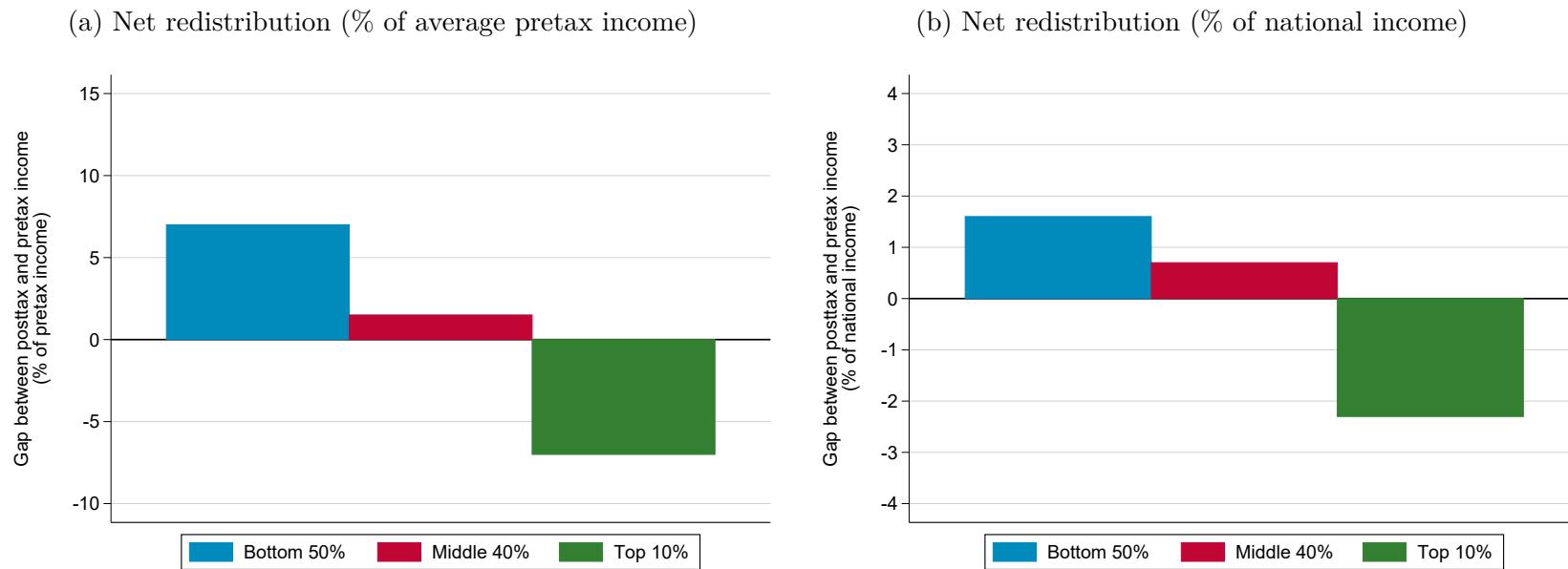
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.25.9**  
**Switzerland: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.25.10**  
**Switzerland: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.25.1**  
**Switzerland: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981			x						
1982	x	x							
1983			x						
1984									
1985			x						
1986									
1987			x						
1988									
1989			x						
1990				x		x	x	x	
1991			x	x		x	x	x	
1992	x	x		x		x	x	x	
1993			x	x		x	x	x	
1994				x		x	x	x	
1995			x	x		x	x	x	x
1996			x	x		x	x	x	x
1997			x	x		x	x	x	x
1998			x	x		x	x	x	x
1999			x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002	x	x	x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005			x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.25.2**  
**Switzerland: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			90.1%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	92.9%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	-2.8%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	5.4%
(+)	Government primary income	National accounts	Proportional to pretax income	4.4%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	20.9%
(+)	Pension benefits	Survey + tax data	Observed	19.6%
(+)	Unemployment benefits	Survey + tax data	Observed	1.3%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			23.1%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	3.9%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	11.7%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	3.8%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	3.6%
(+)	Transfers			21.6%
	<i>Cash transfers</i>	Survey + tax data	Observed	6.4%
	<i>Public health expenditures</i>	National accounts	Lump sum	2.9%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	12.3%
(+)	Budget balance	National accounts	Proportional to posttax income	1.5%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.25.3**  
**Switzerland: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2006–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2006–2017); Employer contributions (EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 83.9% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.1 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (LIS, 1982–2013; SILC, 2006–2017; PovcalNet, 1982–2002; LIS, 2000–2013); pretax income (LIS, 1982–2013; SILC, 2006–2017)	See section 1.3.	No estimation of pretax and posttax income needed.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1981–2014 (Foellmi and Martínez, 2017)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 4.4 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 2.0 pp. higher than in the raw survey. The top 1% share of posttax income is 1.5 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	EU-SILC, 2006–2017 (imputed rents)	Due to lack of data, we use the average European distribution for corporate stocks and imputed rents.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 12.5% of imputed rents, and account for 18.8% of consumption.
			See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 0.8 pp. on average; Imputed rents increase the top 10% share of income by 0.6 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 0.2 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 0.5 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.25.4**  
**The distribution of national income in Switzerland, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€48,400	100%	€48,400	100%	€48,400	100%
Bottom 50%	€23,100	23.8%	€23,700	24.4%	€24,700	25.5%
Bottom 20%	€11,900	4.9%	€11,200	4.6%	€12,700	5.2%
Next 30%	€30,600	18.9%	€32,000	19.8%	€32,600	20.2%
Middle 40%	€54,200	44.8%	€55,300	45.7%	€55,000	45.4%
Top 10%	€152,000	31.4%	€145,000	29.9%	€141,000	29.1%
Top 1%	€506,000	10.5%	€463,000	9.6%	€446,000	9.2%
Top 0.1%	€1,990,000	4.1%	€1,820,000	3.8%	€1,750,000	3.6%
Top 0.01%	€8,190,000	1.7%	€7,580,000	1.6%	€7,280,000	1.5%
Top 0.001%	€34,110,000	0.7%	€32,120,000	0.7%	€30,820,000	0.6%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

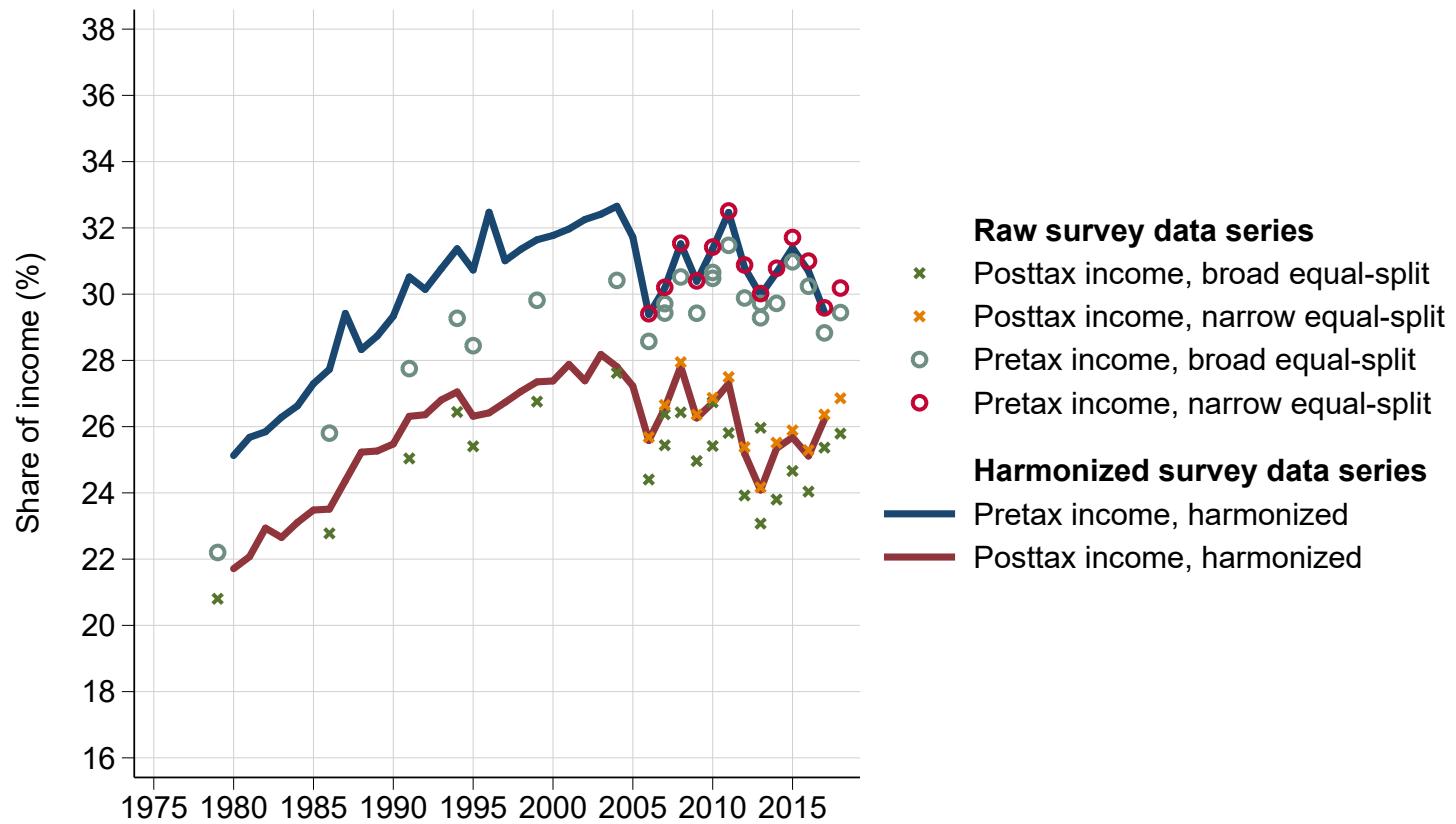
**Table A.3.25.5**  
**The distribution of national income growth in Switzerland, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	0.6%	0.3%	0.6%	0.3%	0.6%	0.3%
Bottom 50%	0.5%	0.4%	0.5%	0.9%	0.6%	1.0%
Bottom 20%	0.4%	0.0%	0.6%	1.7%	0.8%	2.0%
Next 30%	0.5%	0.5%	0.5%	0.7%	0.5%	0.8%
Middle 40%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Top 10%	0.8%	-0.1%	0.8%	-0.5%	0.7%	-0.6%
Top 1%	1.1%	-0.4%	0.9%	-1.1%	0.9%	-1.3%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

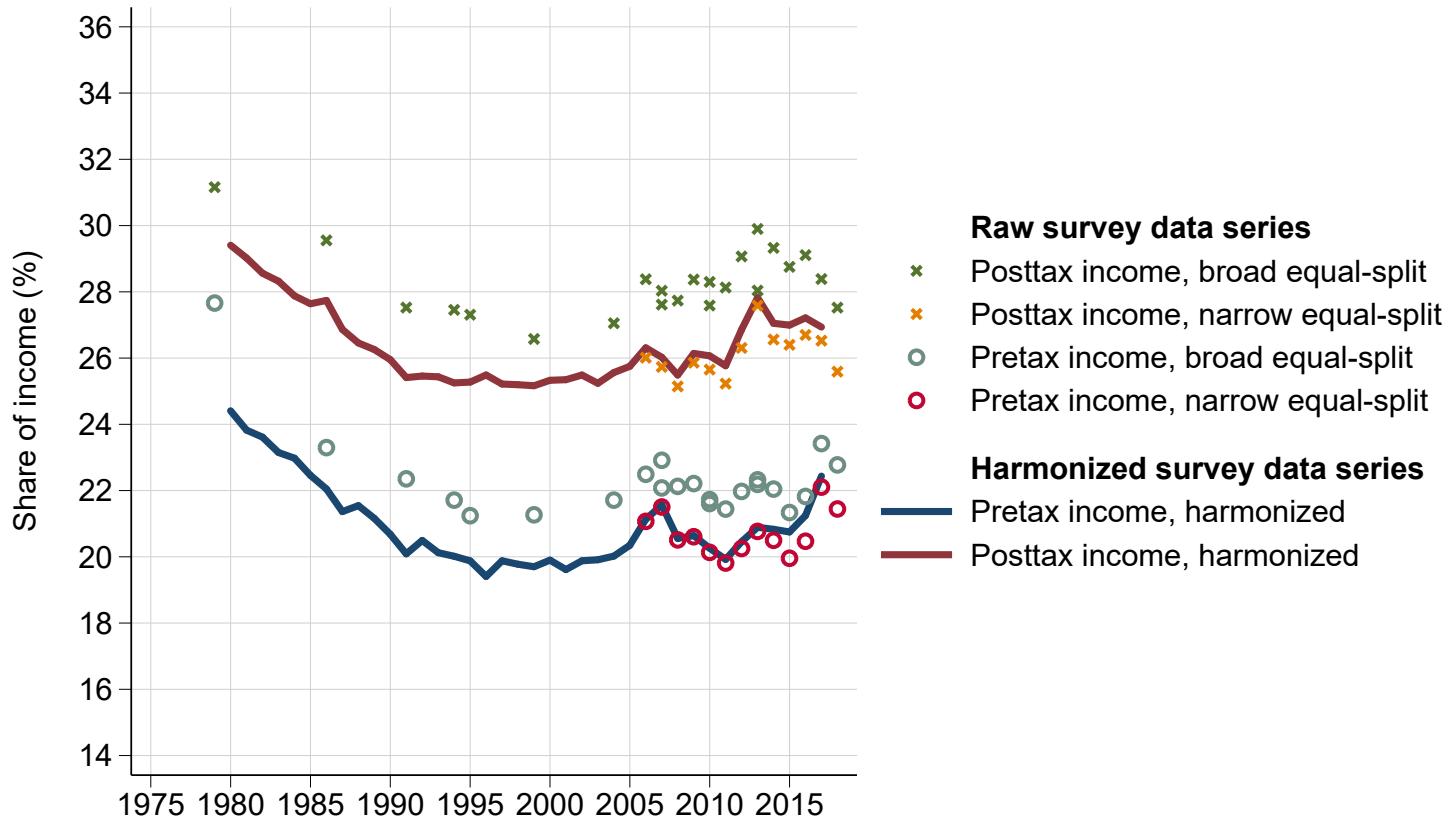
### 3.26 United Kingdom

Figure A.3.26.1  
United Kingdom: harmonization of survey data  
Top 10% pretax income share



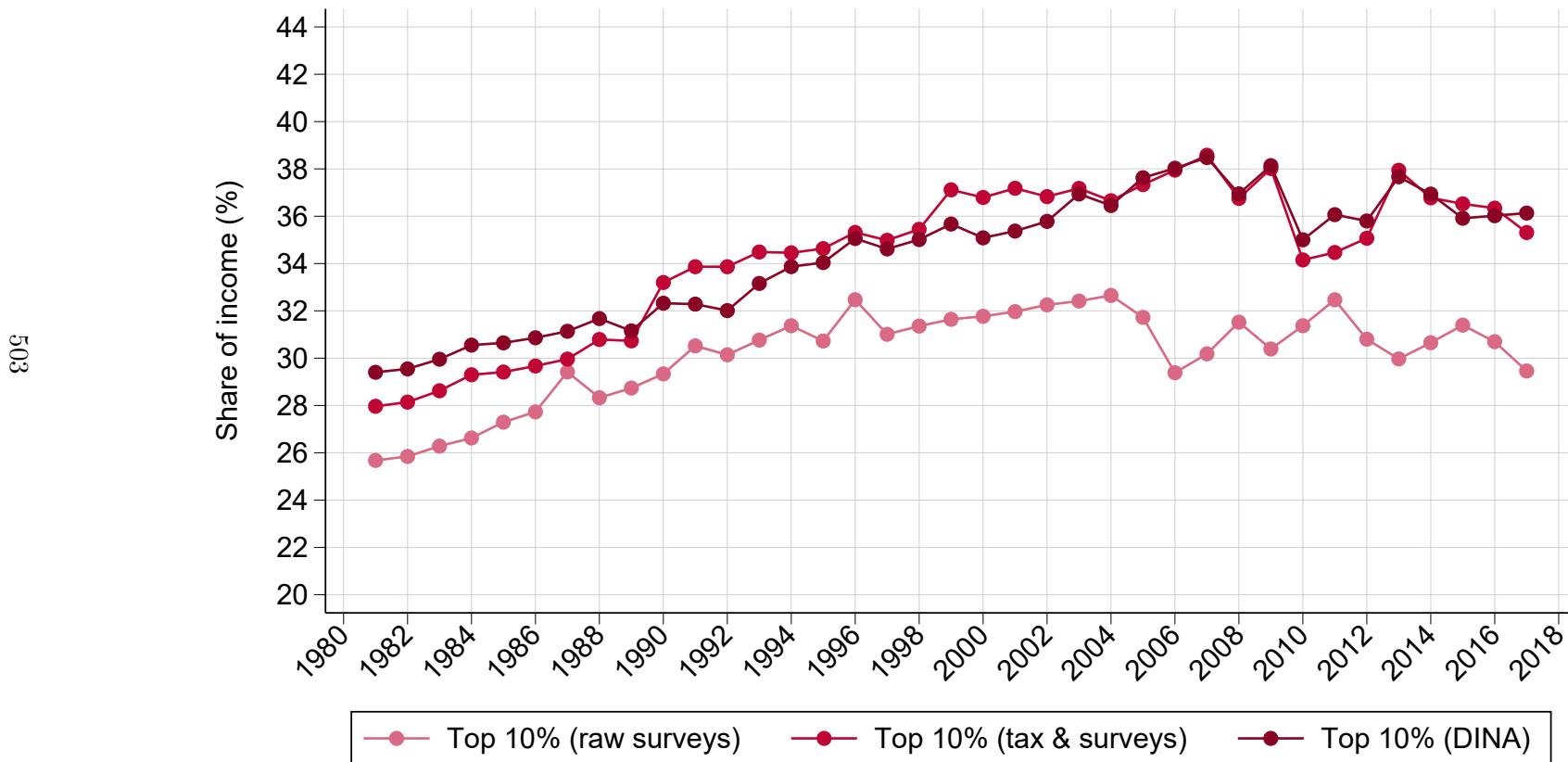
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.26.2**  
**United Kingdom: harmonization of survey data**  
**Bottom 50% pretax income share**



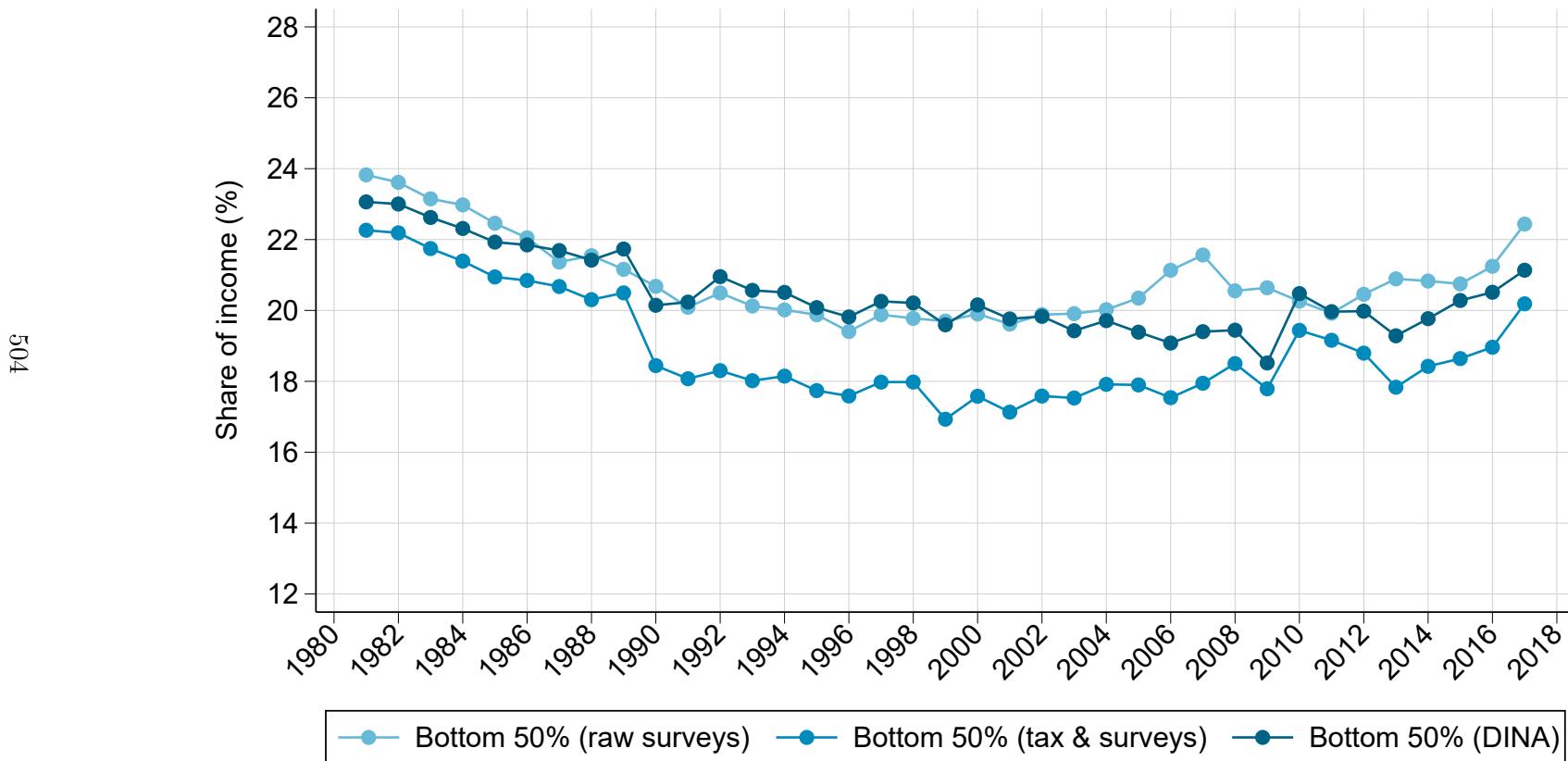
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.3.26.3**  
United Kingdom: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



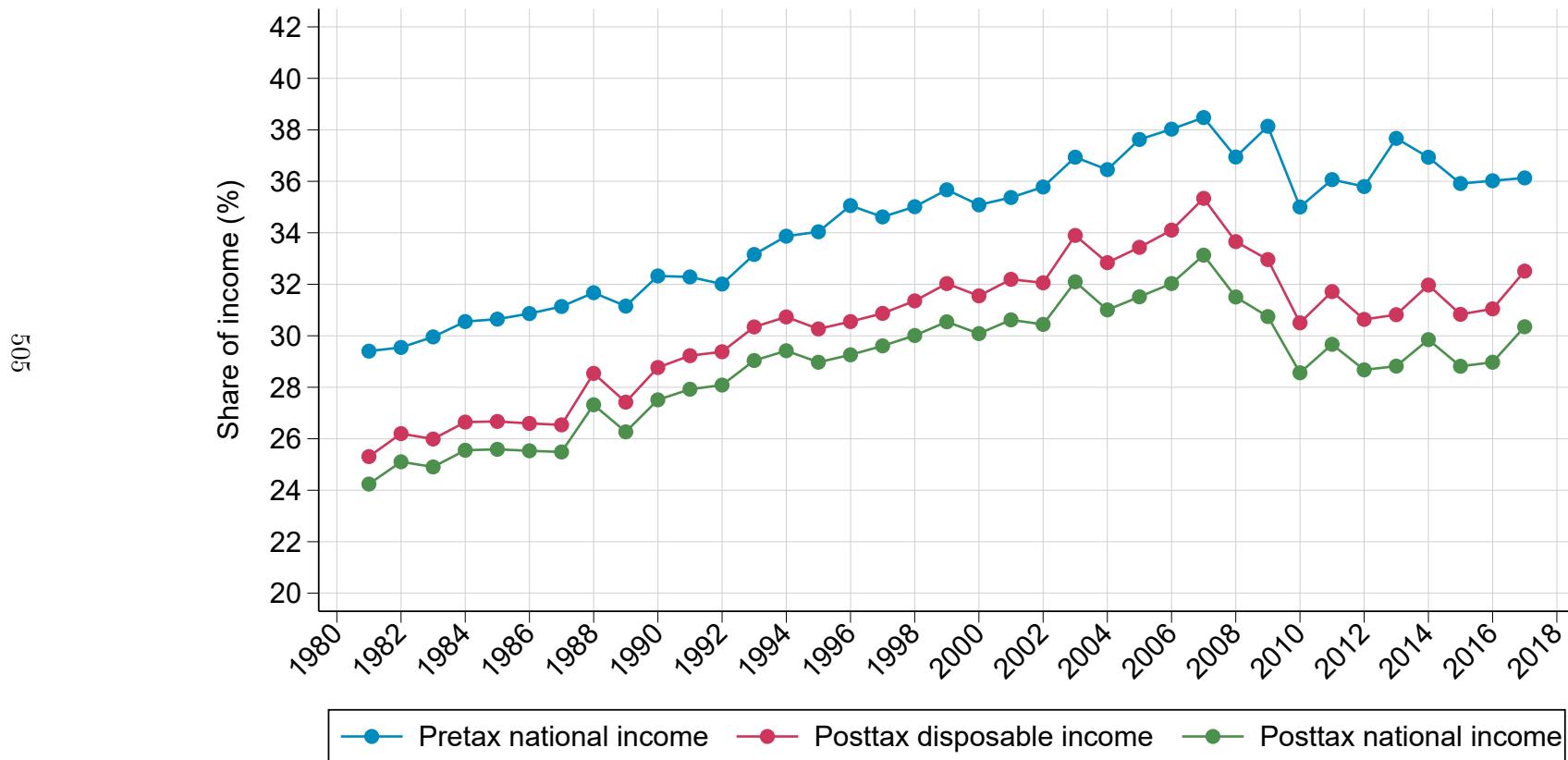
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.26.4**  
United Kingdom: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



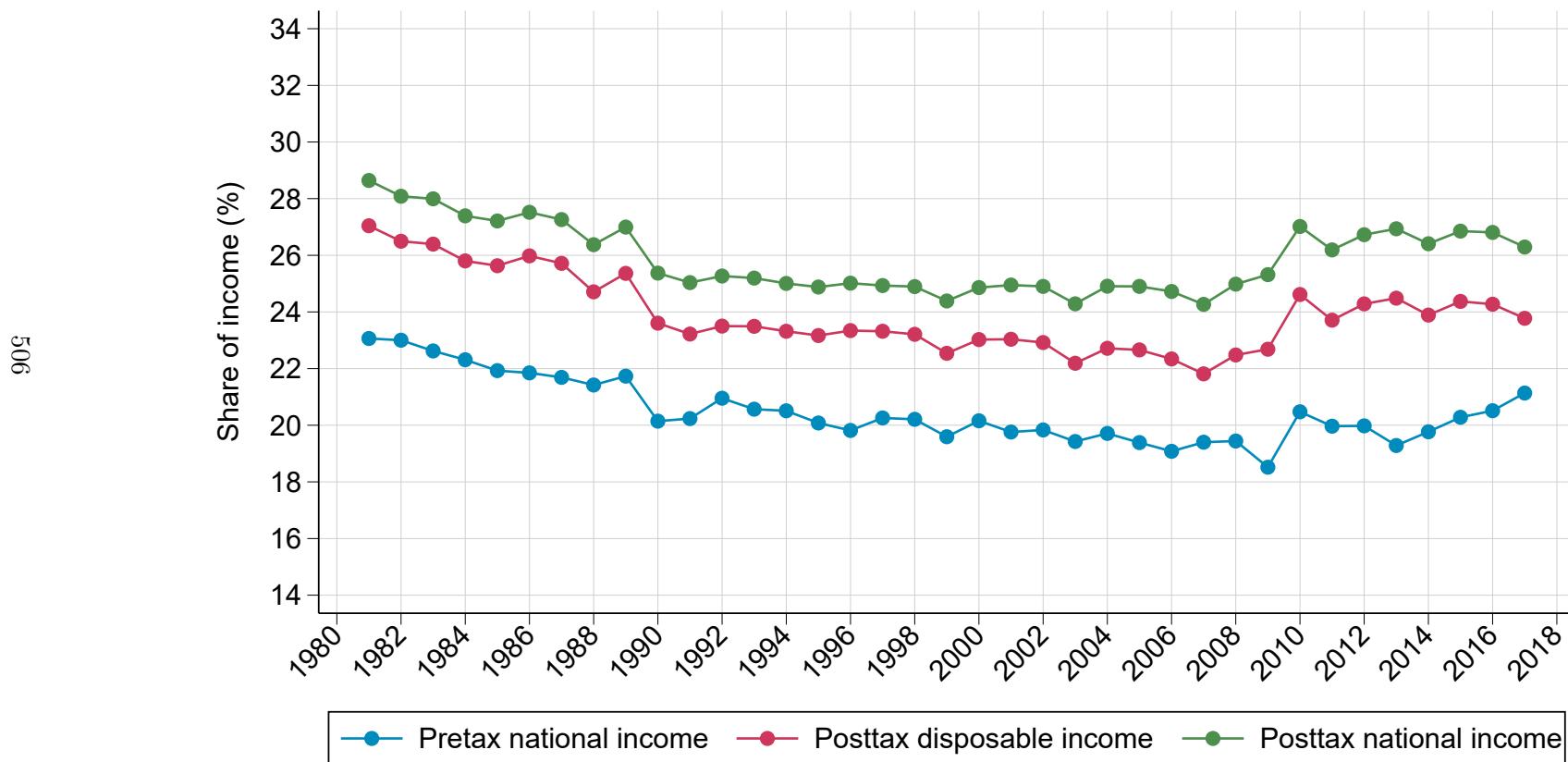
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.26.5**  
**United Kingdom: from pretax national income to posttax national income**  
**Top 10% income share**



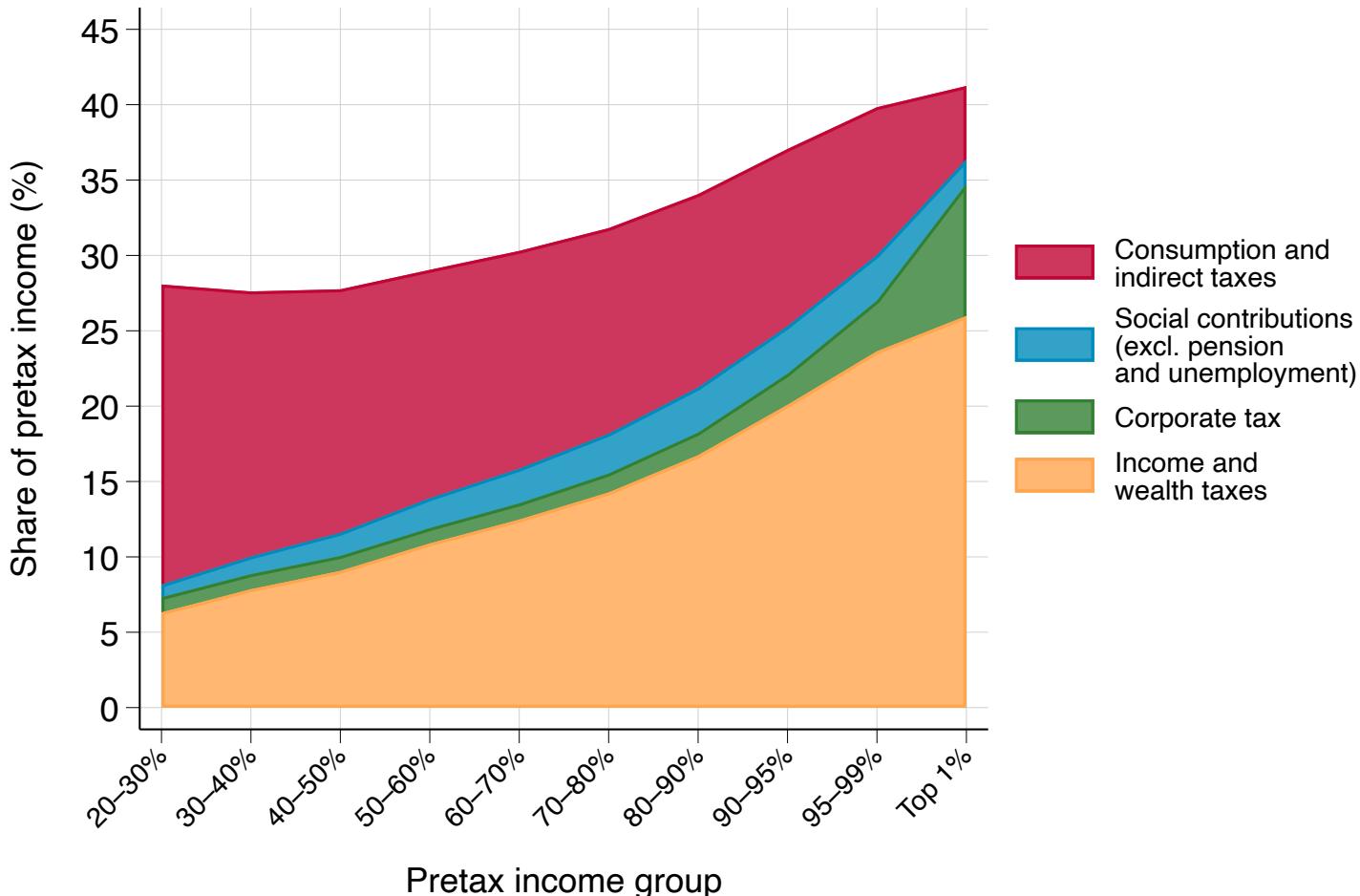
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.26.6**  
**United Kingdom: from pretax national income to posttax national income**  
**Bottom 50% income share**



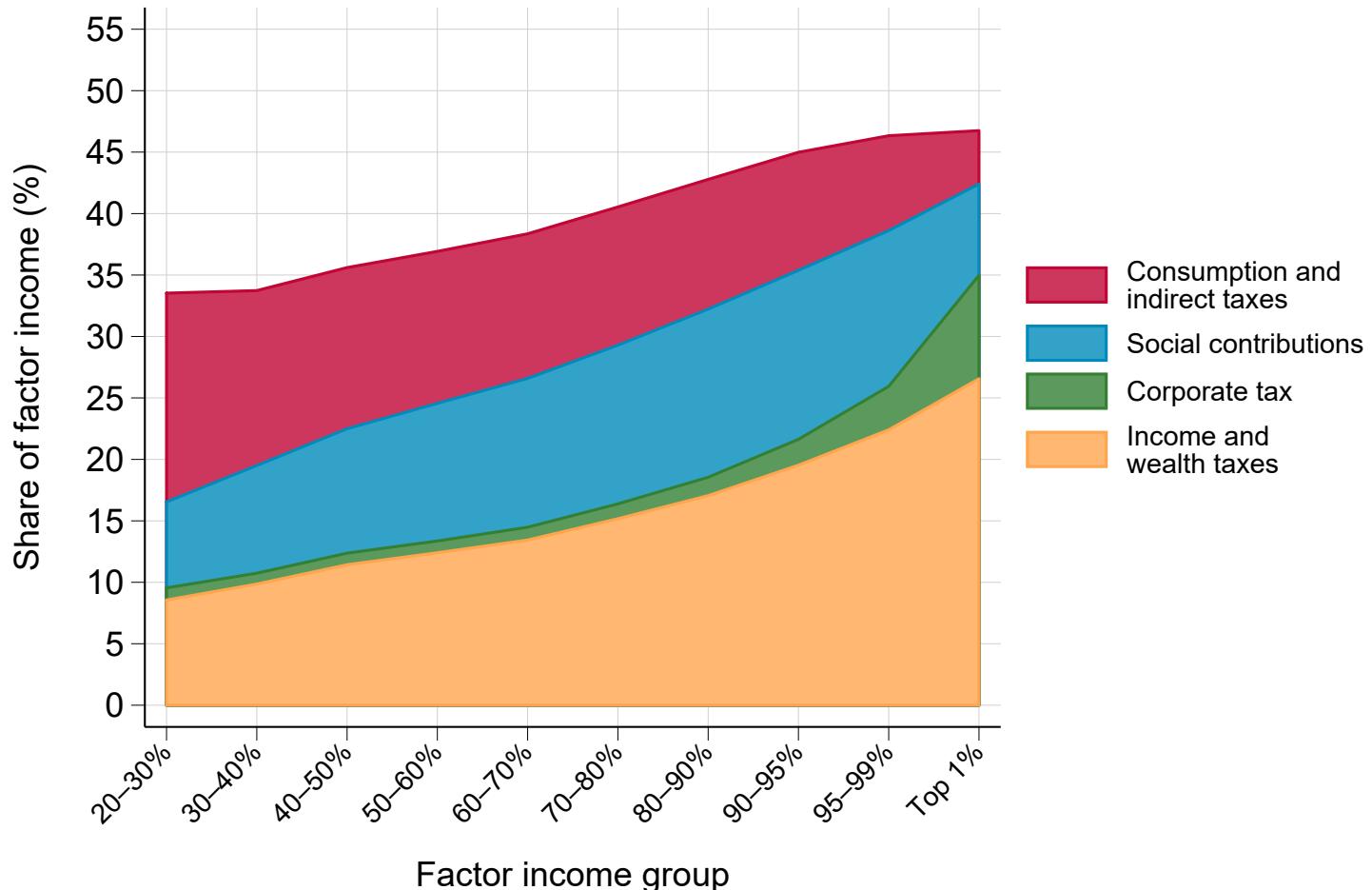
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.26.7**  
**United Kingdom: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



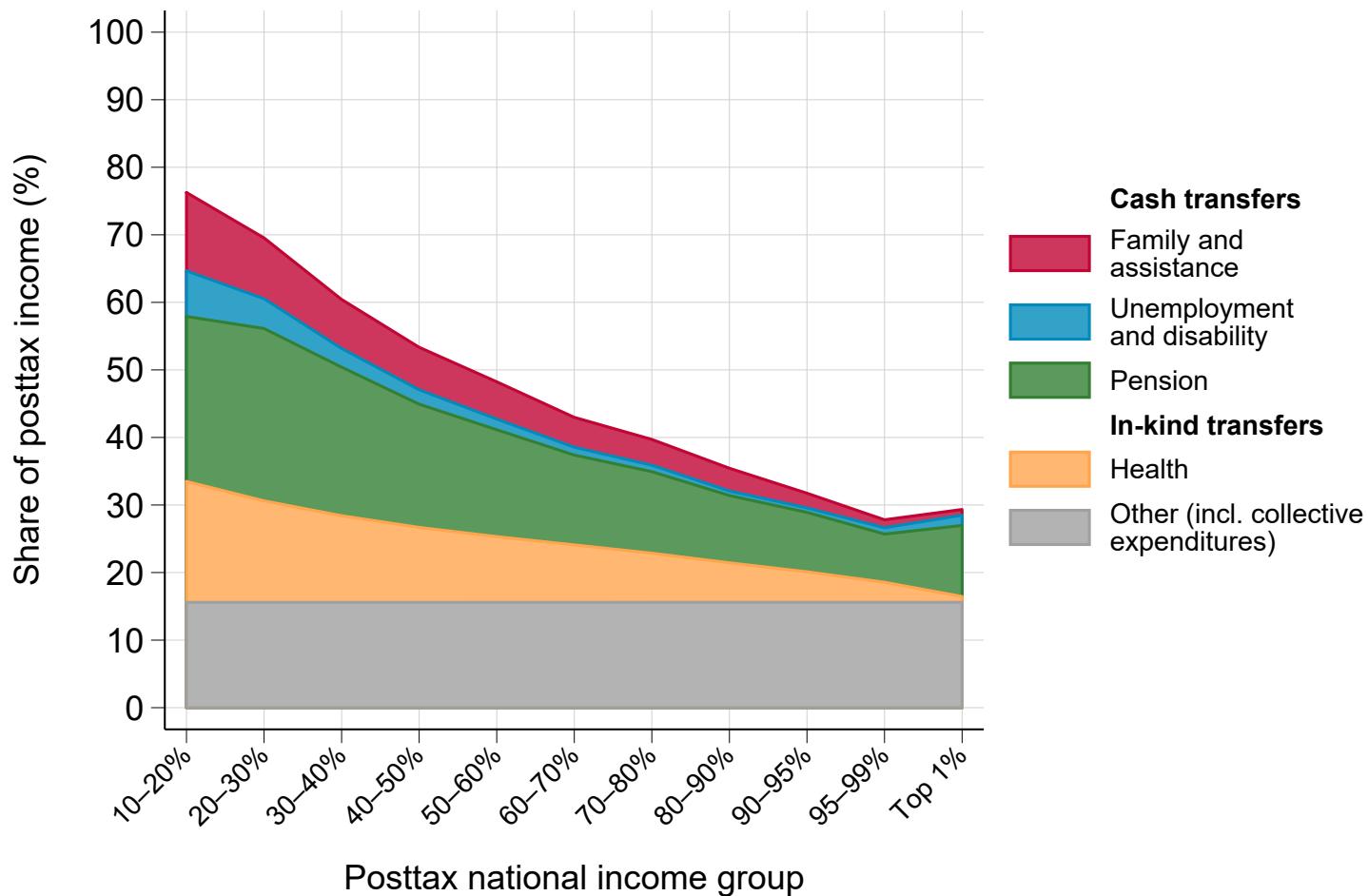
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.26.8**  
**United Kingdom: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



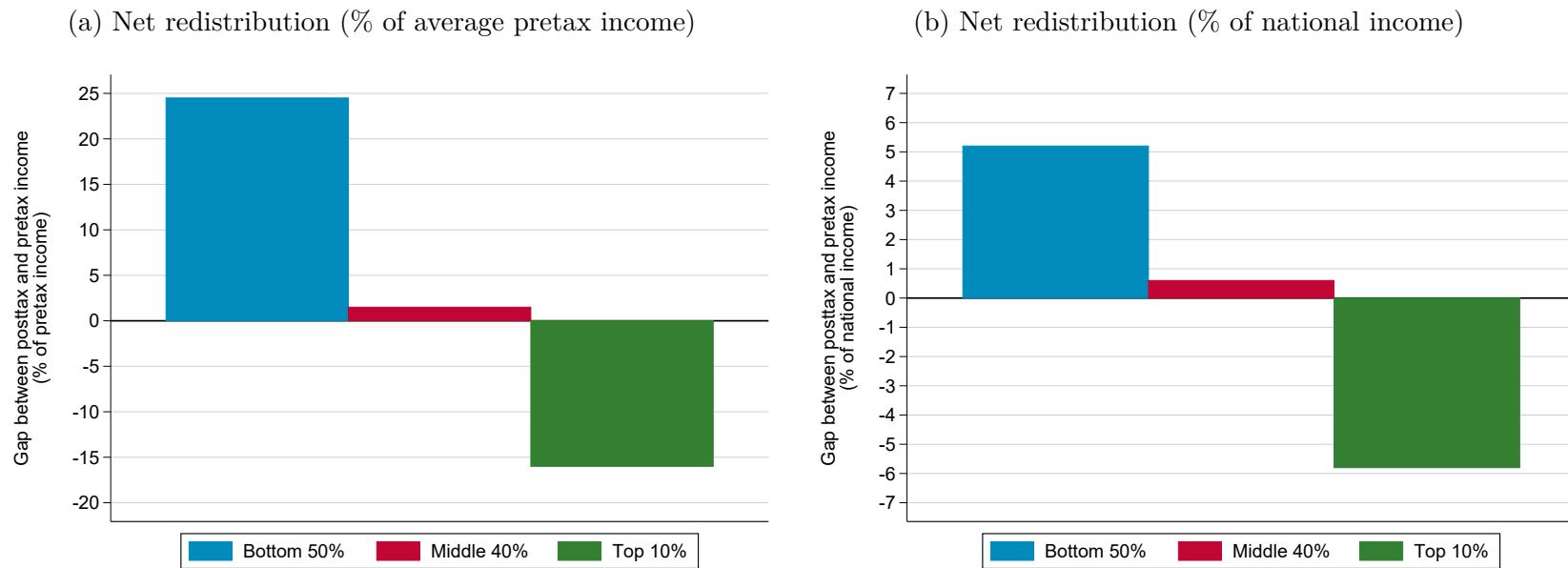
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.3.26.9**  
**United Kingdom: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.3.26.10**  
**United Kingdom: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.26.1**  
**United Kingdom: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1979	x	x							
1980									x
1981			x						x
1982			x						x
1983			x						x
1984			x						x
1985			x						x
1986	x	x	x						x
1987			x	x	x		x	x	x
1988			x	x	x		x	x	x
1989			x	x	x		x	x	x
1990			x	x	x	x	x	x	x
1991	x	x	x	x	x	x	x	x	x
1992			x	x	x	x	x	x	x
1993			x	x	x	x	x	x	x
1994	x	x	x	x	x	x	x	x	x
1995	x	x	x	x	x	x	x	x	x
1996			x	x	x	x	x	x	x
1997			x	x	x	x	x	x	x
1998			x	x	x	x	x	x	x
1999	x	x	x	x	x	x	x	x	x
2000			x	x	x	x	x	x	x
2001			x	x	x	x	x	x	x
2002			x	x	x	x	x	x	x
2003			x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005			x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x		x	x	x	x	x	x
2016	x	x		x	x	x	x	x	x
2017	x	x		x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.3.26.2**  
**United Kingdom: methodology used to distribute factor income, pretax income, and posttax income**

	Income concept	Source	Method	Share of income
	<b>Factor national income</b>			100%
(+)	Household primary income			82.5%
	<i>Compensation of employees, mixed and property income</i>	Survey + tax data	Observed	77%
	<i>Net imputed housing rents</i>	Survey + tax data	Observed	5.5%
(+)	Corporate primary income	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	5.7%
(+)	Government primary income	National accounts	Proportional to pretax income	11.8%
	<b>Pretax national income</b>			100%
(+)	Factor national income			100%
(-)	Contributory social contributions	Survey + tax data	Observed/simulated	15.5%
(+)	Pension benefits	Survey + tax data	Observed	14.7%
(+)	Unemployment benefits	Survey + tax data	Observed	.8%
	<b>Posttax national income</b>			100%
(+)	Pretax national income			100%
(-)	Taxes			29.5%
	<i>Non-contributory social contributions</i>	Survey + tax data	Observed/simulated	.7%
	<i>Direct taxes on income and wealth</i>	Survey + tax data	Observed	11.8%
	<i>Taxes on products</i>	National accounts	Proportional to consumption	14%
	<i>Corporate income tax</i>	National accounts	Proportional to equity ownership / wages and pension for equity held through pension funds	3%
(+)	Transfers			32.1%
	<i>Cash transfers</i>	Survey + tax data	Observed	8.1%
	<i>Public health expenditures</i>	National accounts	Lump sum	8.6%
	<i>Other public expenditures</i>	National accounts	Proportional to posttax income	15.5%
(+)	Budget balance	National accounts	Proportional to posttax income	-2.6%

*Notes:* The table reports the methodology used to distribute the various components of factor national income, pretax national income, and posttax national income, together with the share of net national income each component typically represents (average over the 2010-2017 period).

**Table A.3.26.3**  
**United Kingdom: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2005–2018)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2005–2018); Employer contributions (OECD, 2005–2006, EU-SILC, 2007–2018)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 92.0% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.6 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1979–2013; SILC, 2006–2018); pretax income (LIS, 1979–2013; SILC, 2006–2018)	See section 1.3.	No estimation of pretax and posttax income needed.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	1981–2014 (Atkinson and Piketty, 2007)	See section 1.4.2.  See section 1.4.3.	Using the same income concept as the tax data, we find that the top 1% share is 5.0 pp. higher in the tax data than the survey data.  After corrections using tax data, the top 1% share of pretax income is 3.3 pp. higher than in the raw survey. The top 1% share of posttax income is 2.5 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	WAS, 2011, 2013, 2015 (corporate stocks); EU-SILC, 2007–2018 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 60.4% of stocks, capture 12.2% of imputed rents, and account for 17.7% of consumption.  Undistributed corporate profits increase the top 10% share of income by 0.5 pp. on average; Imputed rents decrease the top 10% share of income by 1.5 pp. on average; The corporate tax increase the top 10% share of pretax income by 1.0 pp. on average; Taxes on products increase the top 10% share of posttax income by 2.1 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.6 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.3.26.4**  
**The distribution of national income in United Kingdom, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€34,300	100%	€34,300	100%	€34,300	100%
Bottom 50%	€14,500	21.1%	€16,300	23.8%	€18,000	26.3%
Bottom 20%	€7,700	4.5%	€9,000	5.3%	€11,400	6.7%
Next 30%	€19,100	16.7%	€21,200	18.5%	€22,400	19.6%
Middle 40%	€36,600	42.7%	€37,500	43.7%	€37,200	43.4%
Top 10%	€124,000	36.1%	€112,000	32.5%	€104,000	30.4%
Top 1%	€467,000	13.6%	€379,000	11.0%	€346,000	10.1%
Top 0.1%	€1,970,000	5.7%	€1,450,000	4.2%	€1,310,000	3.8%
Top 0.01%	€8,510,000	2.5%	€5,730,000	1.7%	€5,190,000	1.5%
Top 0.001%	€37,090,000	1.1%	€22,890,000	0.7%	€20,690,000	0.6%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.3.26.5**  
**The distribution of national income growth in United Kingdom, 1980-2017**

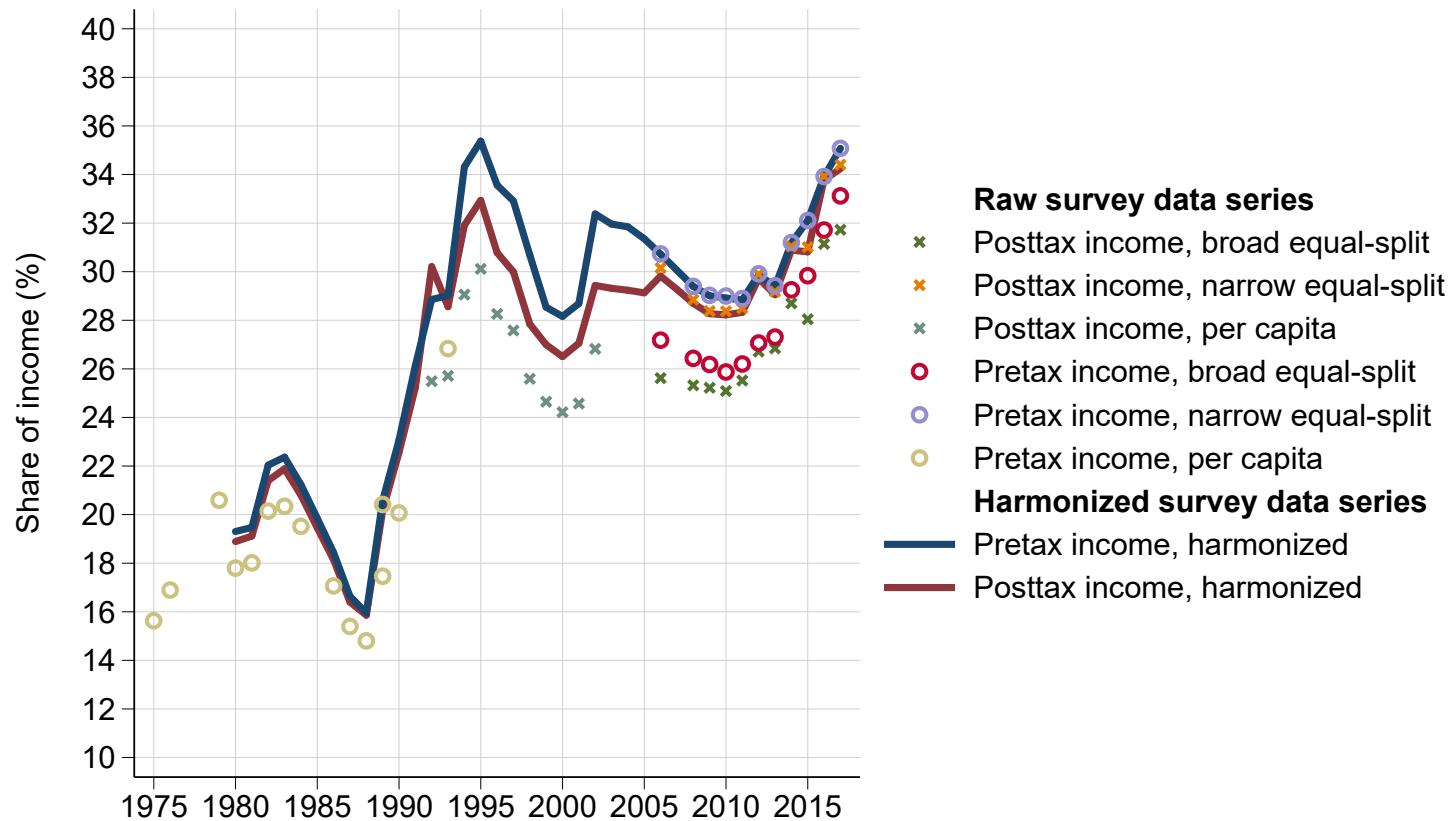
	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	2.0%	0.0%	2.0%	0.0%	2.0%	0.0%
Bottom 50%	1.7%	0.9%	1.6%	0.9%	1.7%	0.8%
Bottom 20%	1.7%	0.5%	1.6%	1.0%	1.8%	0.9%
Next 30%	1.7%	1.0%	1.6%	0.9%	1.7%	0.8%
Middle 40%	1.7%	0.2%	1.7%	0.2%	1.7%	0.2%
Top 10%	2.5%	-0.6%	2.7%	-0.8%	2.6%	-0.8%
Top 1%	3.5%	-0.7%	3.8%	-1.4%	3.7%	-1.5%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

## 4 Results by country – Countries not covered in main paper (no tax data)

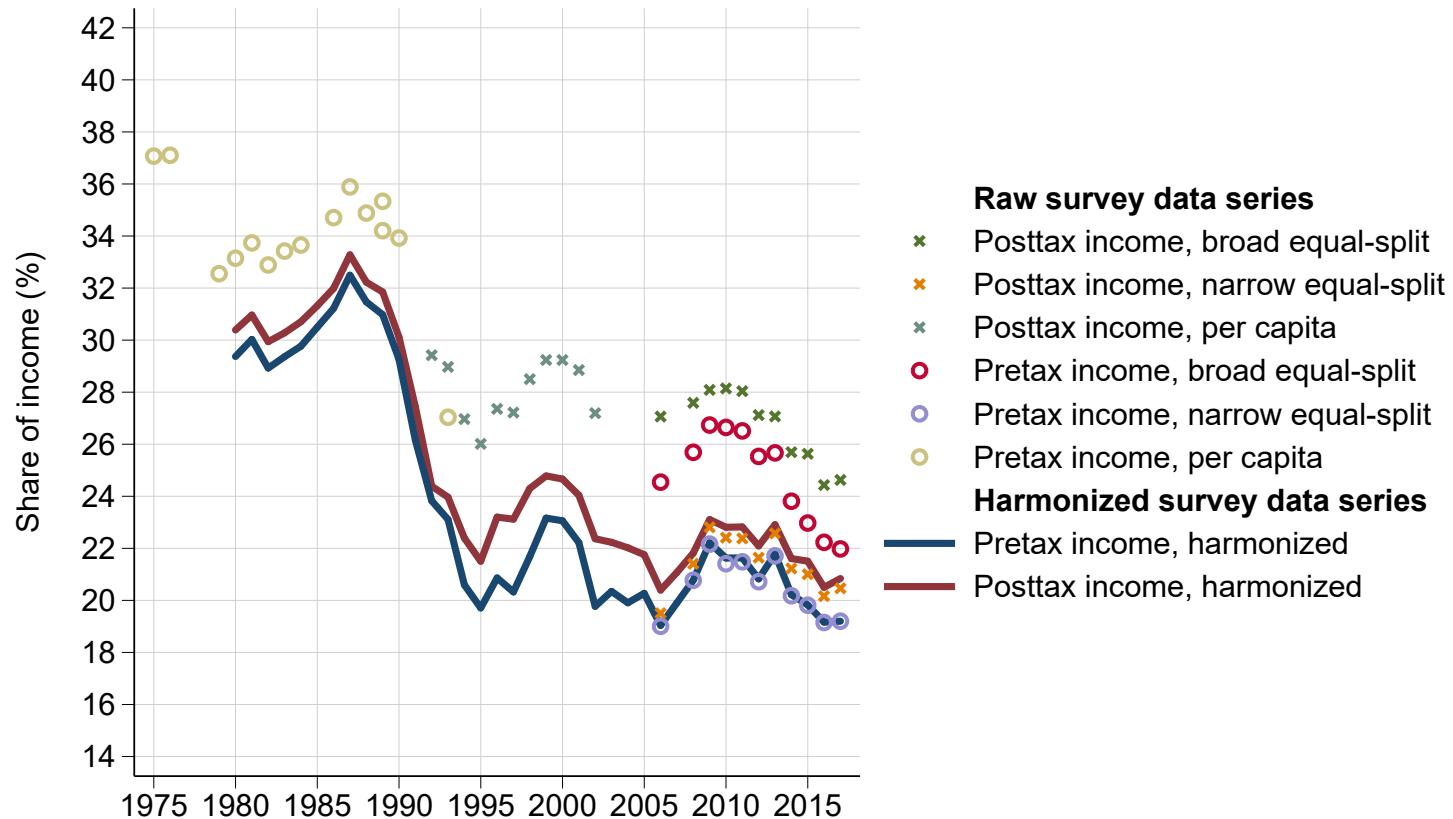
### 4.1 Bulgaria

Figure A.4.1.1  
Bulgaria: harmonization of survey data  
Top 10% pretax income share



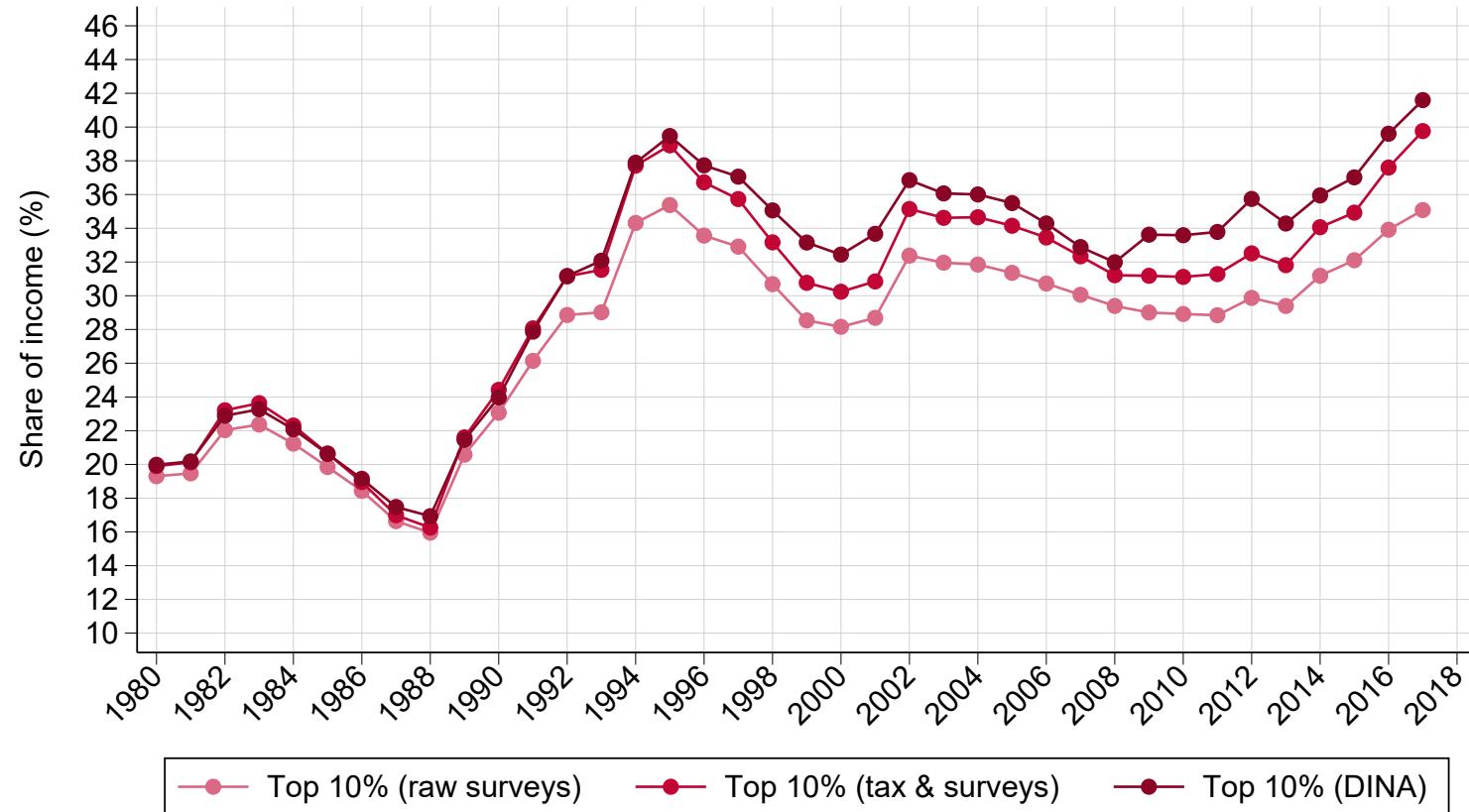
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.1.2**  
**Bulgaria: harmonization of survey data**  
**Bottom 50% pretax income share**



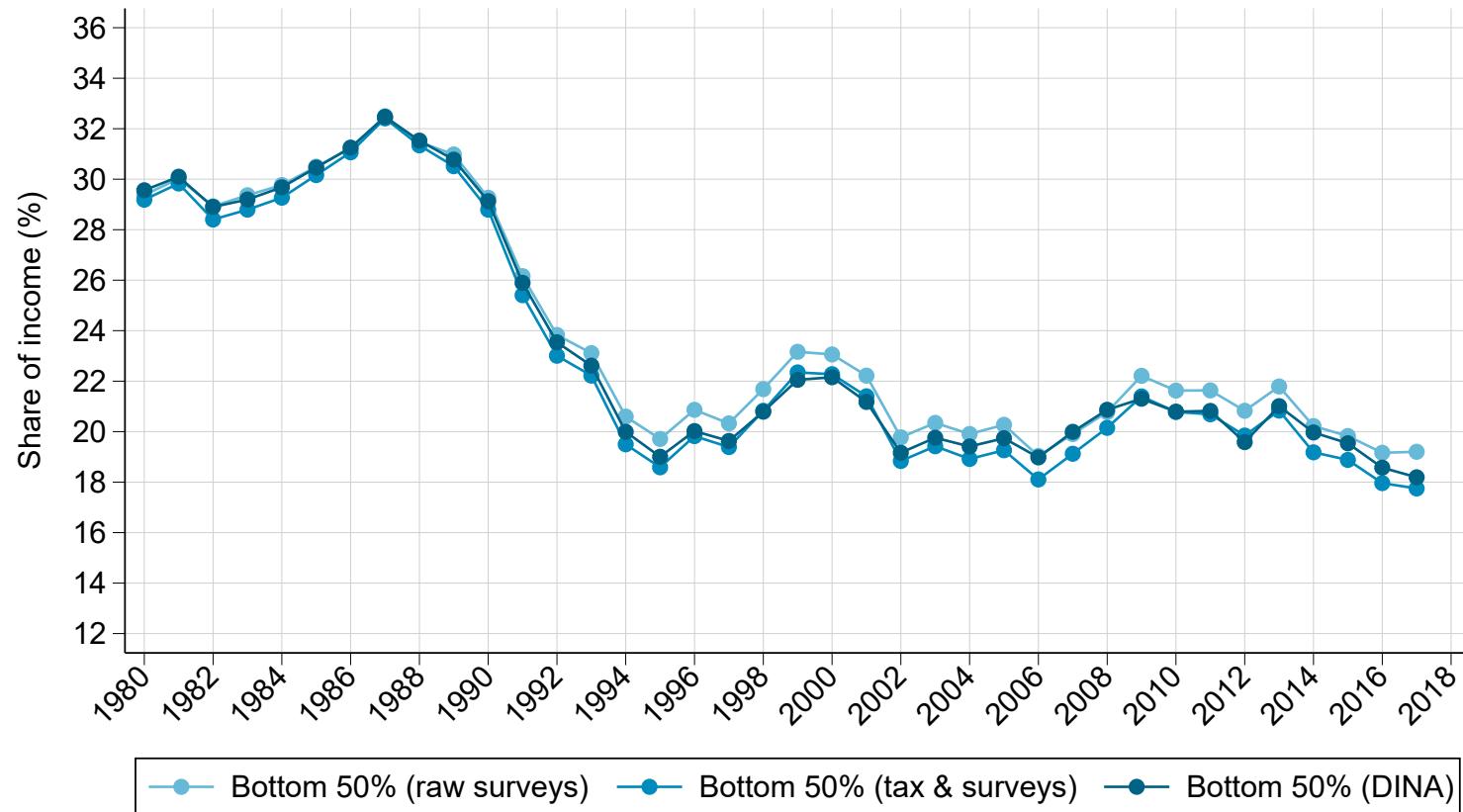
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.1.3**  
Bulgaria: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



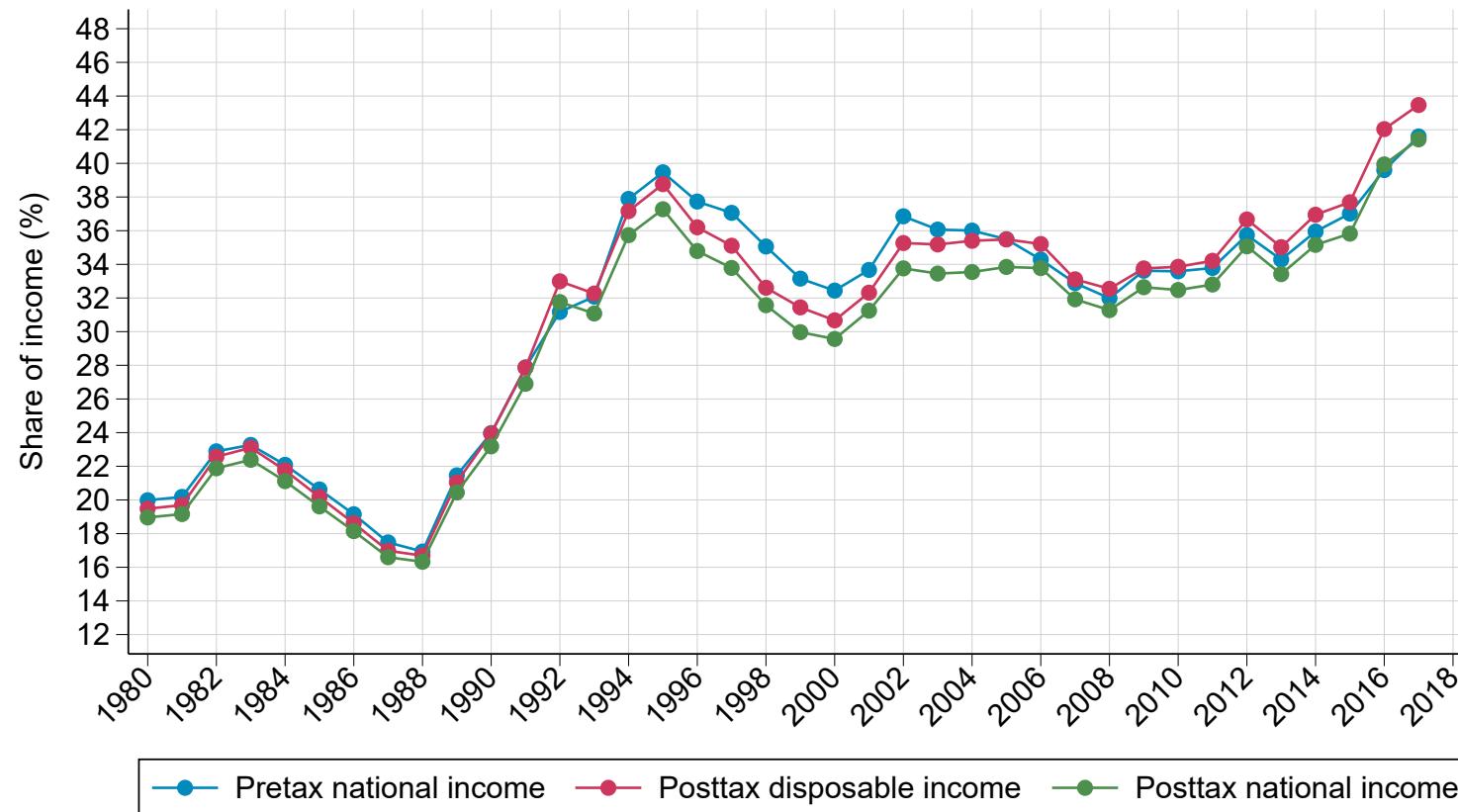
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.1.4**  
**Bulgaria: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



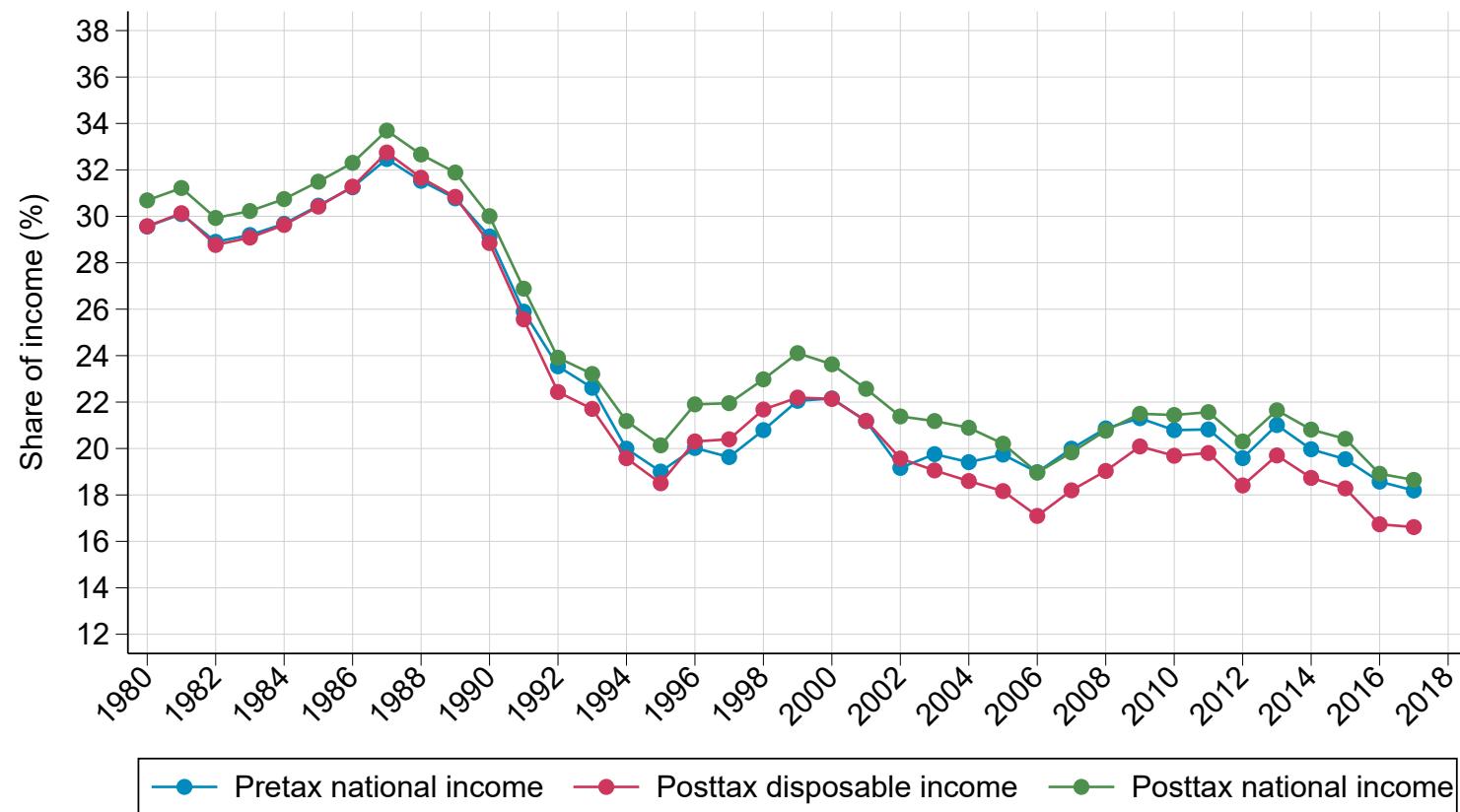
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.1.5**  
**Bulgaria: from pretax national income to posttax national income**  
**Top 10% income share**



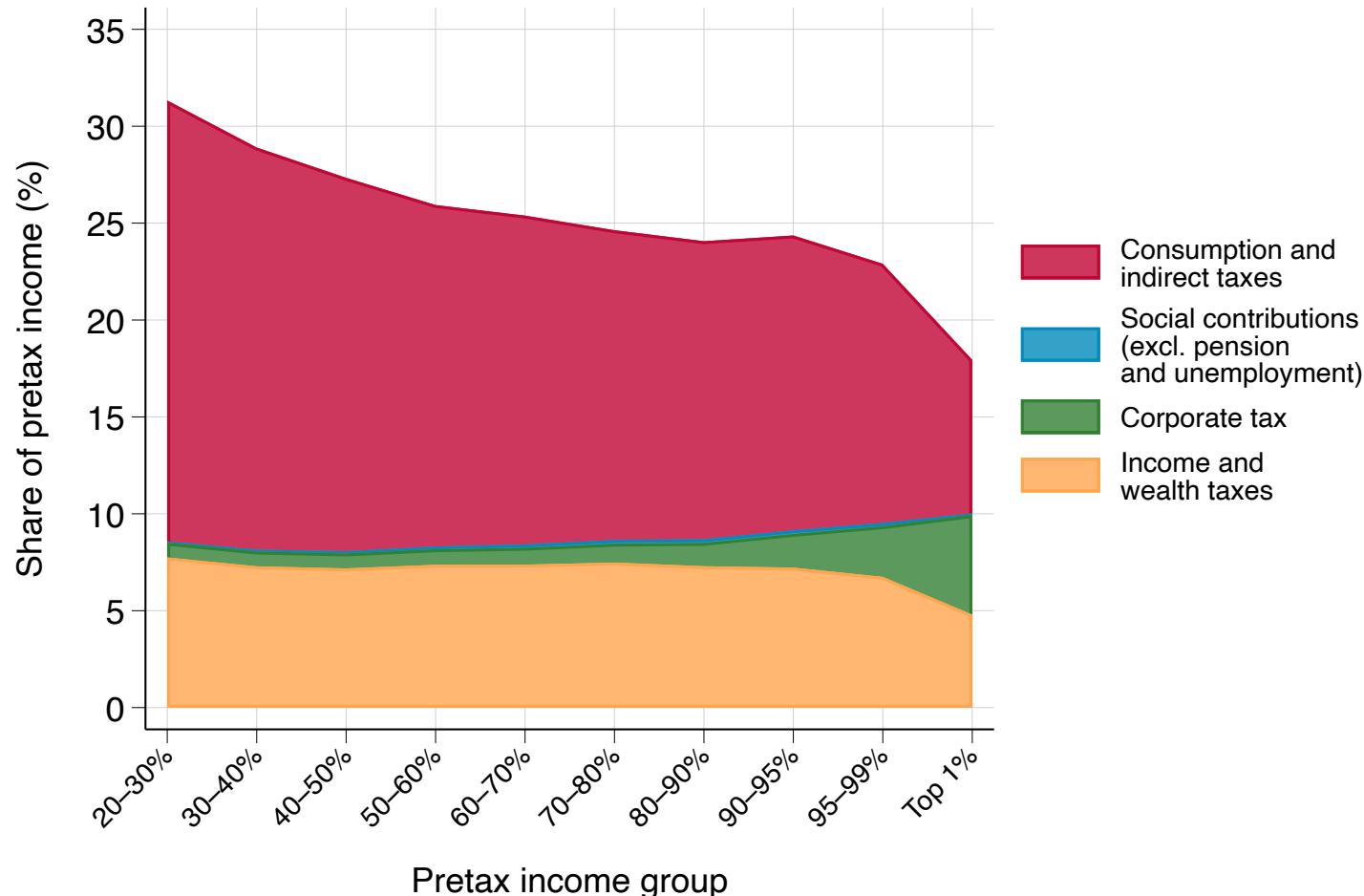
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.1.6**  
**Bulgaria: from pretax national income to posttax national income**  
**Bottom 50% income share**



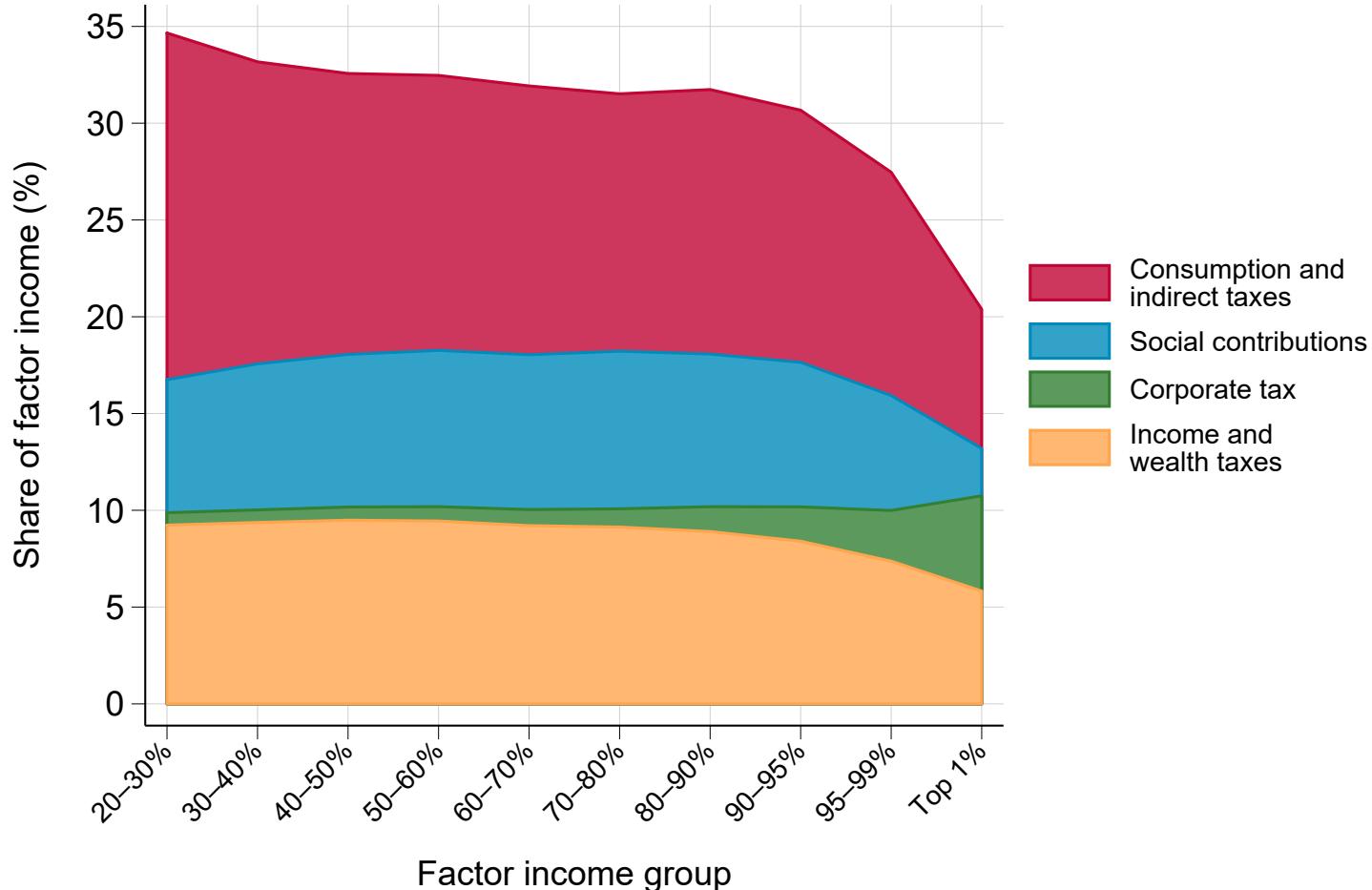
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.1.7**  
**Bulgaria: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



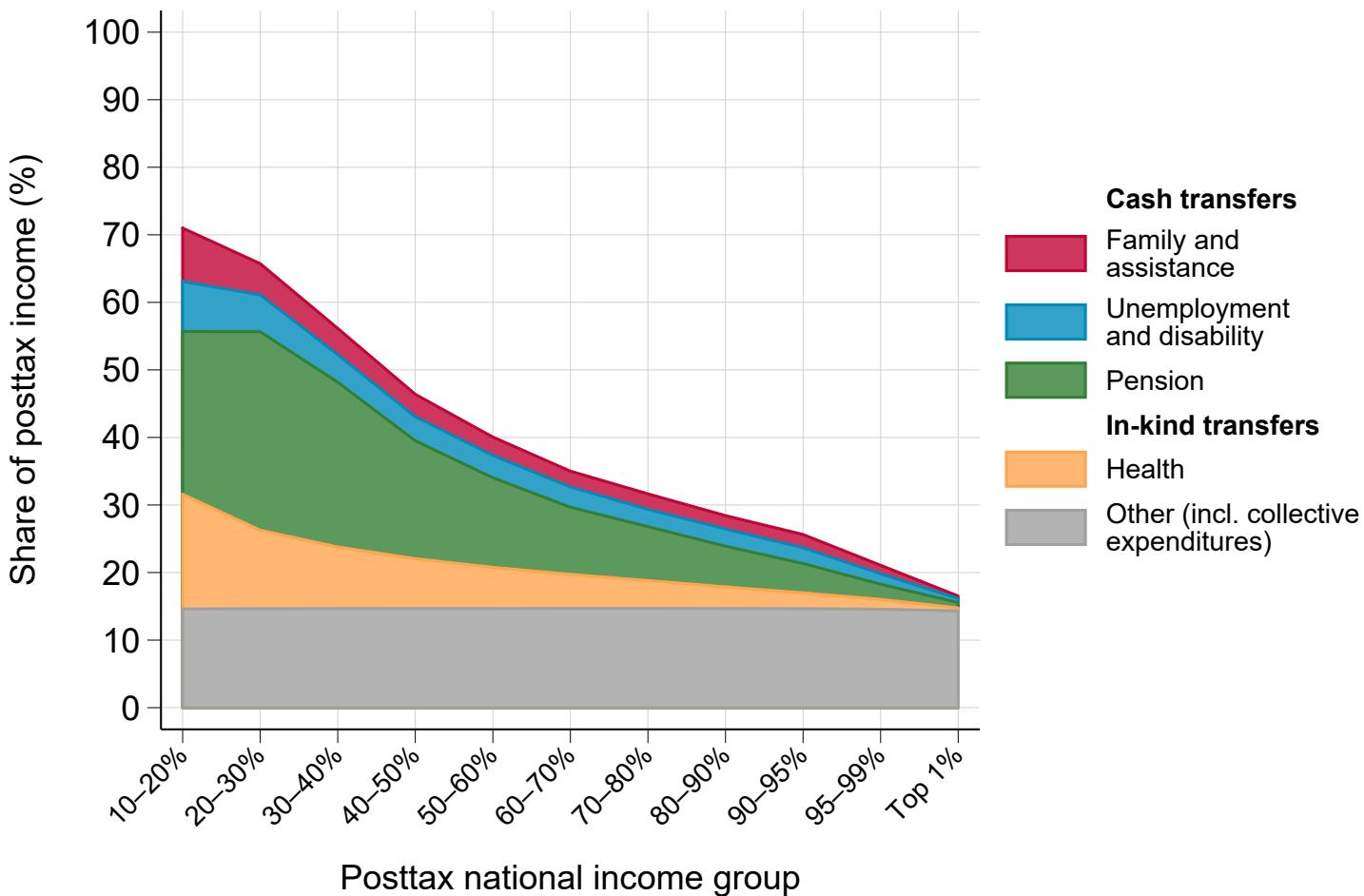
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.1.8**  
**Bulgaria: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



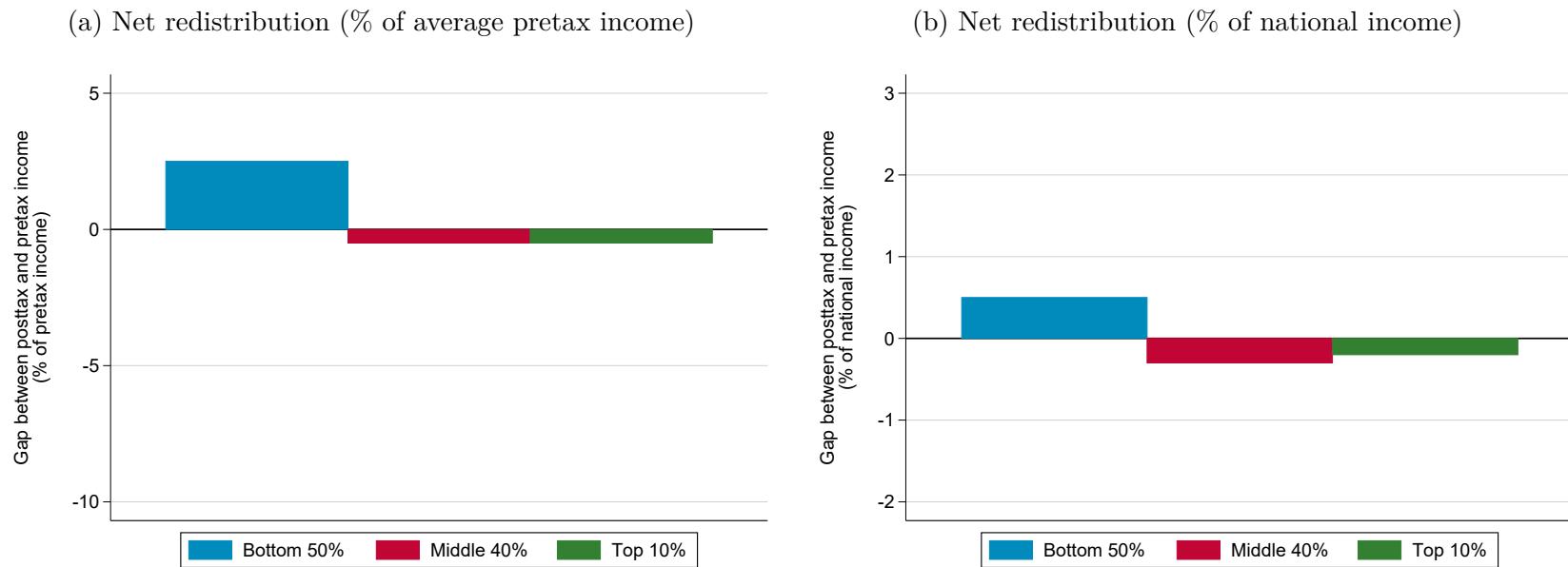
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.4.1.9**  
**Bulgaria: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.1.10**  
**Bulgaria: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.1.1**  
**Bulgaria: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1975	x								
1976	x								
1979	x								
1980	x								
1981	x								
1982	x								
1983	x								
1984	x								
1985									
1986	x								
1987	x								
1988	x								
1989	x								
1990	x								
1991									
1992	x								
1993	x								
1994	x								
1995	x								x
1996	x								x
1997	x								x
1998	x								x
1999	x			x		x	x	x	x
2000	x			x		x	x	x	x
2001	x			x		x	x	x	x
2002	x			x		x	x	x	x
2003				x		x	x	x	x
2004				x		x	x	x	x
2005				x		x	x	x	x
2006	x	x		x		x	x	x	x
2007				x		x	x	x	x
2008	x	x		x		x	x	x	x
2009	x	x		x		x	x	x	x
2010	x	x		x		x	x	x	x
2011	x	x		x		x	x	x	x
2012	x	x		x		x	x	x	x
2013	x	x		x		x	x	x	x
2014	x	x		x		x	x	x	x
2015	x	x		x		x	x	x	x
2016	x	x		x		x	x	x	x
2017	x	x		x		x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.1.2**  
**Bulgaria: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2006–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employer contributions (EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 95.4% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies increases the top 10% share of pretax income by 0.02 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (SILC, 2006–2017; Transmonee 2004, 1992–2000; Transmonee 2011, 2001–2002); pretax income (SILC, 2006–2017; Milanovic 1998, 1989–1993; Statistical Yearbook, 1975–1990)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 0.9 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.	
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.7 pp. higher than in the raw survey. The top 1% share of posttax income is 1.3 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	Due to lack of data, we use the average European distribution for corporate stocks.	We estimate that the top 10% of pretax income earners own, on average, 33.9% of stocks, capture 16.5% of imputed rents, and account for 21.0% of consumption.
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 1.5 pp. on average; Imputed rents decrease the top 10% share of income by 0.9 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.5 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.2 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.1.3**  
**The distribution of national income in Bulgaria, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€15,600	100%	€15,600	100%	€15,600	100%
Bottom 50%	€5,700	18.2%	€5,200	16.6%	€5,800	18.7%
Bottom 20%	€3,100	4.0%	€2,500	3.2%	€3,300	4.2%
Next 30%	€7,400	14.2%	€7,000	13.5%	€7,500	14.5%
Middle 40%	€15,700	40.2%	€15,600	39.9%	€15,600	39.9%
Top 10%	€65,000	41.6%	€67,900	43.5%	€64,700	41.4%
Top 1%	€267,000	17.1%	€285,000	18.2%	€268,000	17.2%
Top 0.1%	€1,140,000	7.3%	€1,230,000	7.9%	€1,150,000	7.4%
Top 0.01%	€4,910,000	3.1%	€5,330,000	3.4%	€5,000,000	3.2%
Top 0.001%	€21,200,000	1.4%	€23,150,000	1.5%	€21,740,000	1.4%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

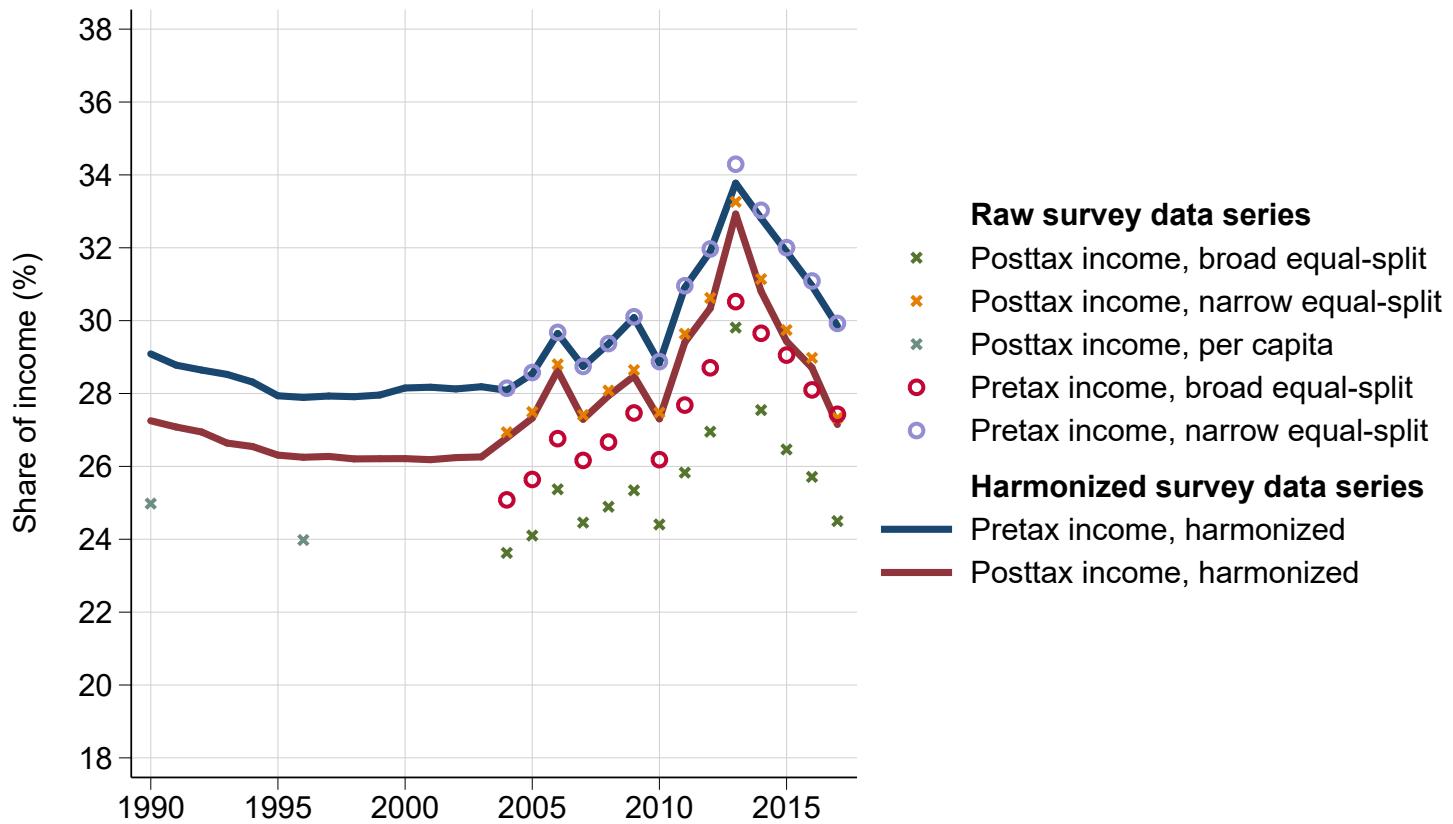
**Table A.4.1.4**  
**The distribution of national income growth in Bulgaria, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	2.2%	2.8%	2.2%	2.8%	2.2%	2.8%
Bottom 50%	0.8%	1.8%	0.6%	1.8%	0.8%	2.1%
Bottom 20%	0.4%	3.9%	-0.2%	5.3%	0.4%	5.0%
Next 30%	1.0%	1.3%	0.8%	1.2%	1.0%	1.5%
Middle 40%	1.6%	1.2%	1.5%	0.8%	1.5%	0.8%
Top 10%	4.2%	5.2%	4.4%	5.6%	4.4%	5.5%
Top 1%	7.3%	9.7%	7.7%	11.2%	7.6%	11.1%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

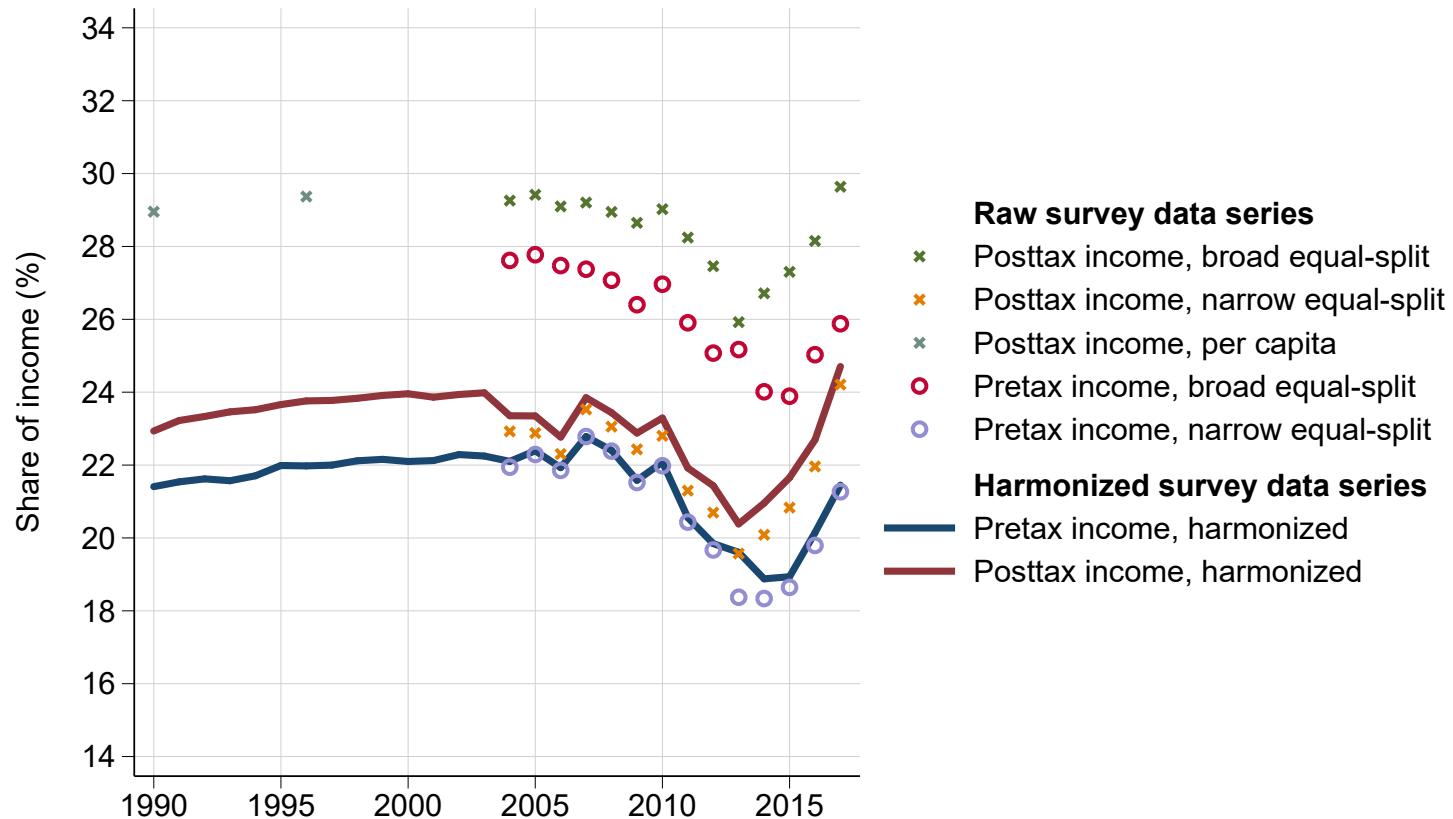
## 4.2 Cyprus

Figure A.4.2.1  
Cyprus: harmonization of survey data  
Top 10% pretax income share



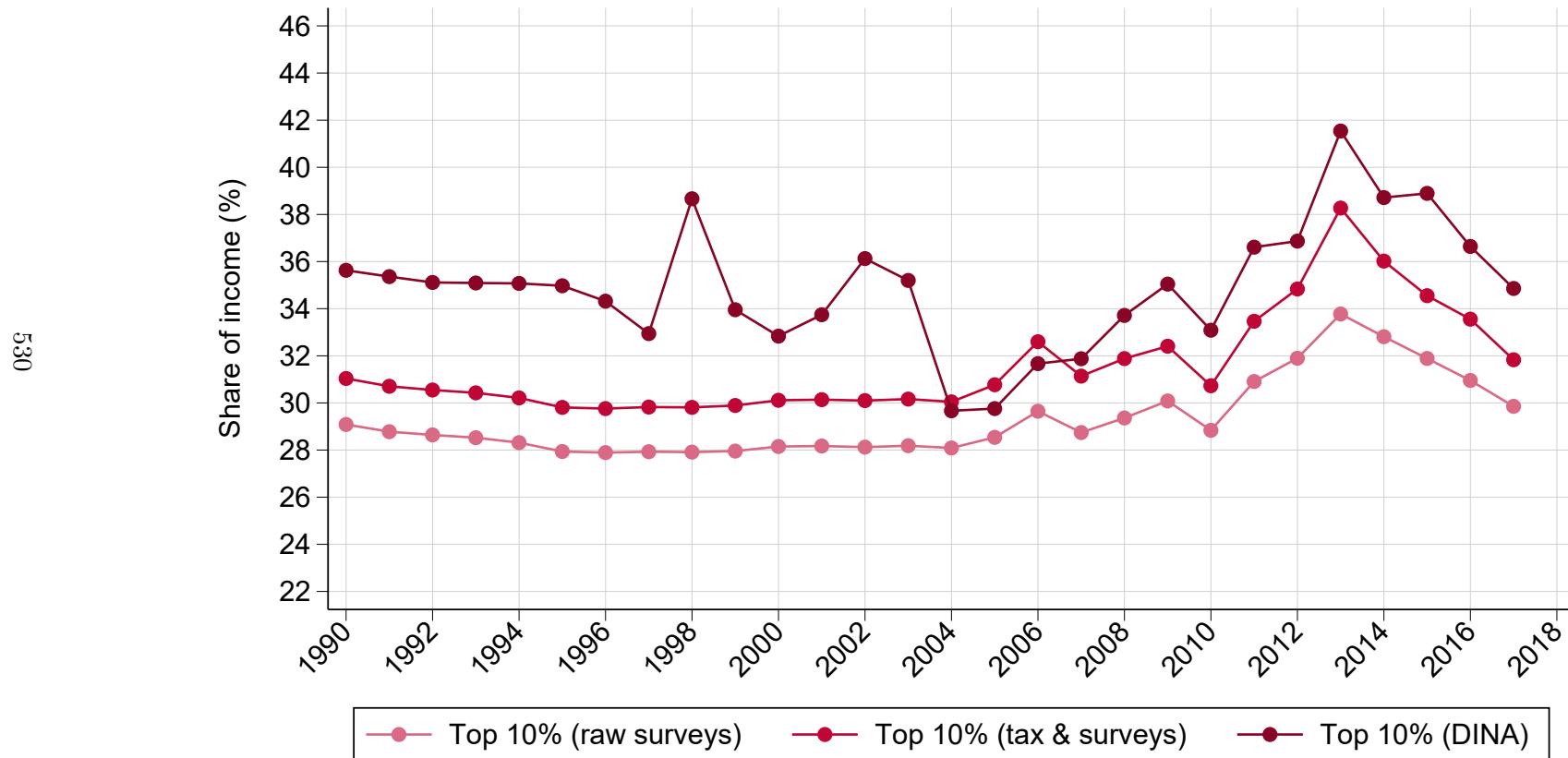
Notes. The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.2.2**  
**Cyprus: harmonization of survey data**  
**Bottom 50% pretax income share**



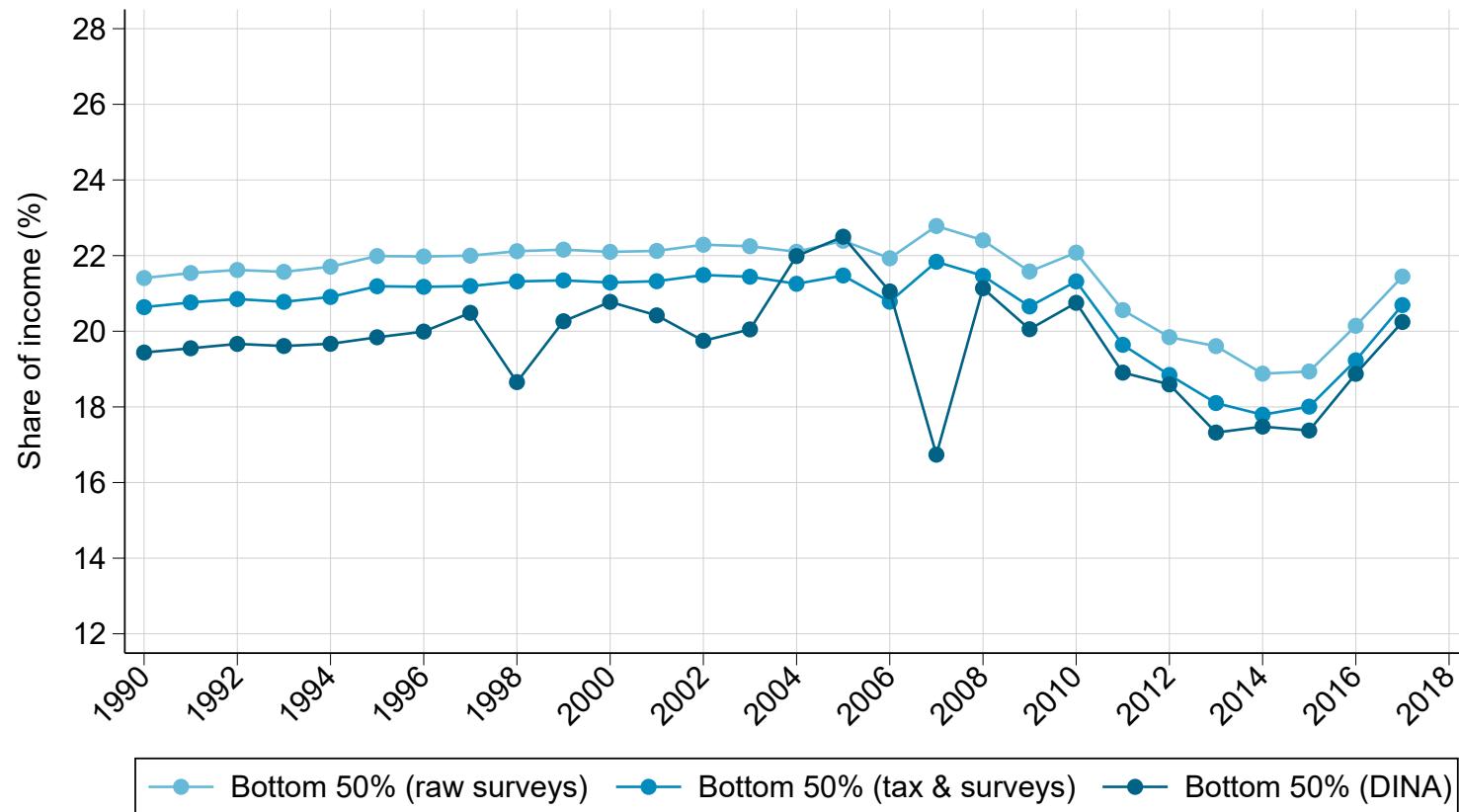
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.2.3**  
Cyprus: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



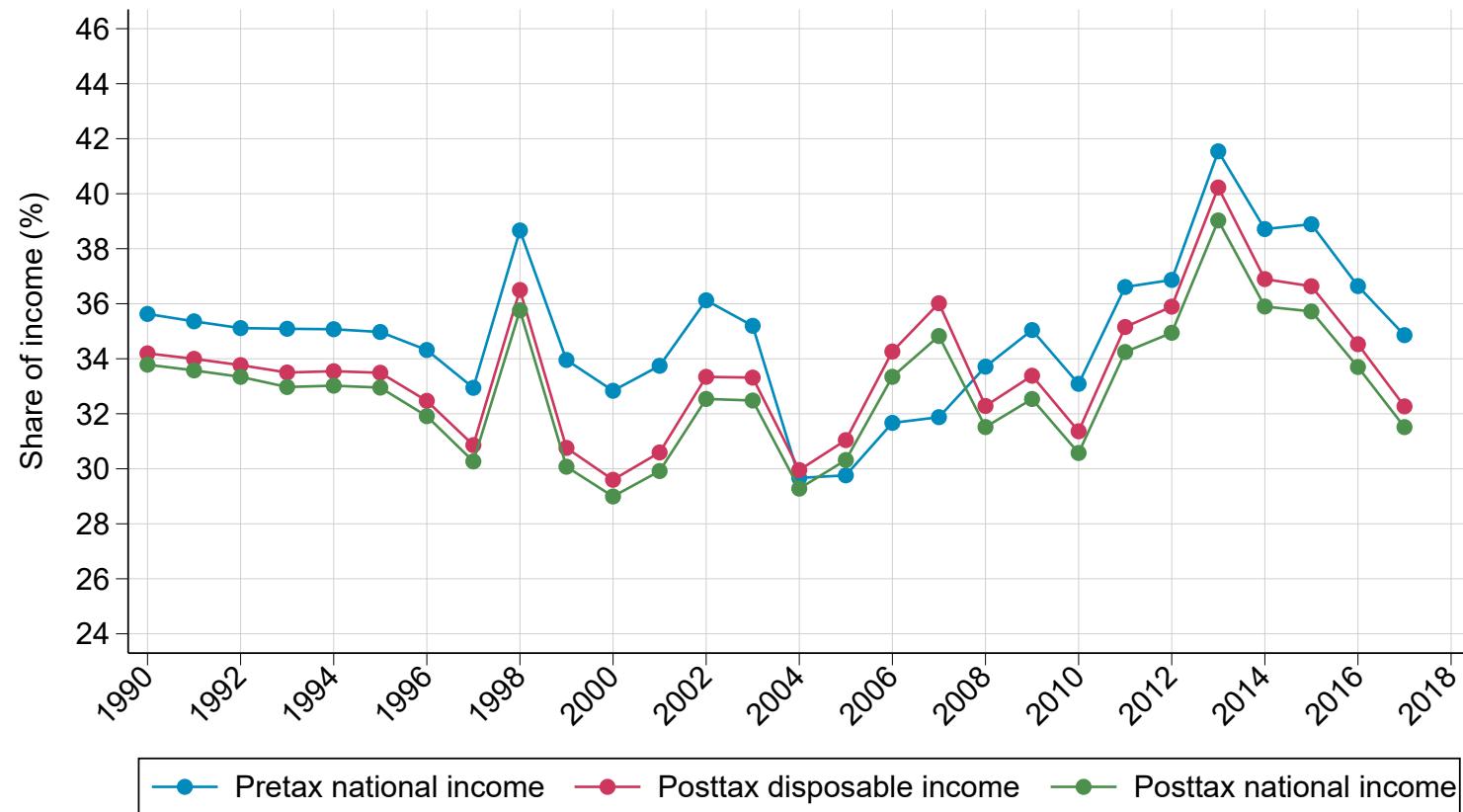
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.4.2.4  
Cyprus: from harmonized surveys to distributional national accounts  
Bottom 50% pretax income share



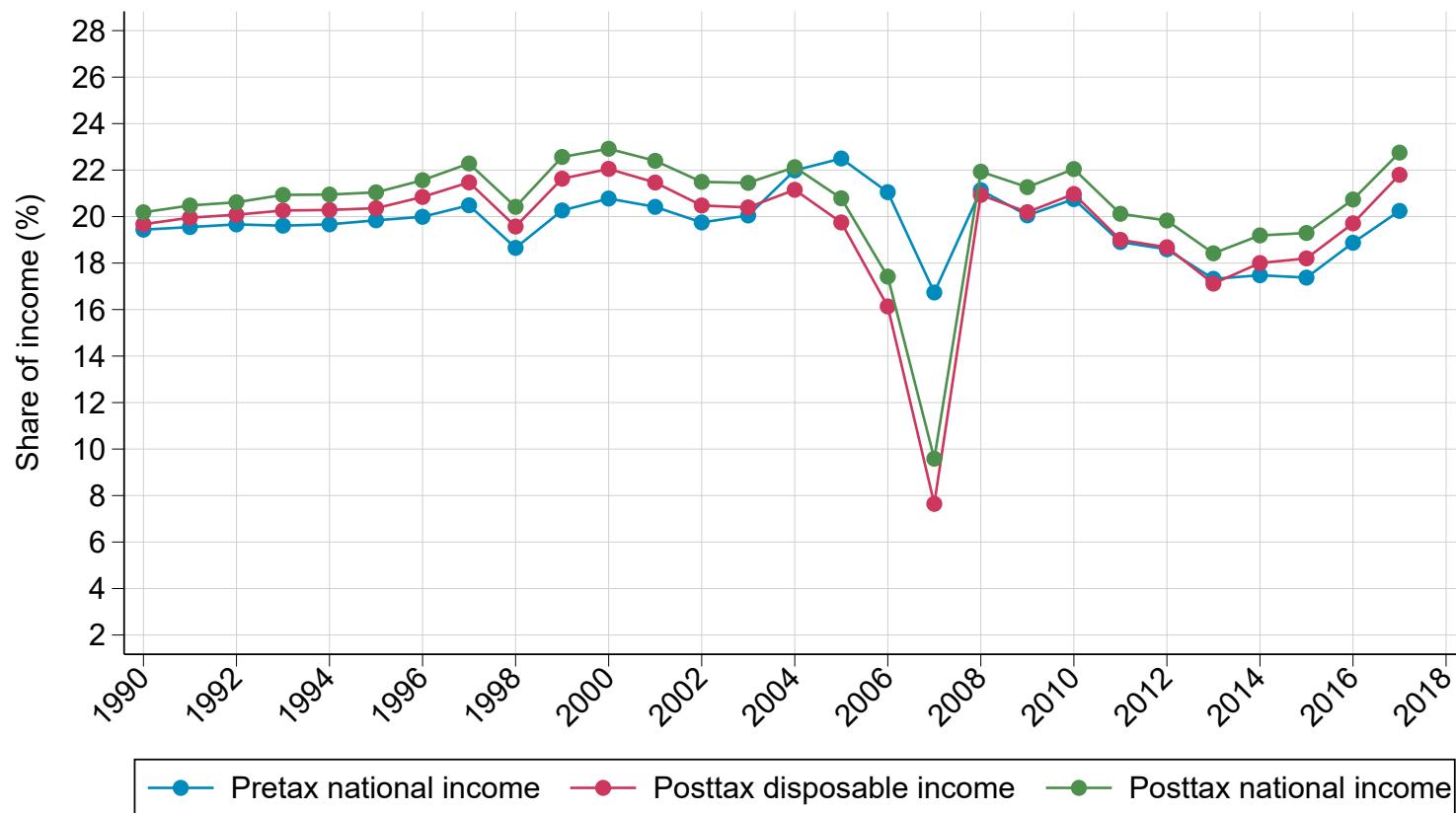
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.2.5**  
Cyprus: from pretax national income to posttax national income  
Top 10% income share



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.2.6**  
Cyprus: from pretax national income to posttax national income  
Bottom 50% income share



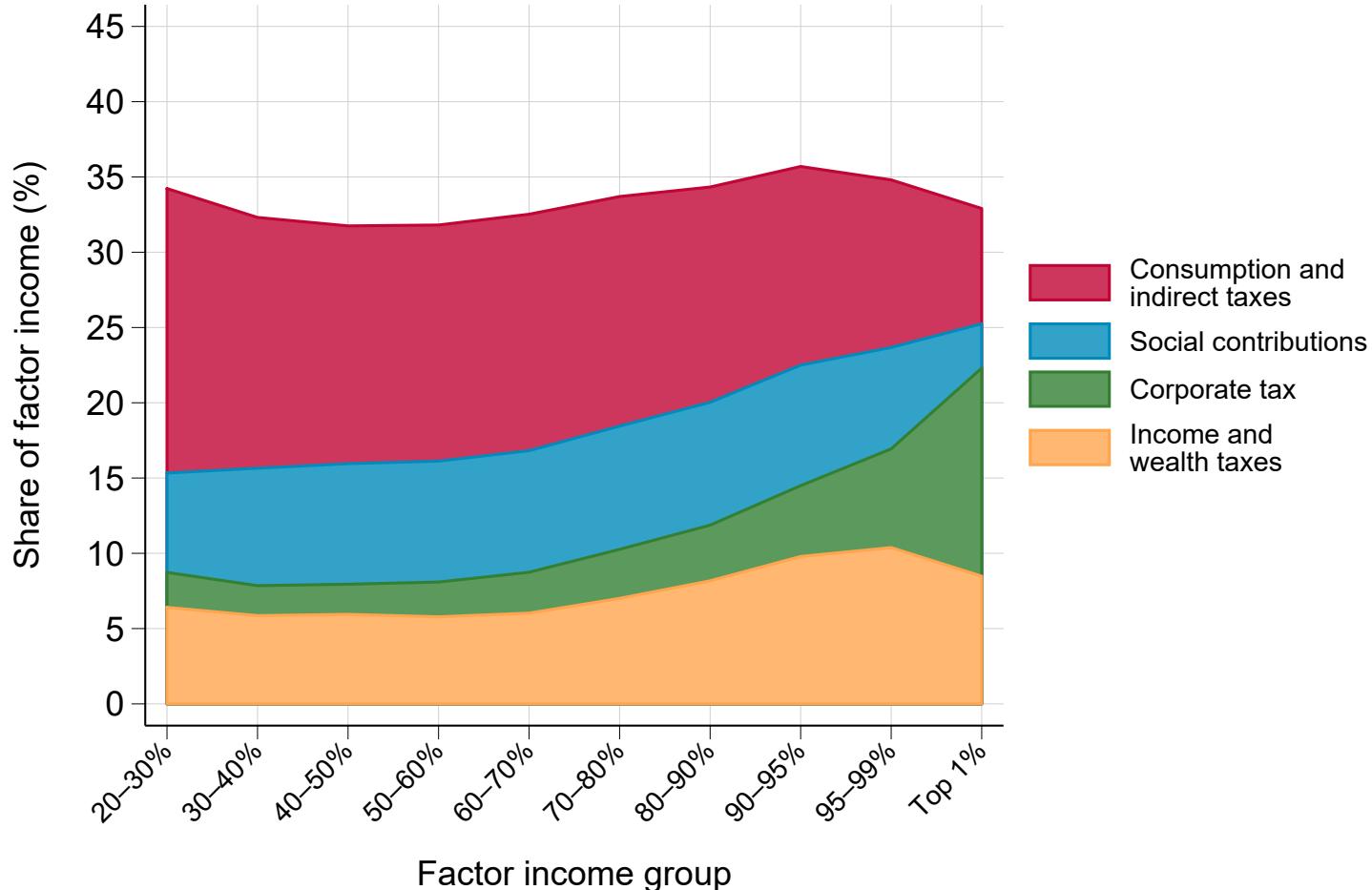
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.4.2.7  
Cyprus: distribution of taxes  
Non-contributory taxes paid as a share of pretax income



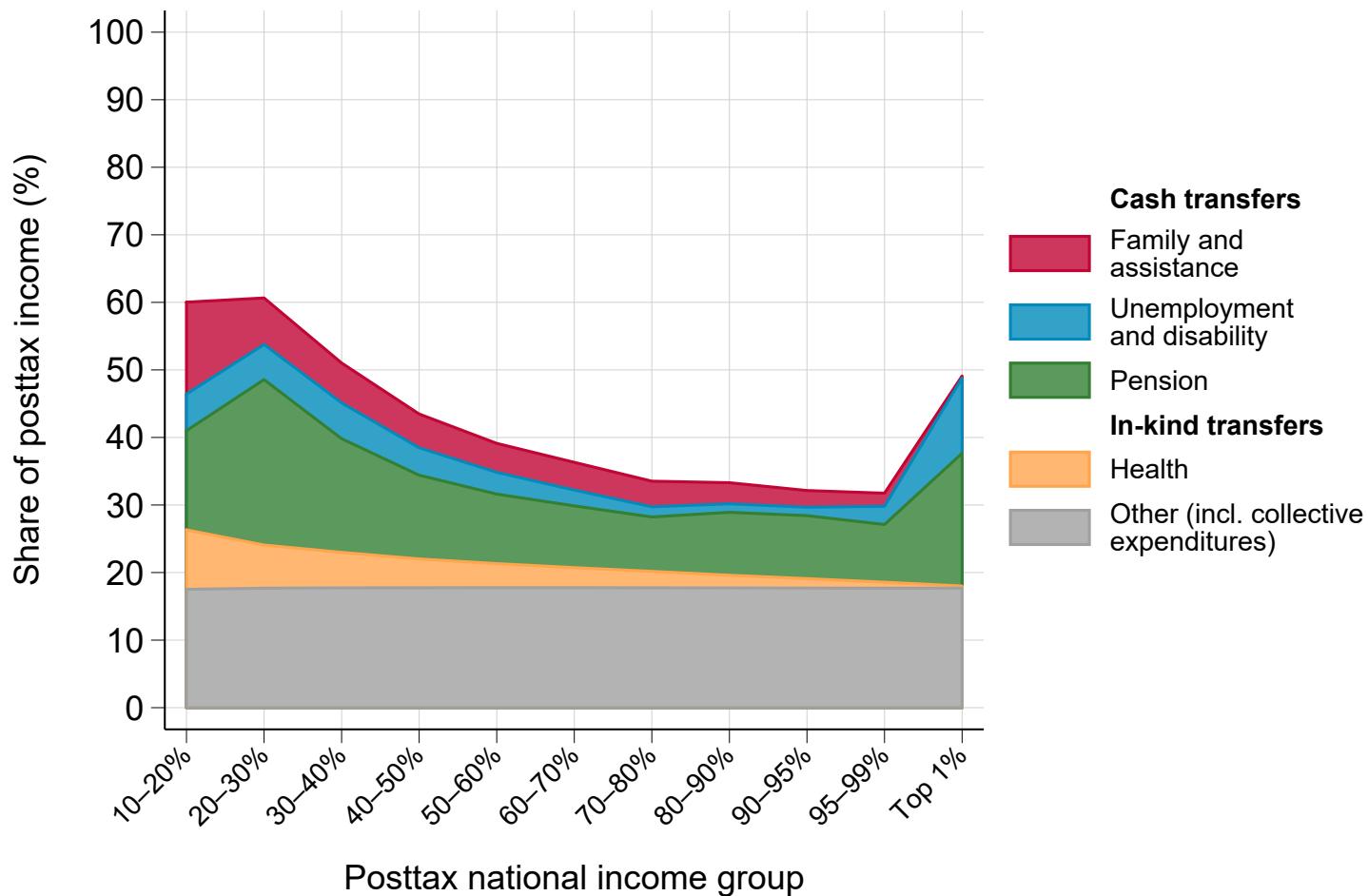
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.2.8**  
**Cyprus: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



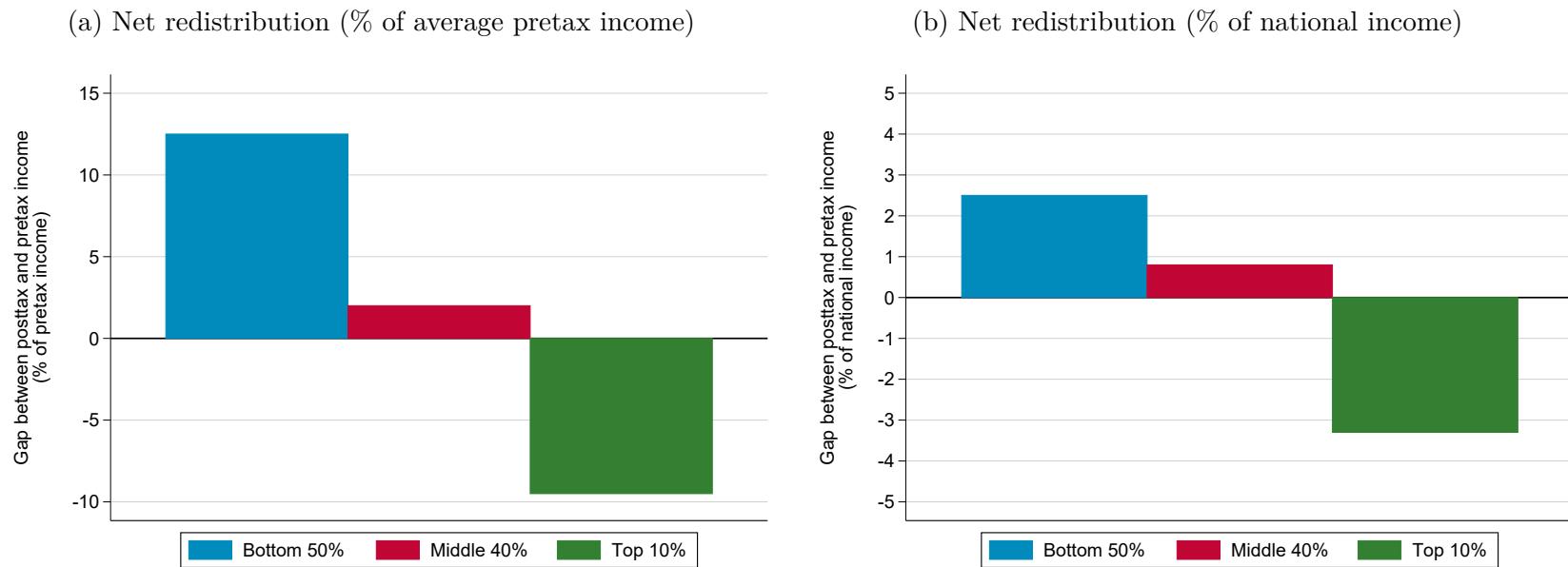
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.4.2.9**  
**Cyprus: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.2.10**  
**Cyprus: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.2.1**  
**Cyprus: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980								x	
1981								x	
1982								x	
1983								x	
1984								x	
1985								x	
1986								x	
1987								x	
1988								x	
1989								x	
1990	x							x	
1991								x	
1992								x	
1993								x	
1994								x	
1995				x		x	x	x	x
1996	x			x		x	x	x	x
1997				x		x	x	x	x
1998				x		x	x	x	x
1999				x		x	x	x	x
2000				x		x	x	x	x
2001				x		x	x	x	x
2002				x		x	x	x	x
2003				x		x	x	x	x
2004	x	x		x		x	x	x	x
2005	x	x		x		x	x	x	x
2006	x	x		x		x	x	x	x
2007	x	x		x		x	x	x	x
2008	x	x		x		x	x	x	x
2009	x	x		x		x	x	x	x
2010	x	x		x		x	x	x	x
2011	x	x		x		x	x	x	x
2012	x	x		x		x	x	x	x
2013	x	x		x		x	x	x	x
2014	x	x		x		x	x	x	x
2015	x	x		x		x	x	x	x
2016	x	x		x		x	x	x	x
2017	x	x		x		x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.2.2**  
**Cyprus: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2004–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employer contributions (OECD, 2004–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that all social contributions, and also, on average, 79.7% of income taxes, are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.3 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (SILC, 2004–2017; WYD, 1990–1996); pretax income (SILC, 2004–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 1.9 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.	
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.7 pp. higher than in the raw survey. The top 1% share of posttax income is 1.4 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCS, 2010, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	We estimate that the top 10% of pretax income earners own, on average, 28.6% of stocks, capture 15.8% of imputed rents, and account for 18.0% of consumption.	
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 3.0 pp. on average; Imputed rents decrease the top 10% share of income by 0.9 pp. on average; The corporate tax increase the top 10% share of pretax income by 1.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.8 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 0.6 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.2.3**  
**The distribution of national income in Cyprus, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€31,600	100%	€31,600	100%	€31,600	100%
Bottom 50%	€12,800	20.2%	€13,800	21.8%	€14,400	22.8%
Bottom 20%	€6,100	3.9%	€7,100	4.5%	€7,900	5.0%
Next 30%	€17,200	16.4%	€18,200	17.3%	€18,700	17.8%
Middle 40%	€35,400	44.9%	€36,300	45.9%	€36,100	45.7%
Top 10%	€110,000	34.9%	€102,000	32.3%	€99,500	31.5%
Top 1%	€305,000	9.7%	€259,000	8.2%	€252,000	8.0%
Top 0.1%	€833,000	2.6%	€632,000	2.0%	€612,000	1.9%
Top 0.01%	€2,260,000	0.7%	€1,520,000	0.5%	€1,470,000	0.5%
Top 0.001%	€6,100,000	0.2%	€3,620,000	0.1%	€3,490,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

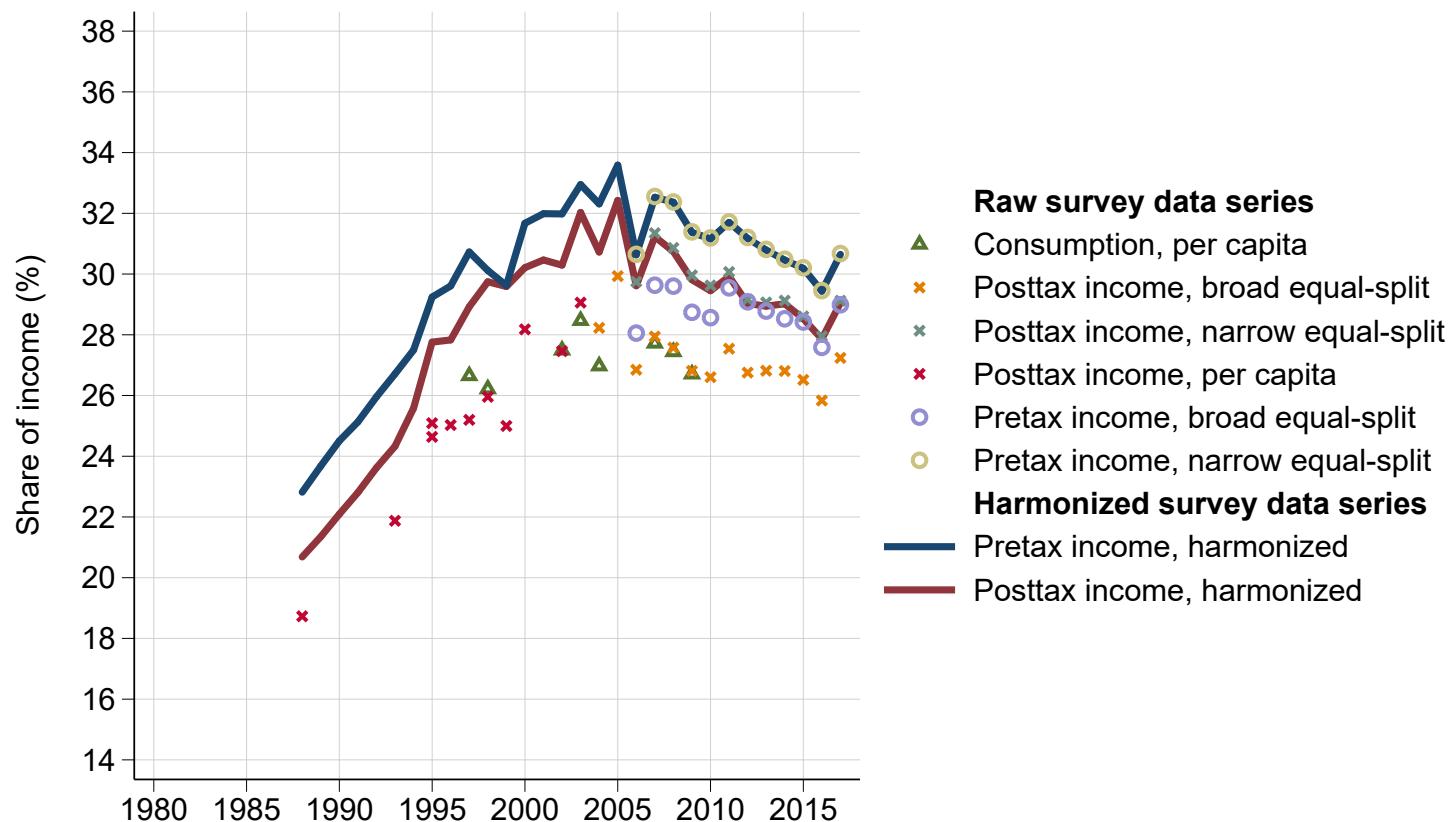
**Table A.4.2.4**  
**The distribution of national income growth in Cyprus, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.9%	-1.5%	1.9%	-1.5%	1.9%	-1.5%
Bottom 50%	2.0%	0.4%	2.2%	9.4%	2.2%	7.4%
Bottom 20%	2.1%		2.9%		2.9%	
Next 30%	2.0%	-3.0%	2.0%	-2.9%	2.0%	-2.8%
Middle 40%	1.9%	-2.8%	1.9%	-3.5%	1.9%	-3.4%
Top 10%	1.8%	-0.6%	1.7%	-2.6%	1.7%	-2.5%
Top 1%	1.7%	0.3%	1.4%	-3.1%	1.4%	-3.0%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

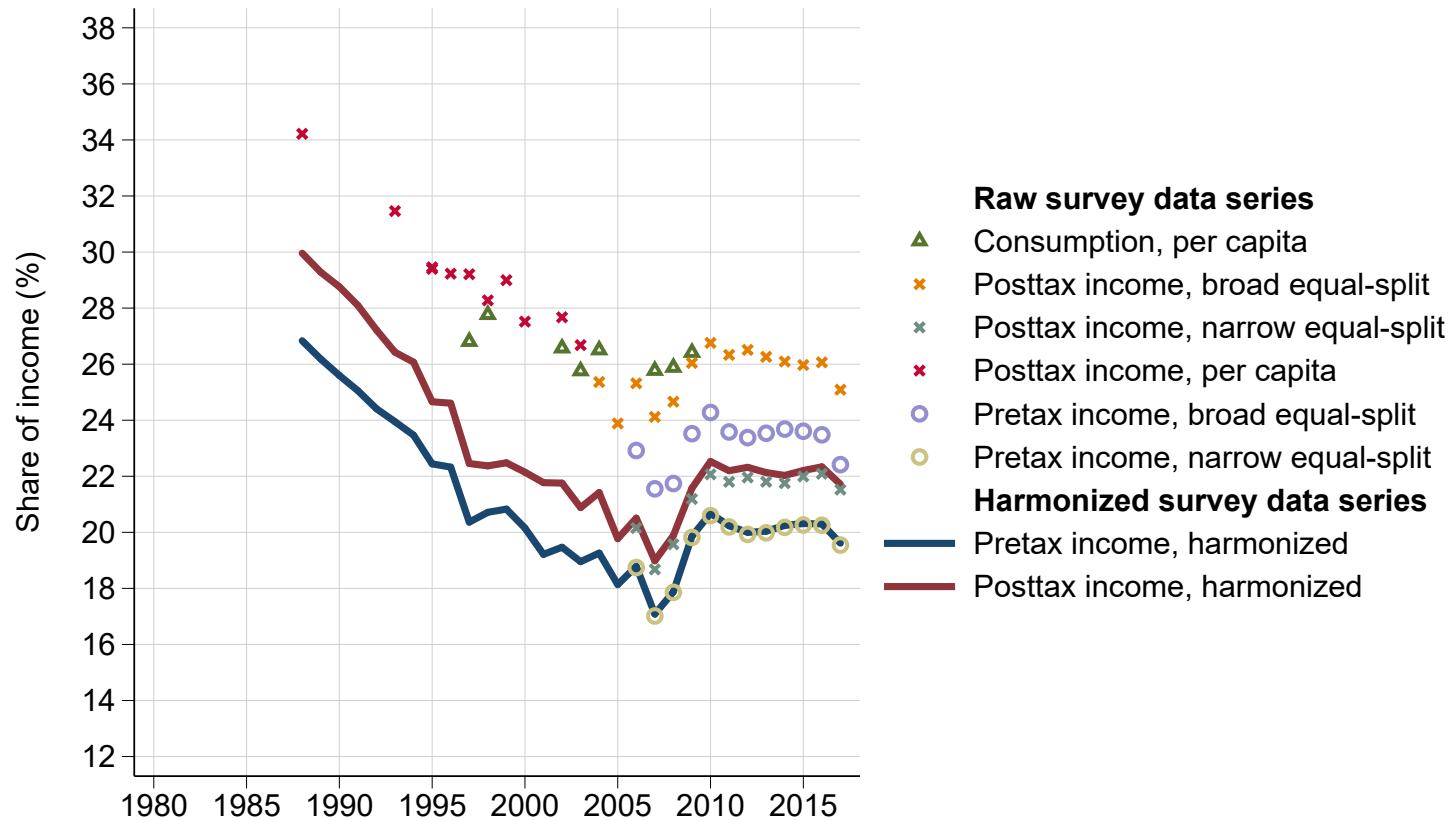
### 4.3 Latvia

**Figure A.4.3.1**  
**Latvia: harmonization of survey data**  
**Top 10% pretax income share**



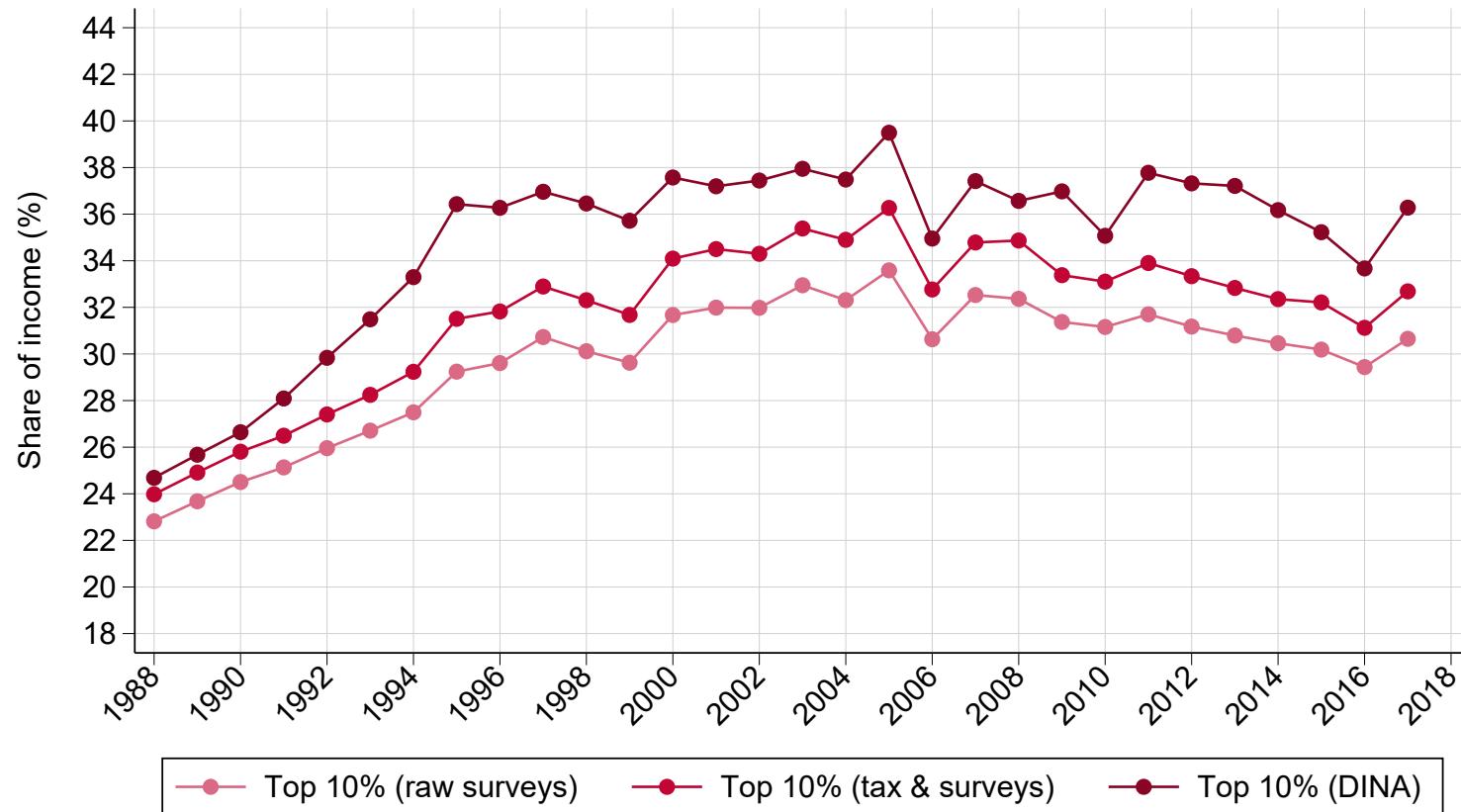
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.3.2**  
**Latvia: harmonization of survey data**  
**Bottom 50% pretax income share**



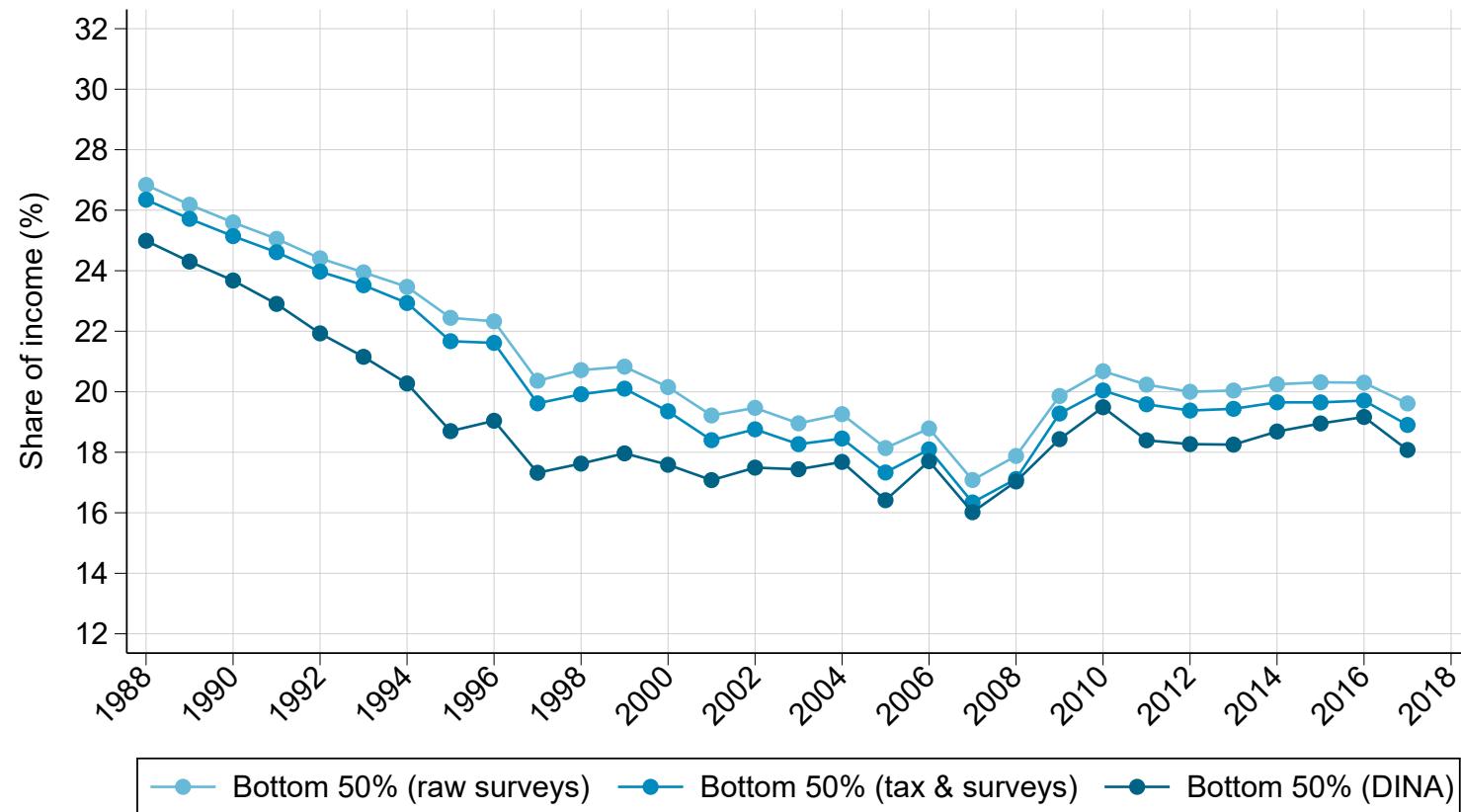
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.3.3**  
**Latvia: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



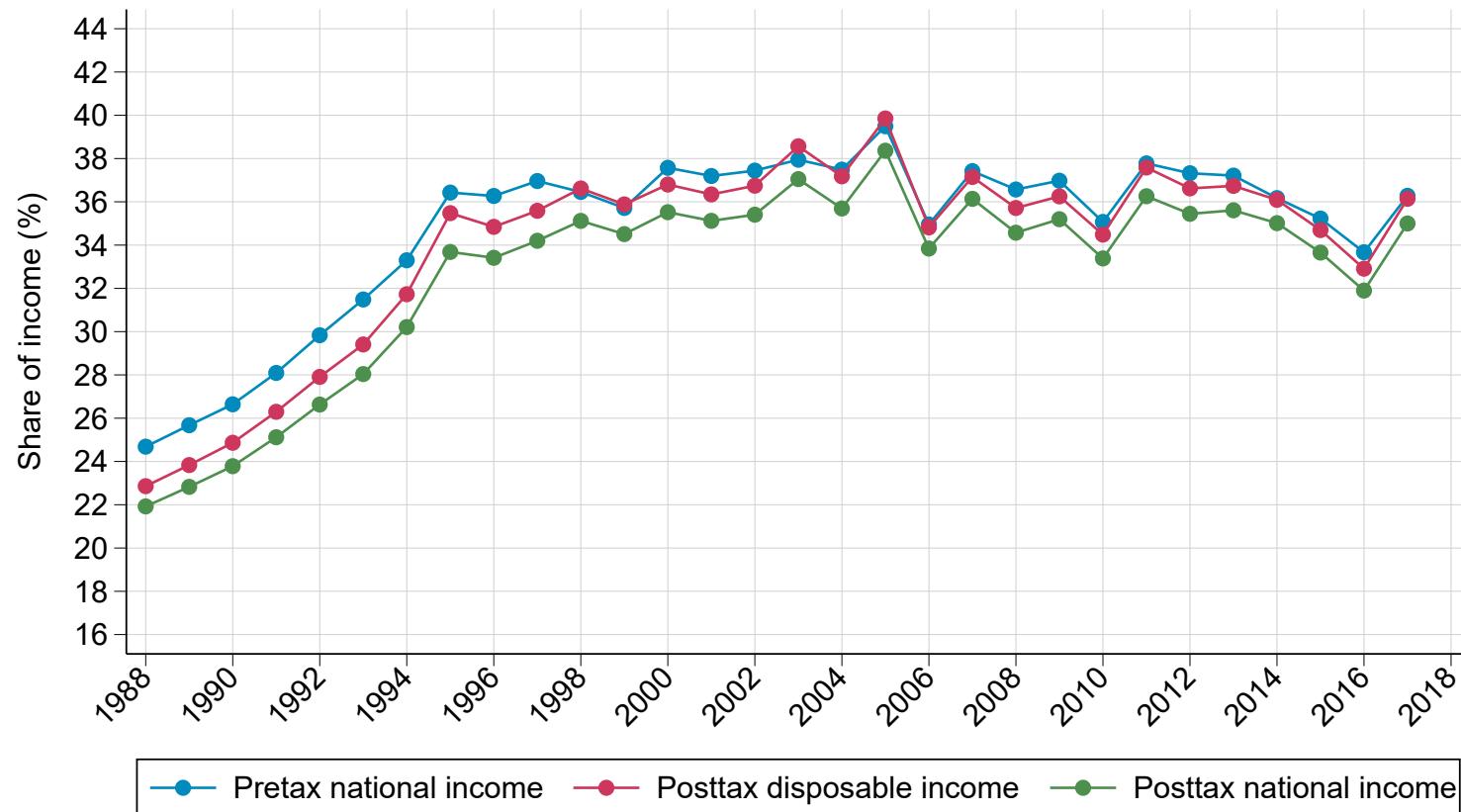
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.3.4**  
**Latvia: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



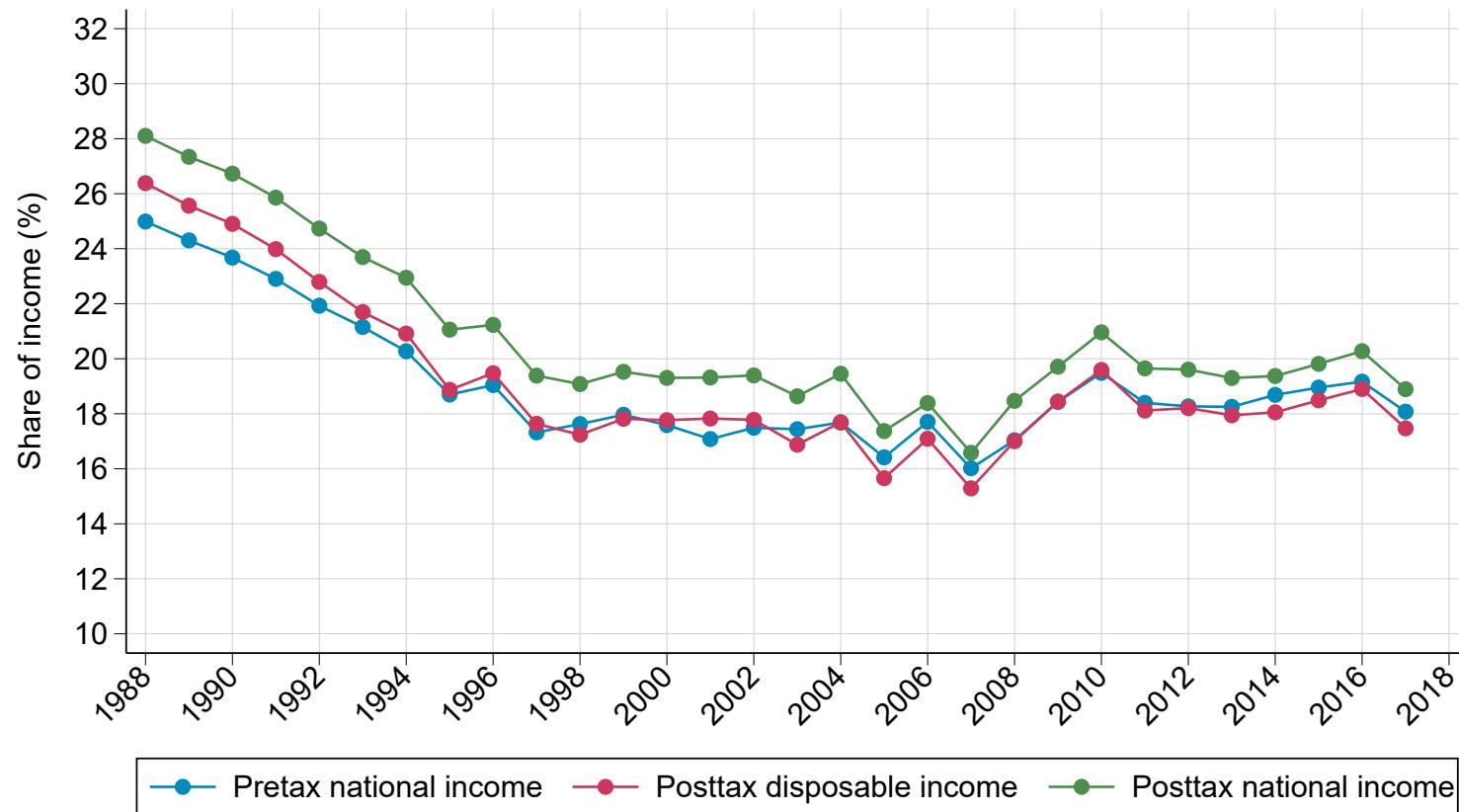
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.3.5**  
**Latvia: from pretax national income to posttax national income**  
**Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.3.6**  
**Latvia: from pretax national income to posttax national income**  
**Bottom 50% income share**



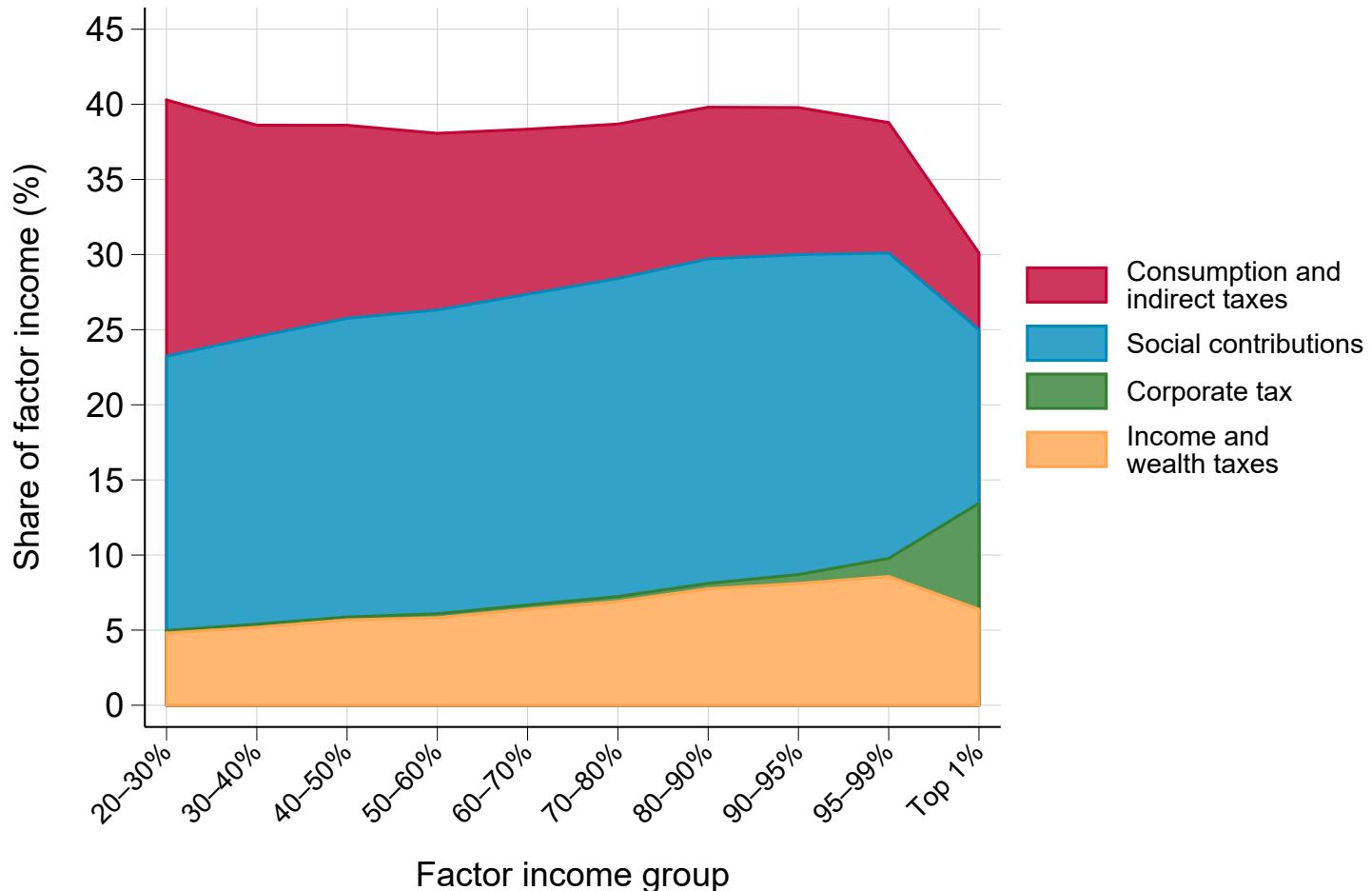
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.4.3.7  
Latvia: distribution of taxes  
Non-contributory taxes paid as a share of pretax income



Notes. The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.3.8**  
**Latvia: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

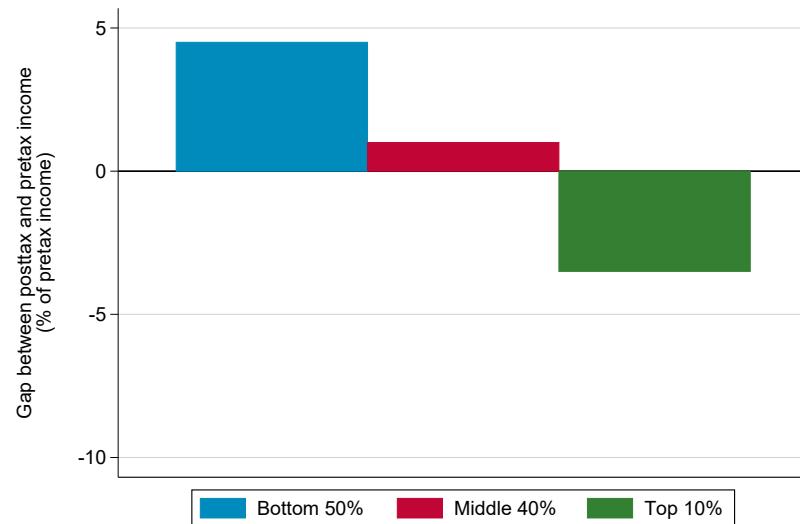
Figure A.4.3.9  
Latvia: distribution of transfers



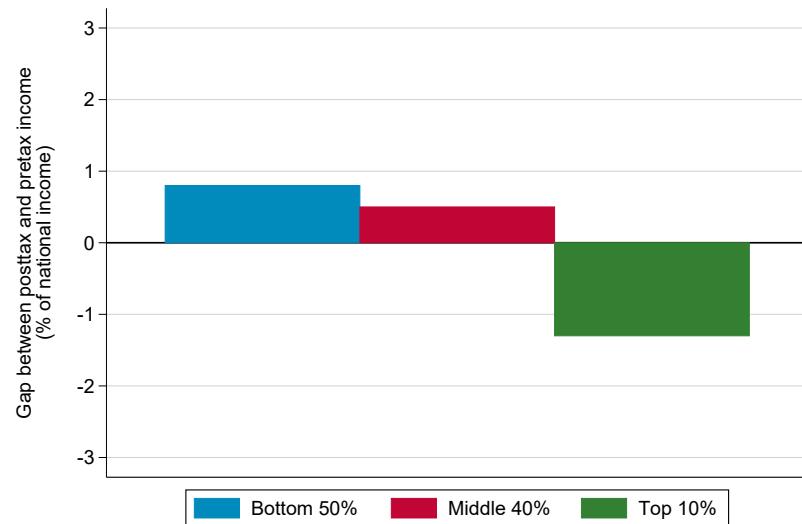
*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.3.10**  
**Latvia: net redistribution operated by the tax-and-transfer system**

(a) Net redistribution (% of average pretax income)



(b) Net redistribution (% of national income)



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.3.1**  
**Latvia: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988	x								
1989									
1990									
1991									
1992									
1993	x								
1994									
1995	x				x	x	x		x
1996	x				x	x	x		x
1997	x				x	x	x		x
1998	x				x	x	x		x
1999	x				x	x	x		x
2000	x				x	x	x		x
2001			x		x	x	x	x	x
2002	x		x		x	x	x	x	x
2003	x		x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x	x	x	x	x	x	x	x
2017	x	x	x	x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.3.2**  
**Latvia: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (pretax, 2006–2017; posttax, 2004–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2006–2017); Employer contributions (EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 95.4% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.7 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010; PovcalNet, 1997–2009); posttax income (SILC, 2004–2017; Milanovic 1998, 1995; PovcalNet, 1988–1996; Transmonee 2004, 1997–2002; Transmonee 2005, 2003); pretax income (SILC, 2006–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 1.6 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.	
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.4 pp. higher than in the raw survey. The top 1% share of posttax income is 1.0 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCS, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	We estimate that the top 10% of pretax income earners own, on average, 27.4% of stocks, capture 17.3% of imputed rents, and account for 21.5% of consumption.	
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 1.3 pp. on average; Imputed rents increase the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.4 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.3.3**  
**The distribution of national income in Latvia, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€20,200	100%	€20,200	100%	€20,200	100%
Bottom 50%	€7,300	18.1%	€7,100	17.5%	€7,600	18.9%
Bottom 20%	€3,700	3.6%	€3,100	3.1%	€3,900	3.8%
Next 30%	€9,700	14.4%	€9,700	14.4%	€10,200	15.1%
Middle 40%	€23,100	45.6%	€23,400	46.4%	€23,300	46.1%
Top 10%	€73,400	36.3%	€73,100	36.1%	€70,800	35.0%
Top 1%	€224,000	11.1%	€214,000	10.6%	€206,000	10.2%
Top 0.1%	€692,000	3.4%	€629,000	3.1%	€603,000	3.0%
Top 0.01%	€2,150,000	1.1%	€1,850,000	0.9%	€1,770,000	0.9%
Top 0.001%	€6,710,000	0.3%	€5,440,000	0.3%	€5,210,000	0.3%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

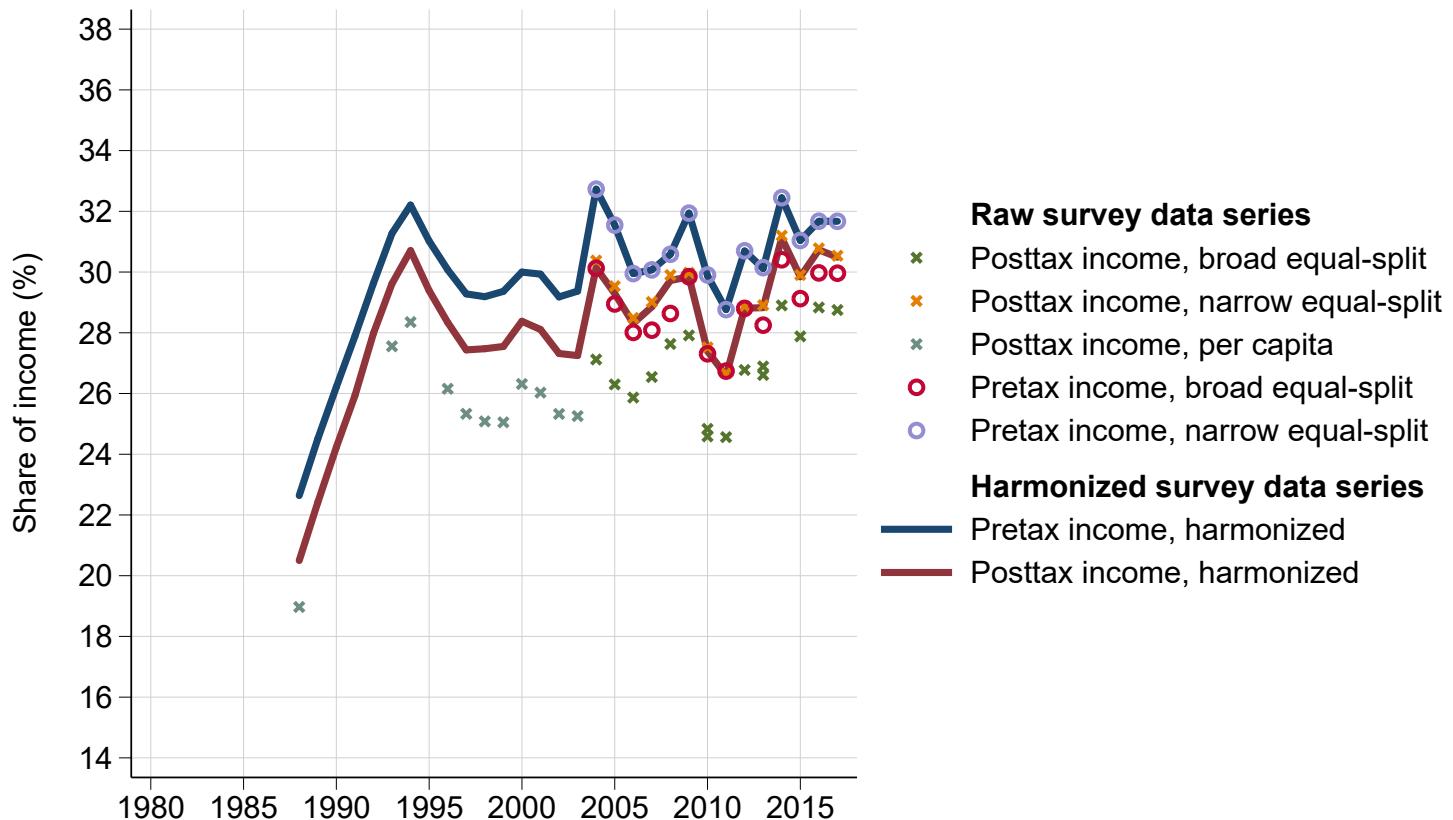
**Table A.4.3.4**  
**The distribution of national income growth in Latvia, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Bottom 50%	0.2%	2.4%	-0.1%	2.5%	0.0%	2.5%
Bottom 20%	0.0%	2.3%	-0.6%	3.8%	-0.5%	3.5%
Next 30%	0.2%	2.4%	0.1%	2.2%	0.1%	2.2%
Middle 40%	0.8%	0.9%	0.8%	0.9%	0.8%	0.9%
Top 10%	2.1%	0.8%	2.3%	0.9%	2.3%	0.8%
Top 1%	3.4%	1.4%	3.7%	1.7%	3.7%	1.6%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

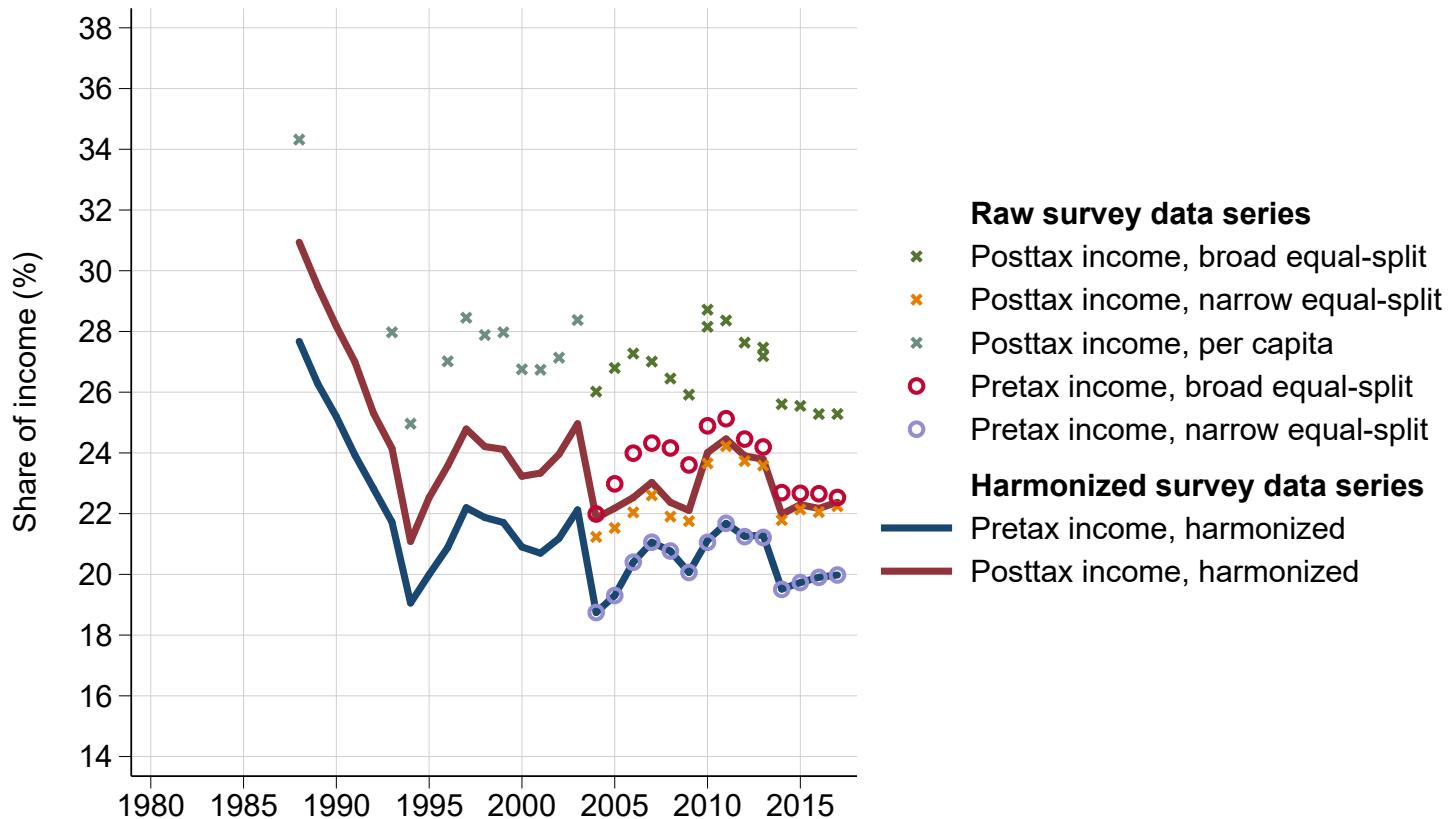
## 4.4 Lithuania

Figure A.4.4.1  
Lithuania: harmonization of survey data  
Top 10% pretax income share



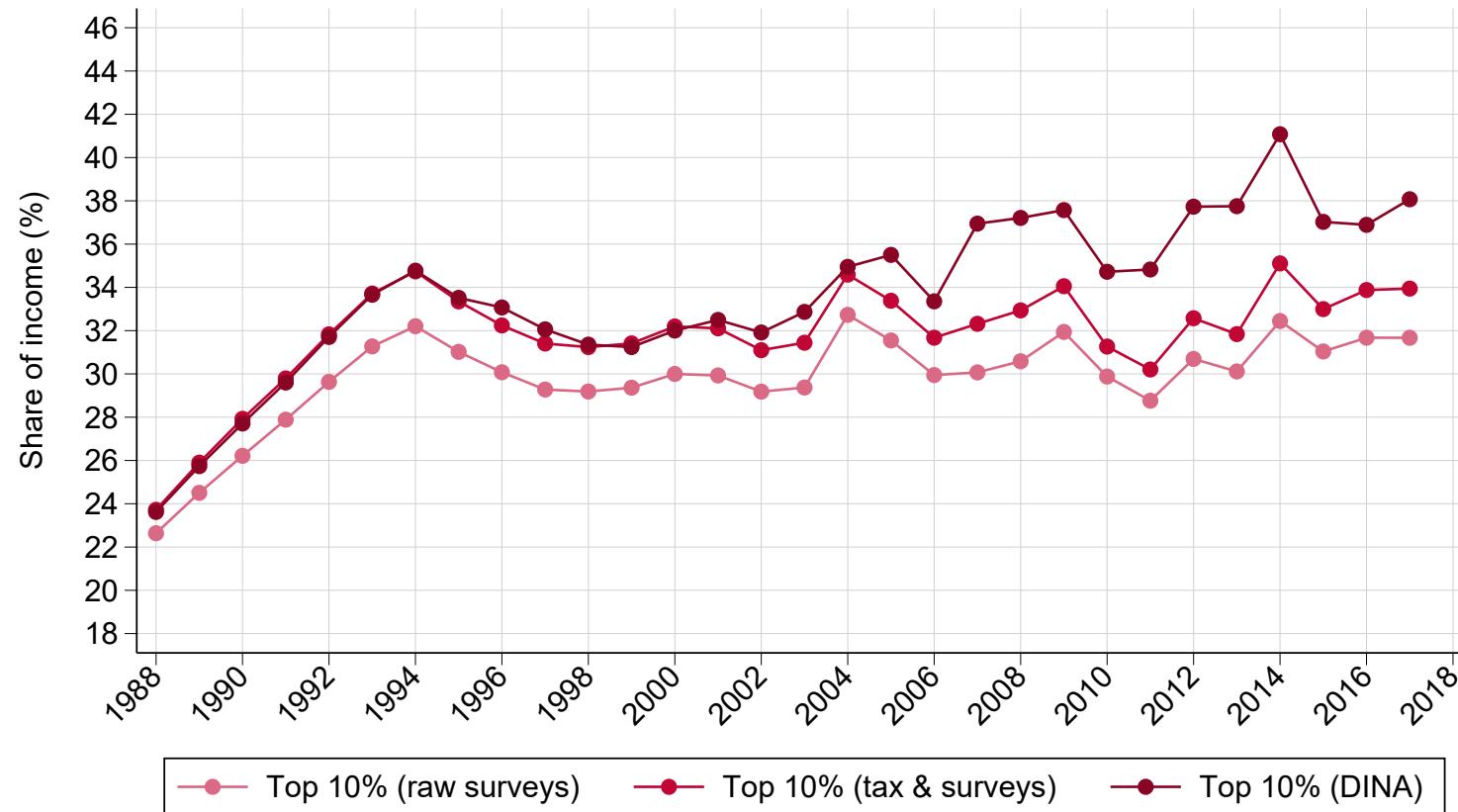
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.4.2**  
**Lithuania: harmonization of survey data**  
**Bottom 50% pretax income share**



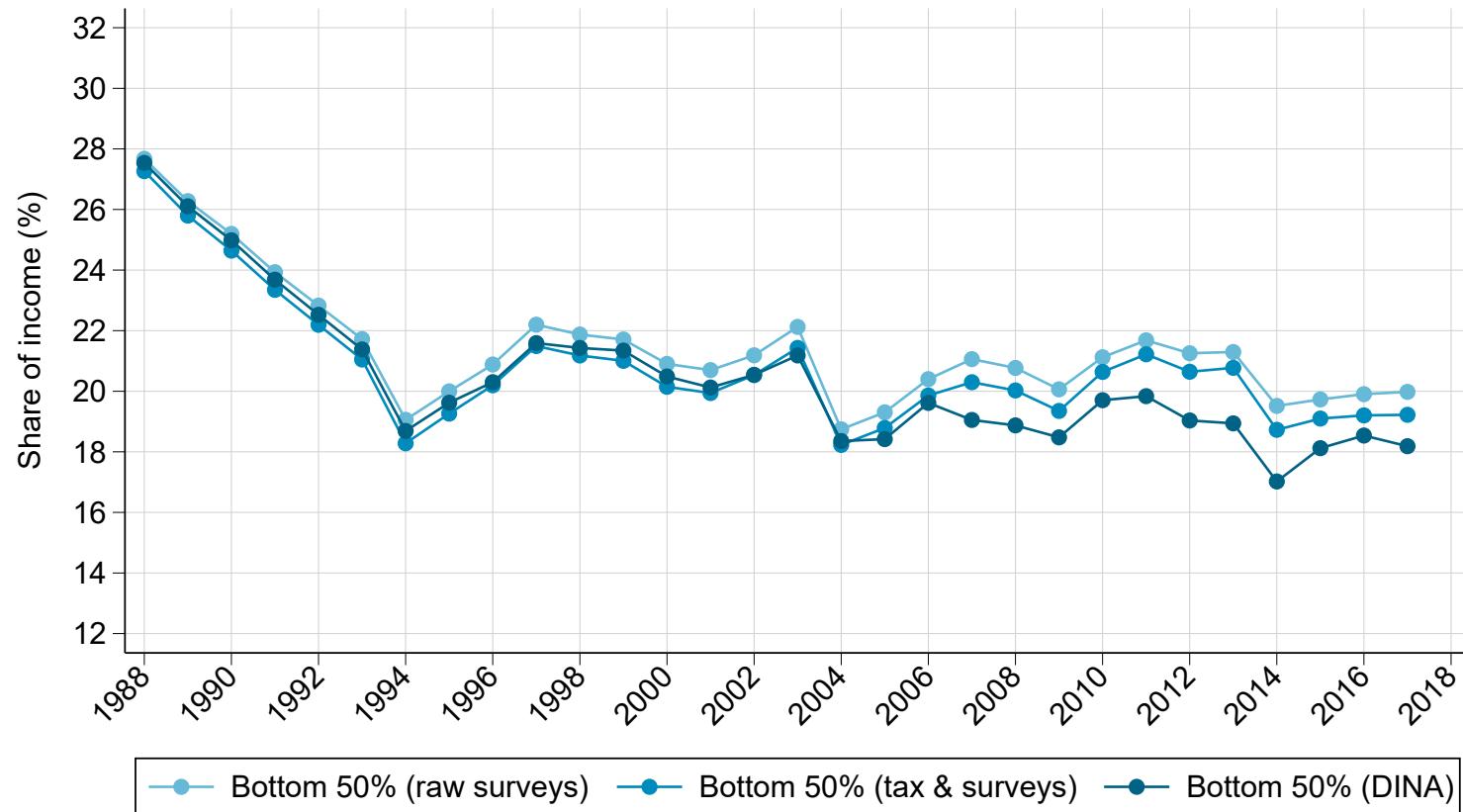
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.4.4.3  
Lithuania: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



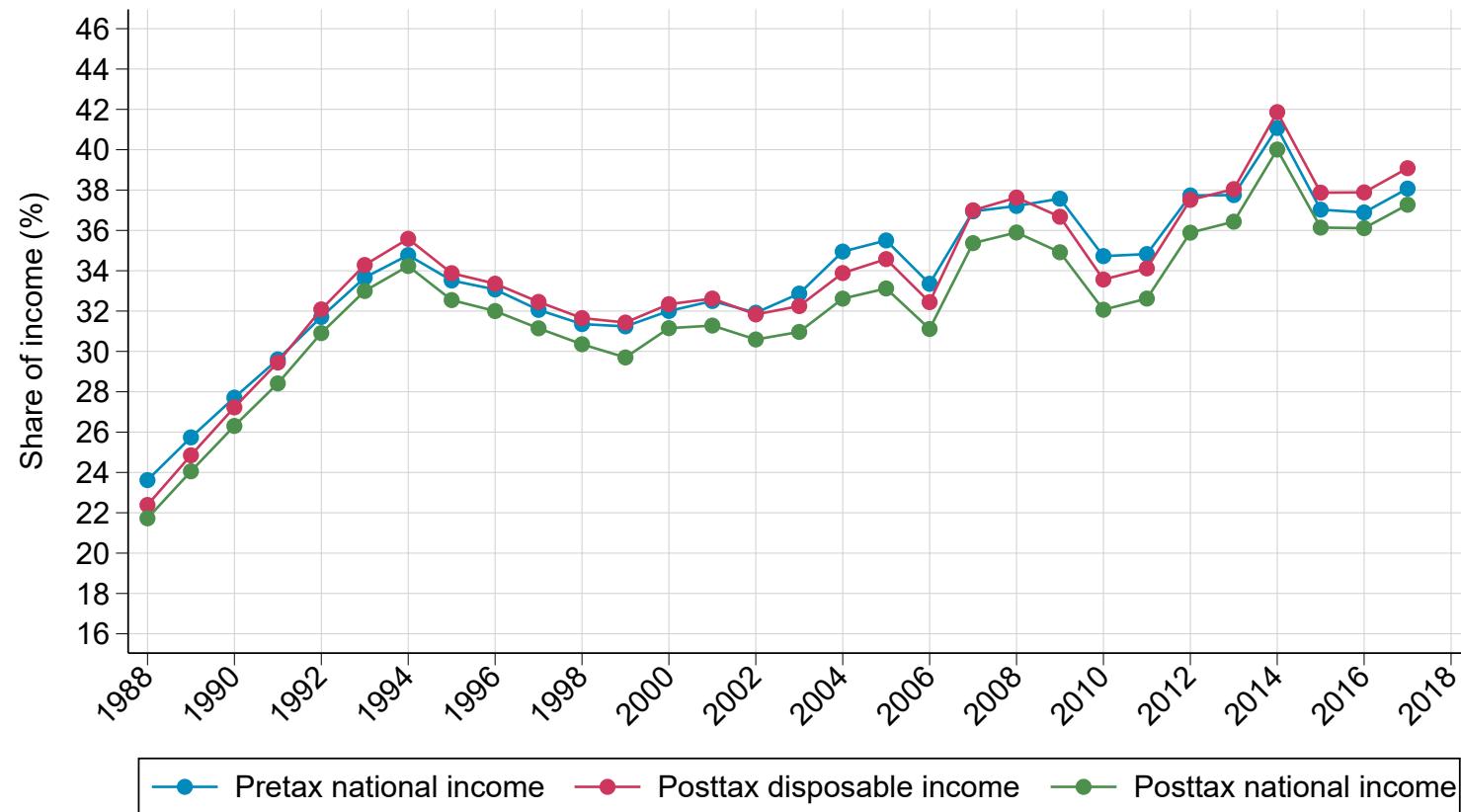
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.4.4**  
**Lithuania: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



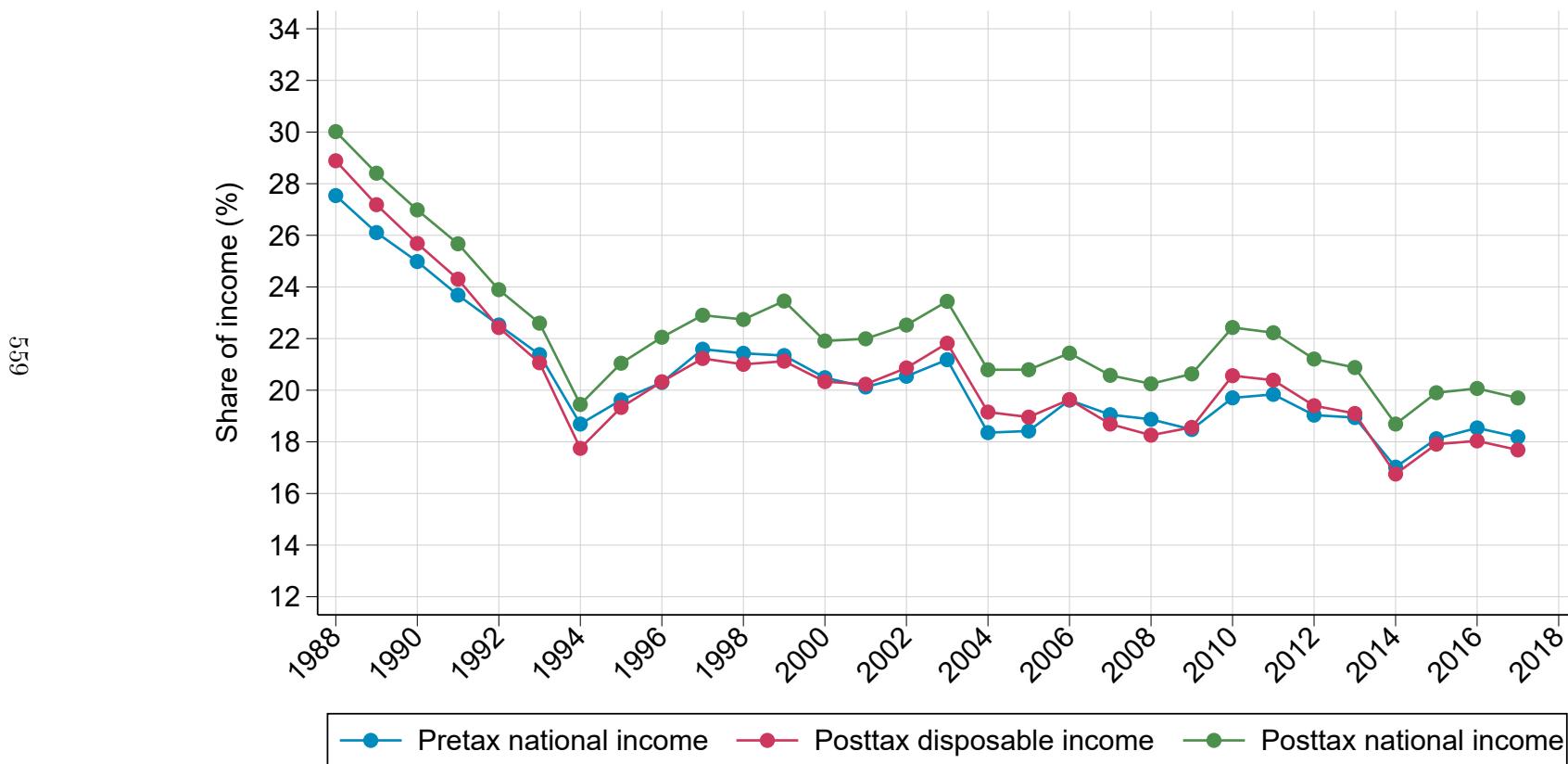
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.4.4.5  
Lithuania: from pretax national income to posttax national income  
Top 10% income share



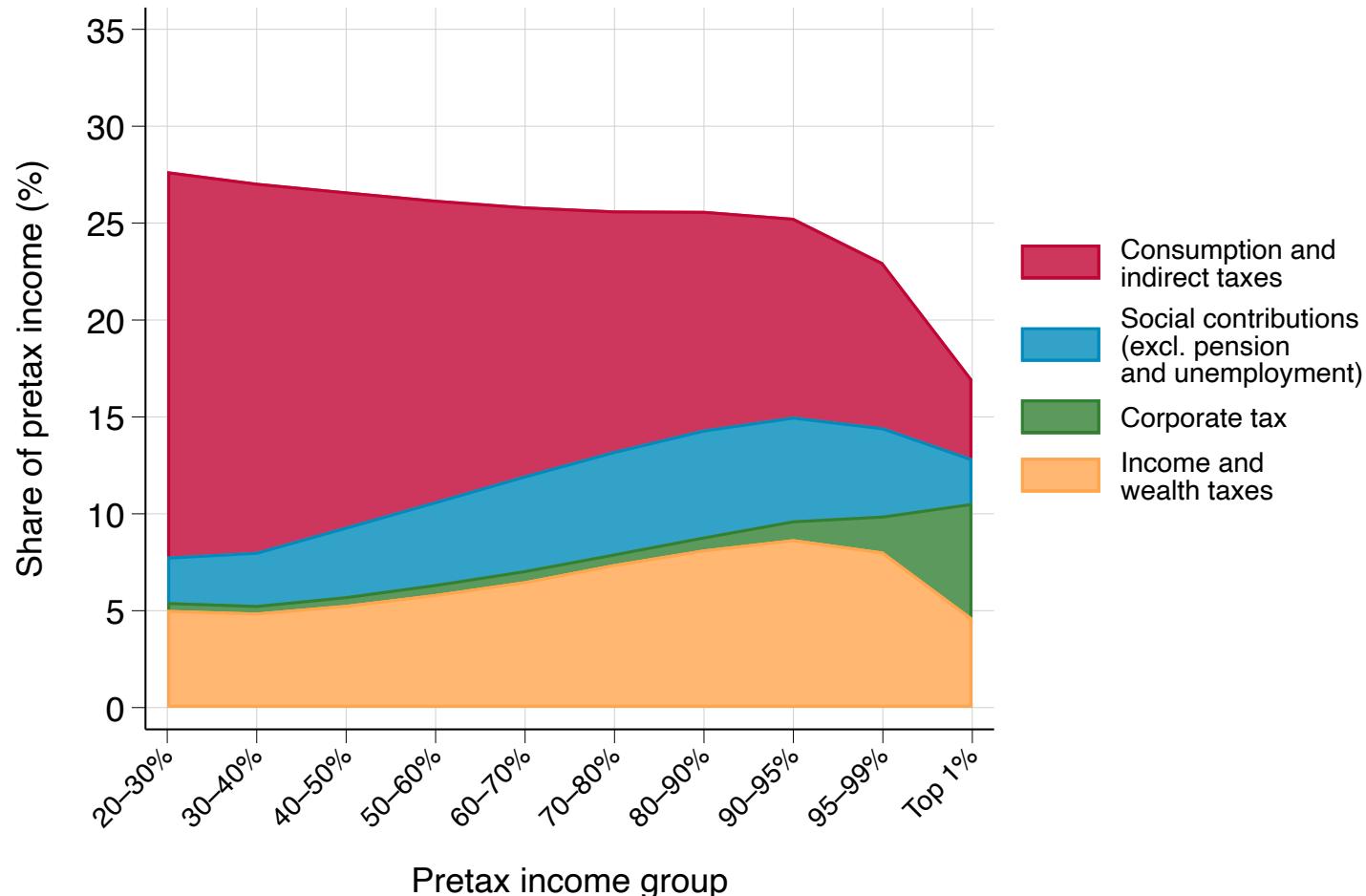
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.4.6**  
Lithuania: from pretax national income to posttax national income  
**Bottom 50% income share**



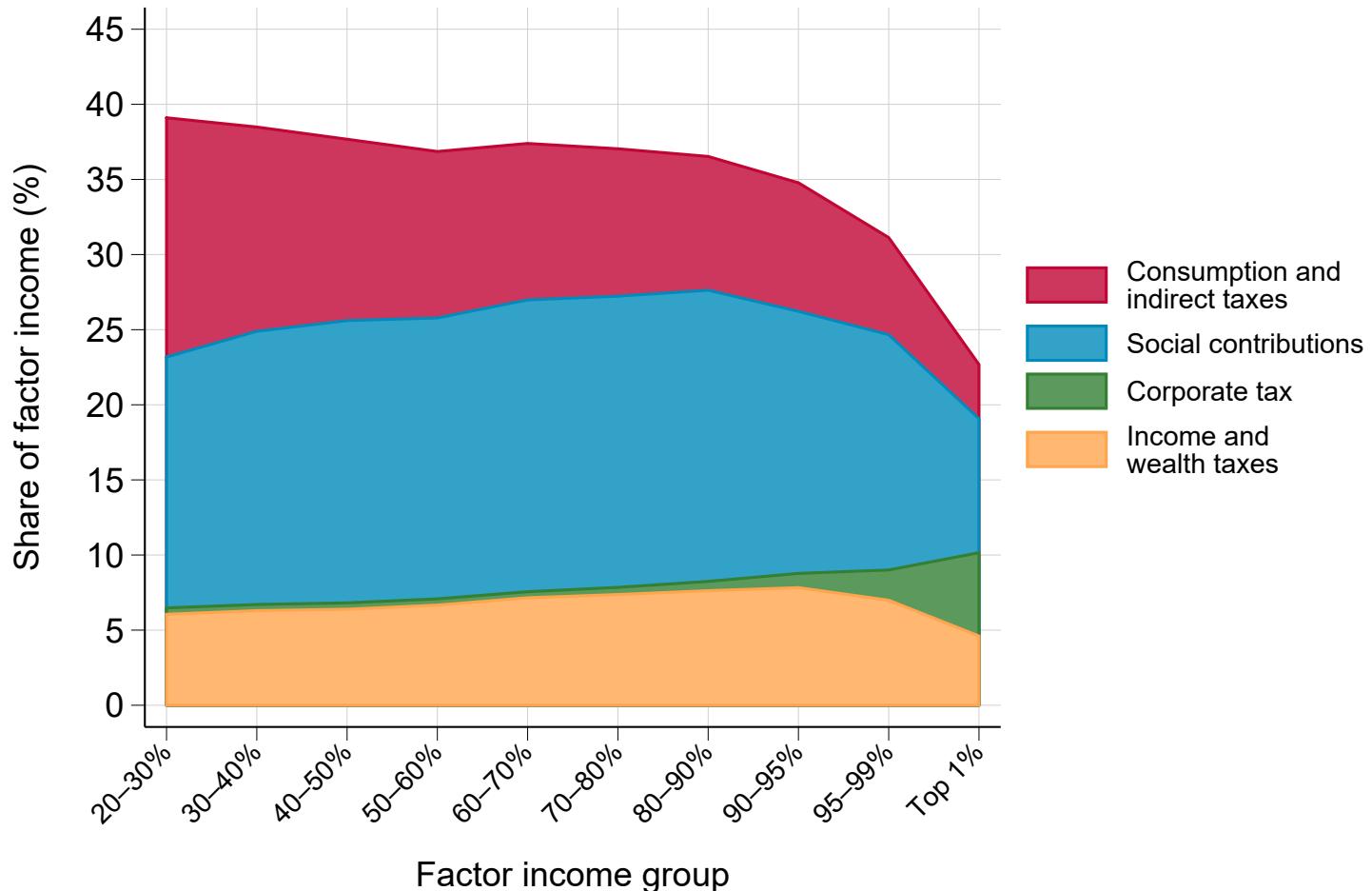
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.4.7**  
**Lithuania: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



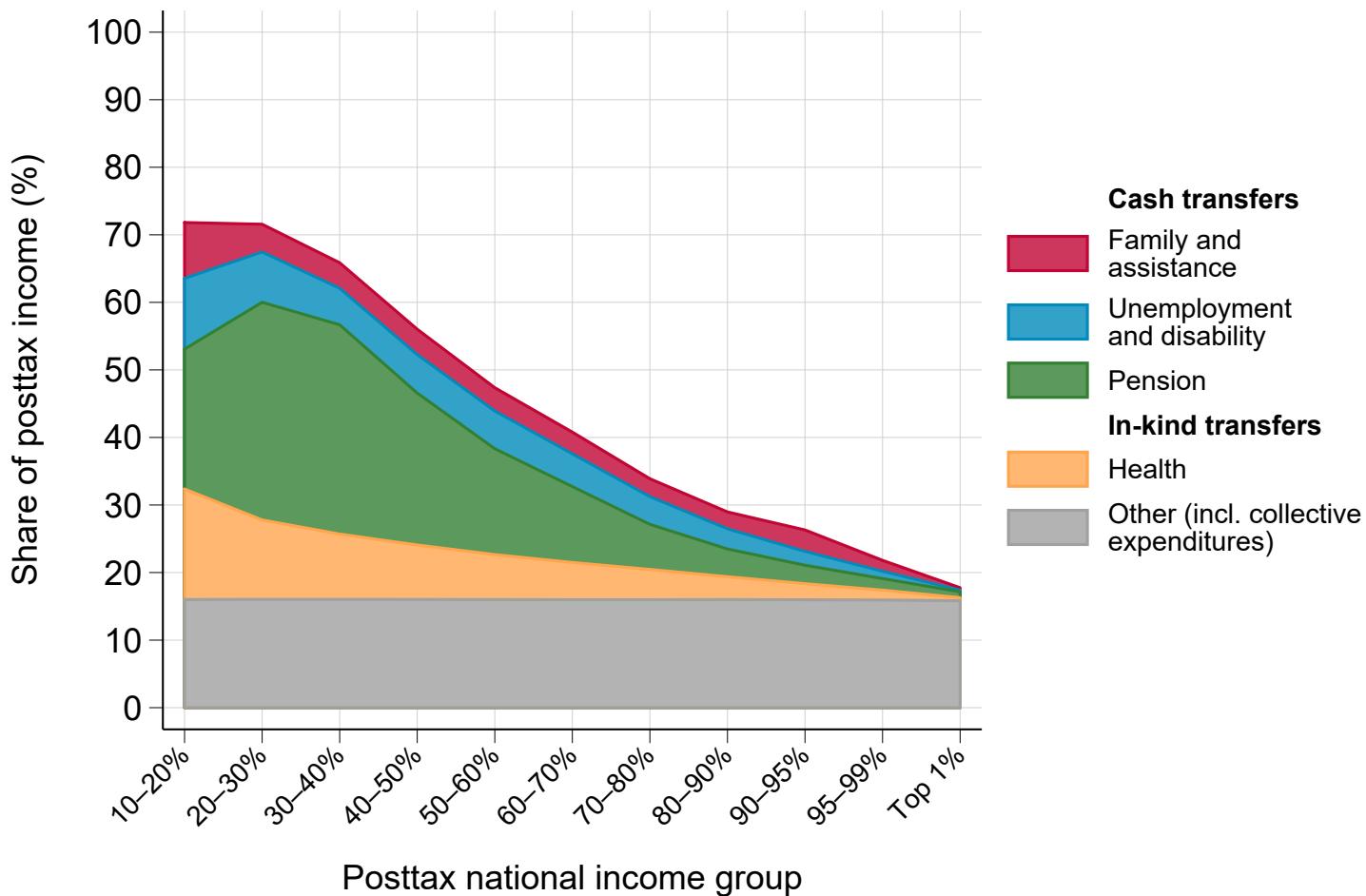
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.4.8**  
**Lithuania: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



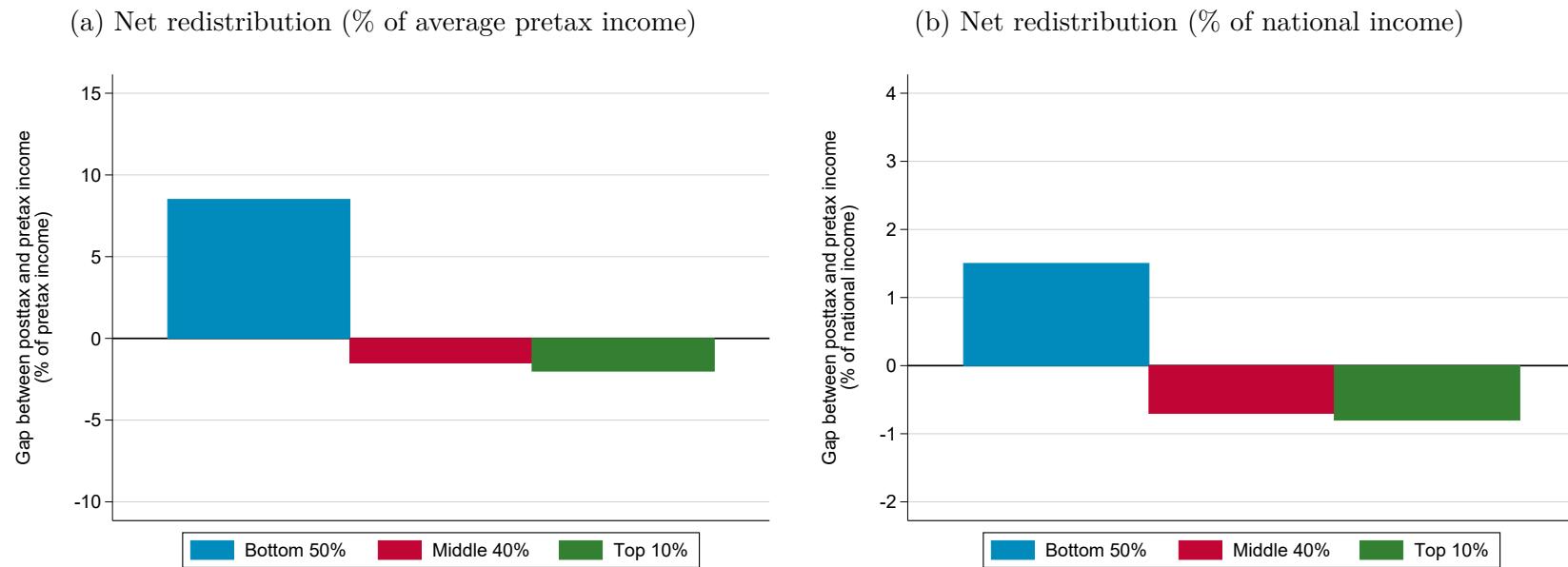
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.4.4.9**  
Lithuania: distribution of transfers



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.4.10**  
**Lithuania: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.4.1**  
**Lithuania: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988	x								
1989									
1990									
1991									
1992									
1993	x								
1994	x								
1995			x	x	x	x	x	x	x
1996	x		x	x	x	x	x	x	x
1997	x		x	x	x	x	x	x	x
1998	x		x	x	x	x	x	x	x
1999	x		x	x	x	x	x	x	x
2000	x		x	x	x	x	x	x	x
2001	x		x	x	x	x	x	x	x
2002	x		x	x	x	x	x	x	x
2003	x		x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005	x	x	x	x	x	x	x	x	x
2006	x	x	x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x	x	x	x	x	x	x	x
2017	x	x	x	x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.4.2**  
**Lithuania: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.  Imputation of social contributions.	EU-SILC (2004–2017)  Employee contributions (OECD, 2004–2017); Employer contributions (OECD, 2004–2005, EU-SILC, 2006–2017)	See section 1.2.1.  See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 78.1% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.2 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 2010–2013; SILC, 2004–2017; Milanovic 1998 (raw), 1994; PovcalNet, 1988–1993; Transmonee 2004, 1998–2000; Transmonee 2005, 2003; Transmonee 2011, 1996–2002); pretax income (SILC, 2004–2017)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 1.8 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.  See section 1.4.3.	See section 1.4.2.	After corrections using tax data, the top 1% share of pretax income is 1.4 pp. higher than in the raw survey. The top 1% share of posttax income is 1.1 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.	HFCS, 2016 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)	See section 1.5.	We estimate that the top 10% of pretax income earners own, on average, 29.3% of stocks, capture 17.0% of imputed rents, and account for 18.1% of consumption.  Undistributed corporate profits increase the top 10% share of income by 1.4 pp. on average; Imputed rents decrease the top 10% share of income by 0.2 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.3 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.8 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.2 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.4.3**  
**The distribution of national income in Lithuania, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€25,900	100%	€25,900	100%	€25,900	100%
Bottom 50%	€9,400	18.2%	€9,200	17.7%	€10,200	19.7%
Bottom 20%	€4,800	3.7%	€4,300	3.3%	€5,700	4.4%
Next 30%	€12,500	14.5%	€12,400	14.4%	€13,300	15.3%
Middle 40%	€28,400	43.7%	€28,000	43.2%	€27,900	43.0%
Top 10%	€98,700	38.1%	€101,000	39.1%	€96,700	37.3%
Top 1%	€314,000	12.1%	€338,000	13.1%	€316,000	12.2%
Top 0.1%	€996,000	3.8%	€1,130,000	4.4%	€1,040,000	4.0%
Top 0.01%	€3,170,000	1.2%	€3,780,000	1.5%	€3,390,000	1.3%
Top 0.001%	€10,060,000	0.4%	€12,610,000	0.5%	€11,090,000	0.4%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

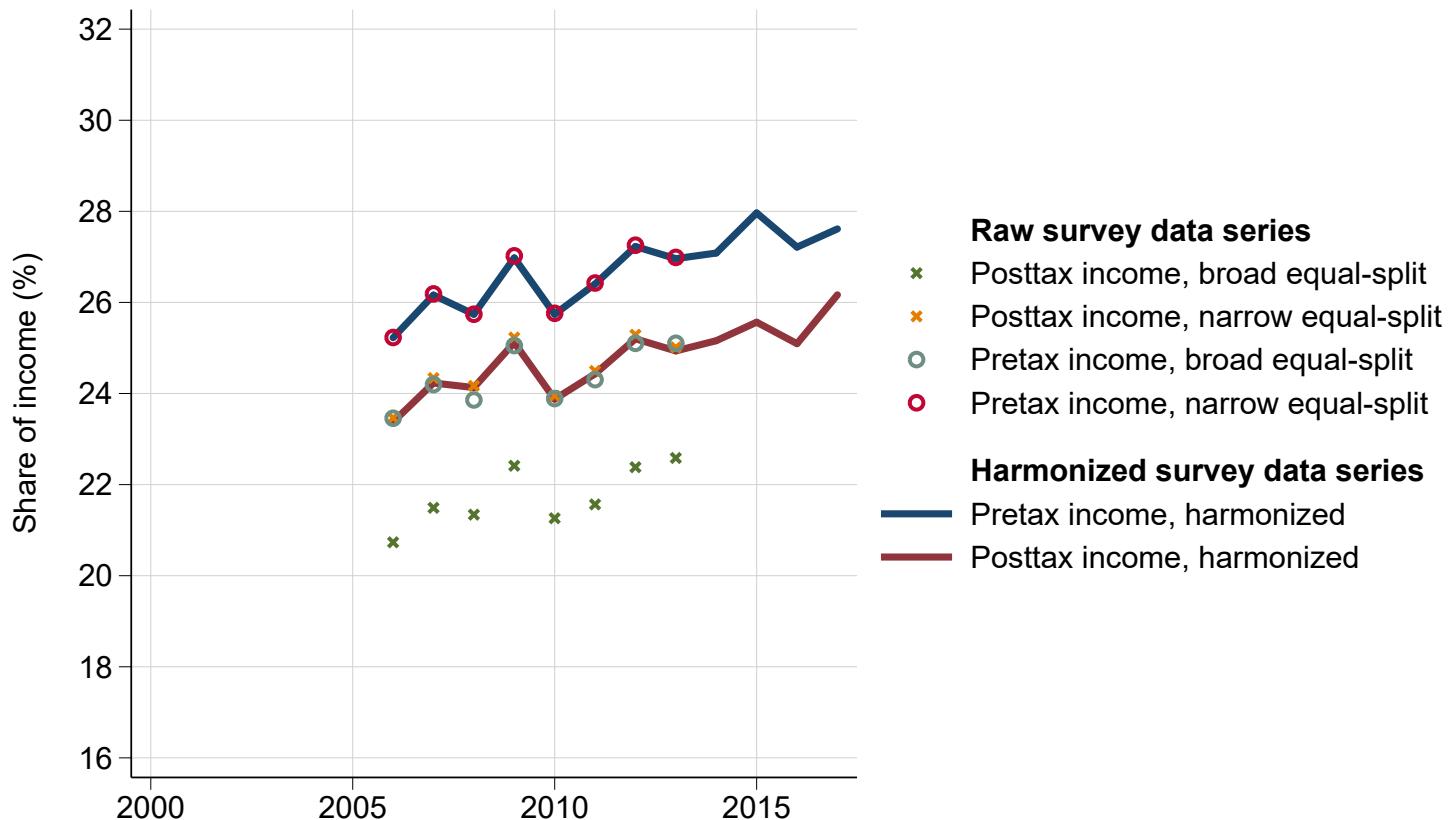
**Table A.4.4.4**  
**The distribution of national income growth in Lithuania, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.7%	2.1%	1.7%	2.1%	1.7%	2.1%
Bottom 50%	0.6%	1.6%	0.4%	1.6%	0.5%	1.7%
Bottom 20%	-0.1%	2.0%	-0.5%	2.4%	0.0%	2.4%
Next 30%	0.8%	1.5%	0.6%	1.4%	0.7%	1.5%
Middle 40%	1.4%	2.1%	1.4%	1.9%	1.4%	1.9%
Top 10%	3.0%	2.4%	3.2%	2.7%	3.2%	2.6%
Top 1%	4.6%	2.4%	5.1%	3.2%	5.0%	3.1%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

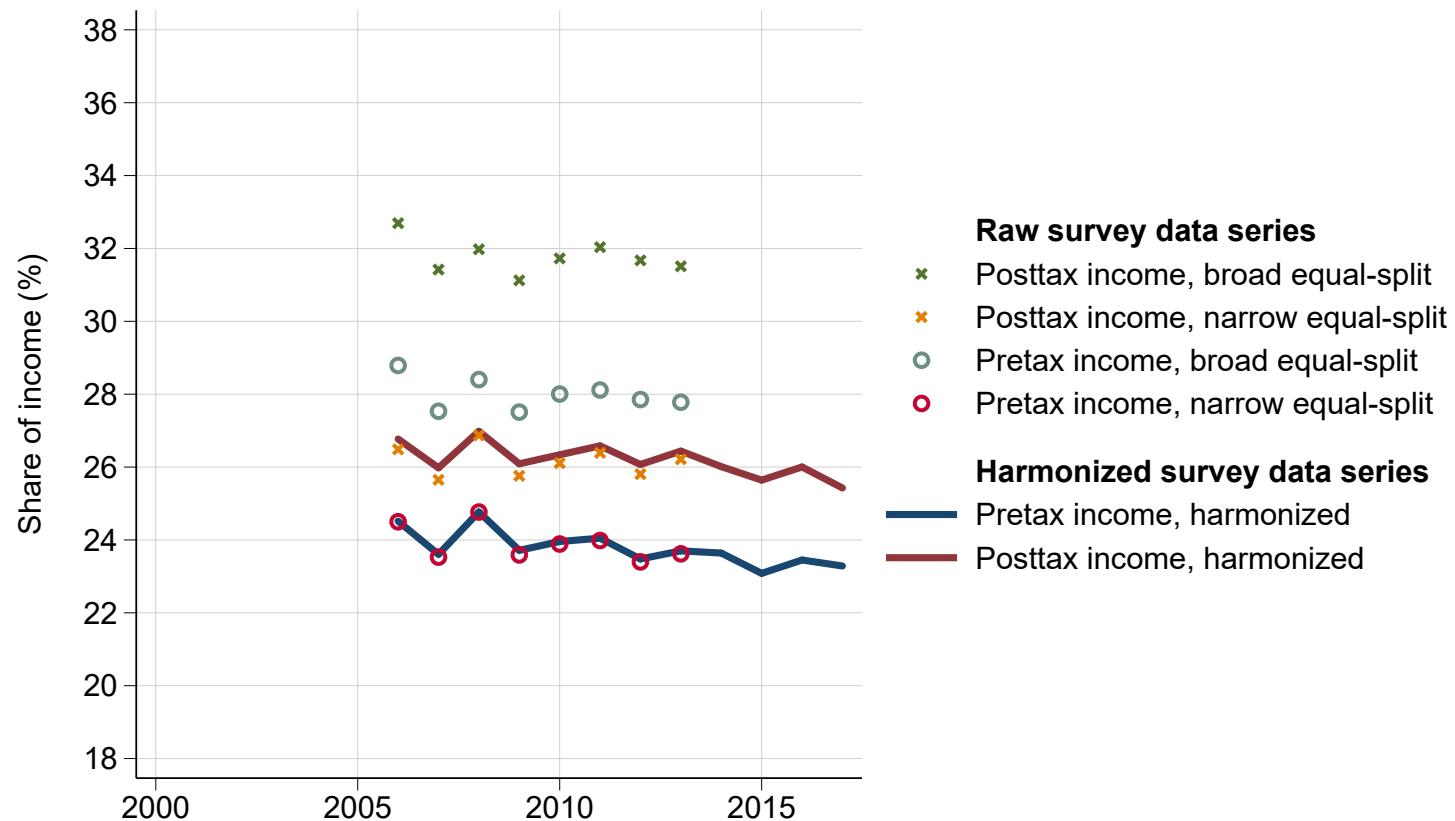
## 4.5 Malta

Figure A.4.5.1  
Malta: harmonization of survey data  
Top 10% pretax income share



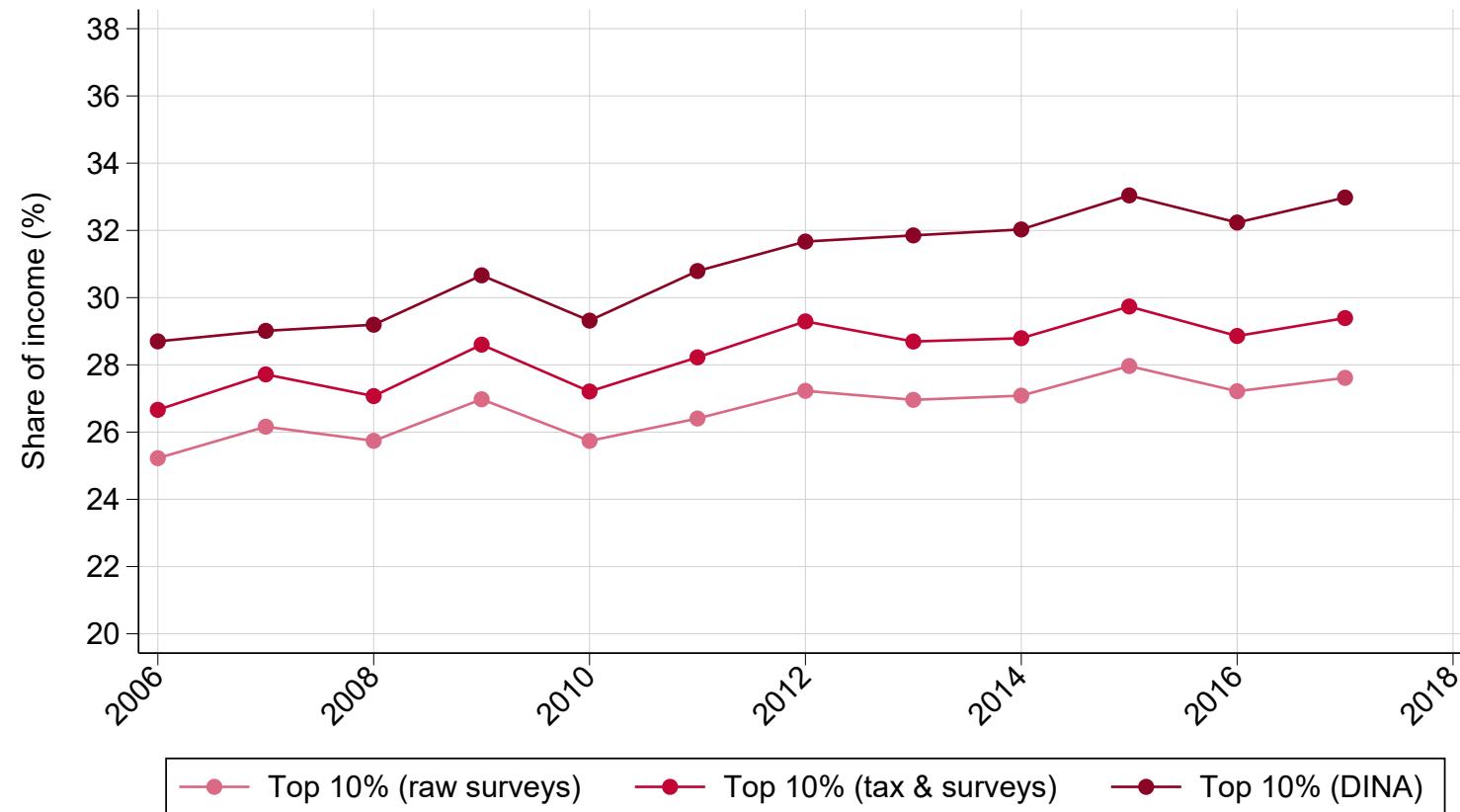
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.5.2**  
**Malta: harmonization of survey data**  
**Bottom 50% pretax income share**



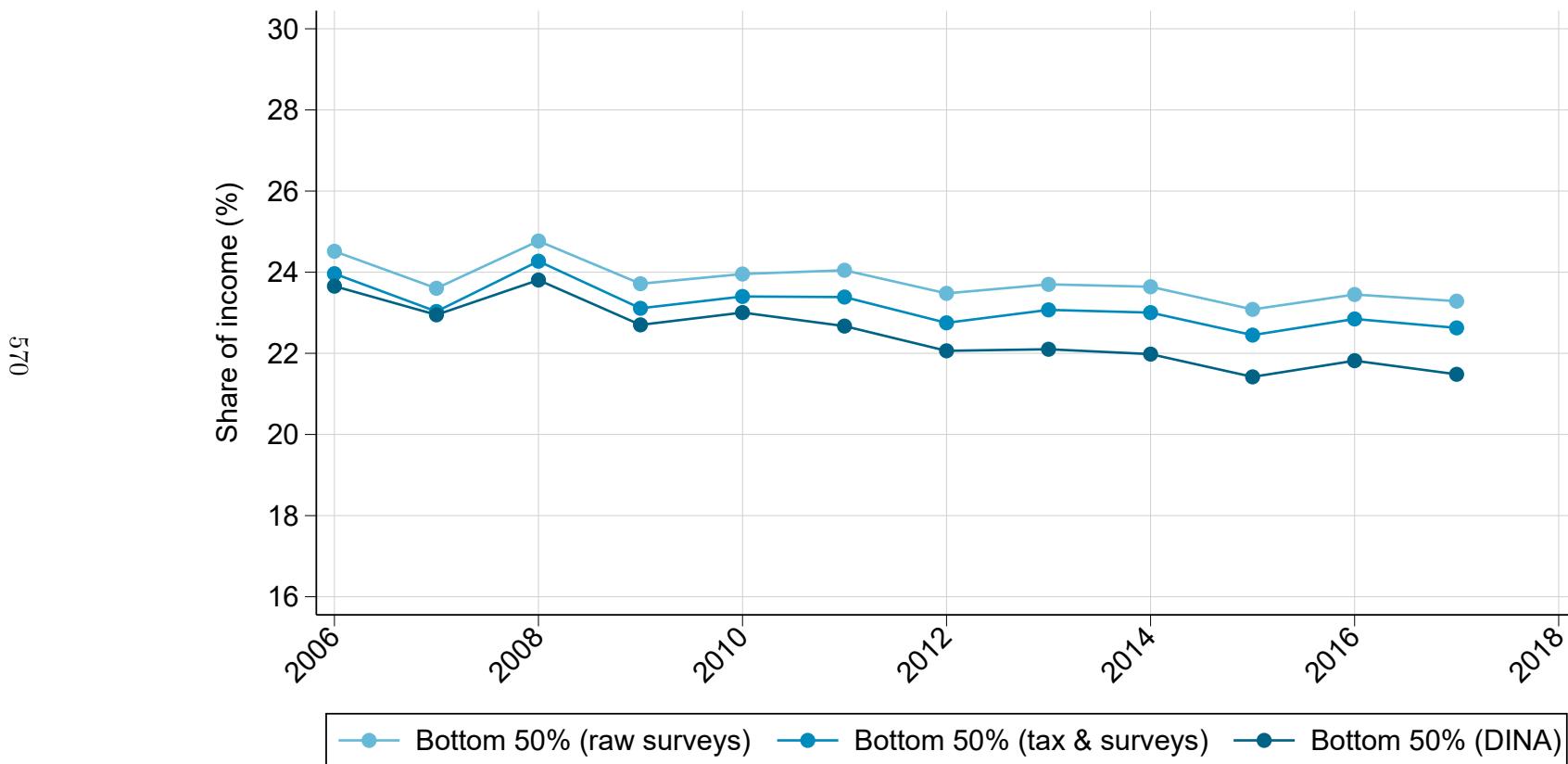
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.4.5.3  
Malta: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



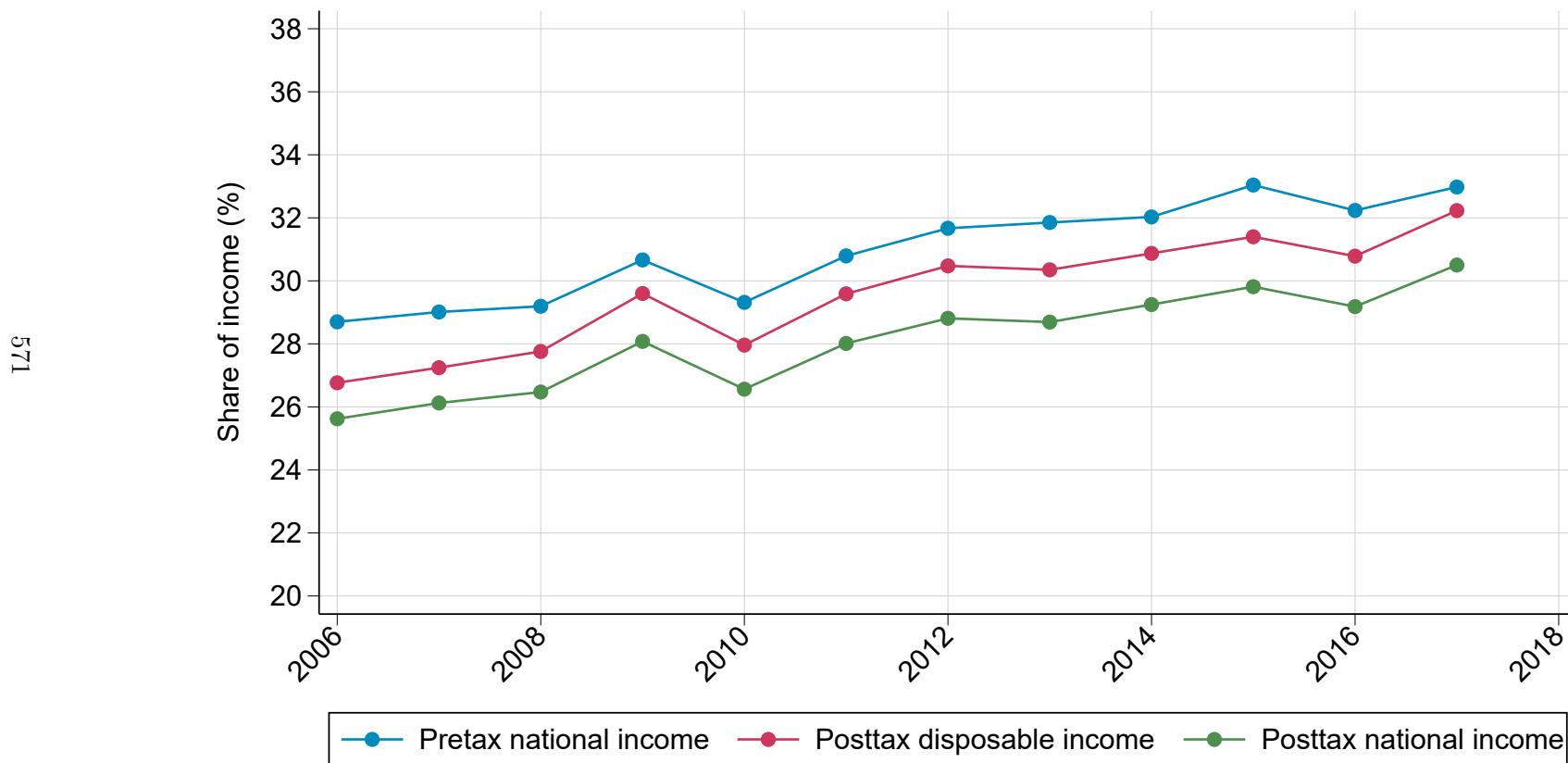
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.5.4**  
Malta: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



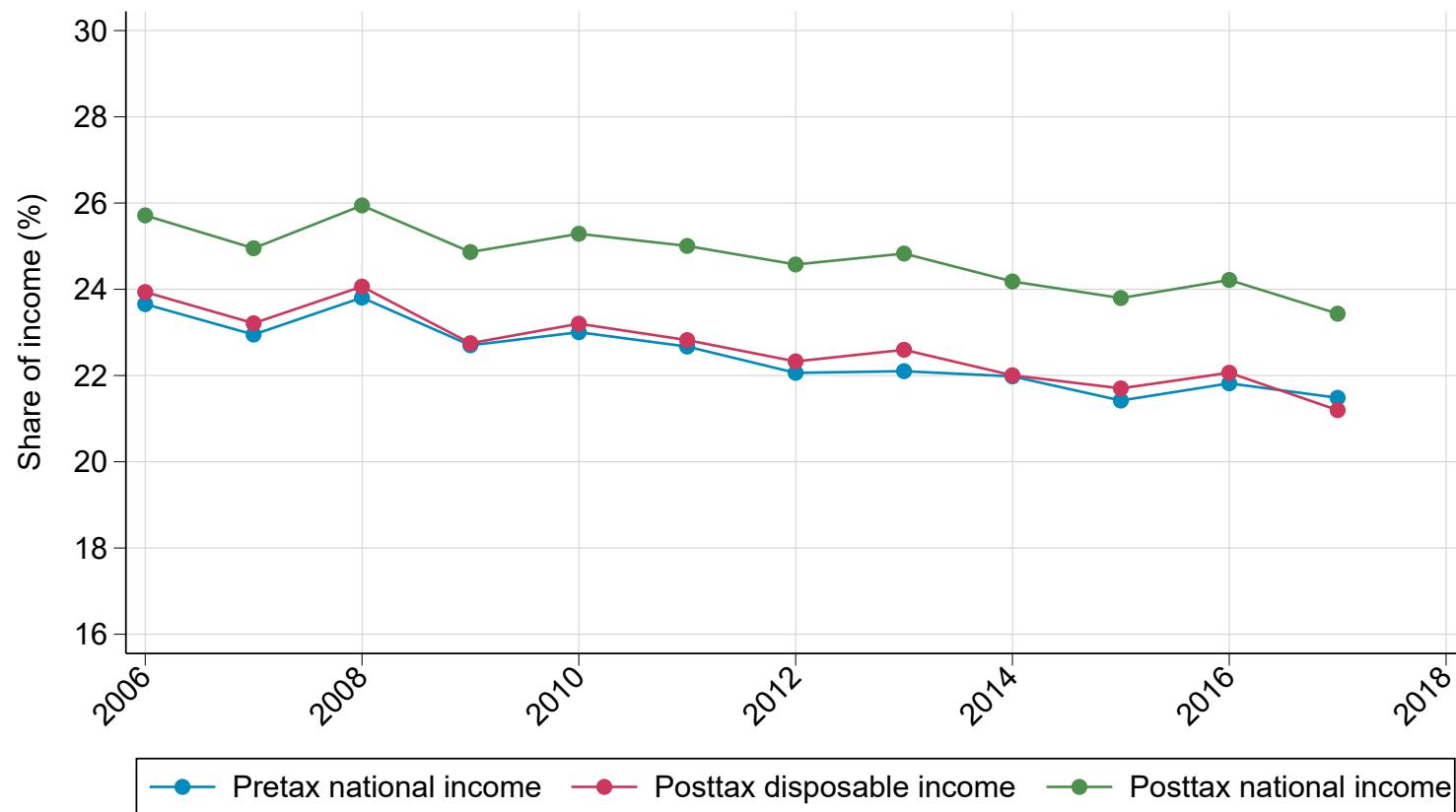
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.5.5**  
Malta: from pretax national income to posttax national income  
**Top 10% income share**



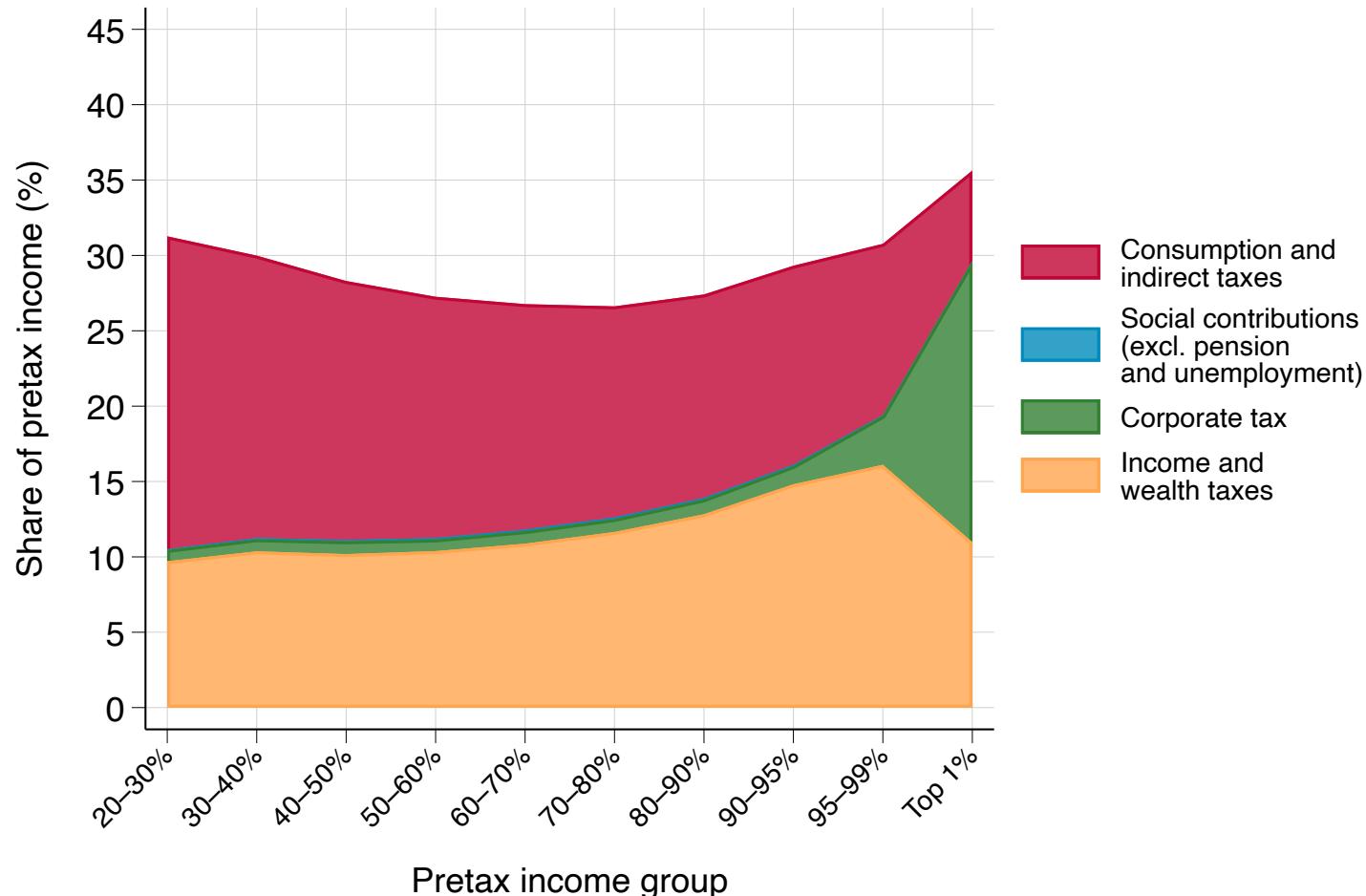
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.5.6**  
Malta: from pretax national income to posttax national income  
**Bottom 50% income share**



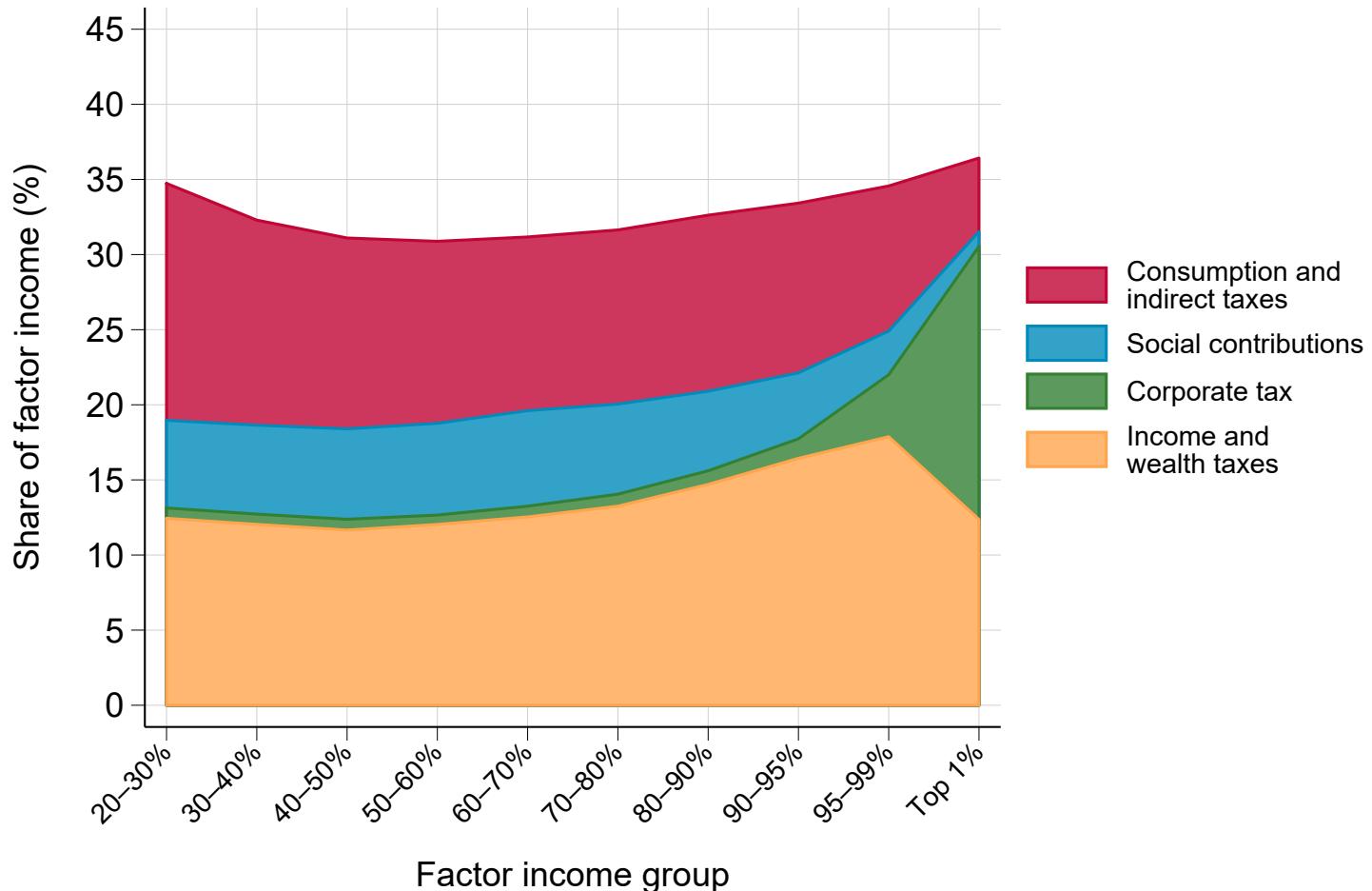
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.5.7**  
**Malta: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



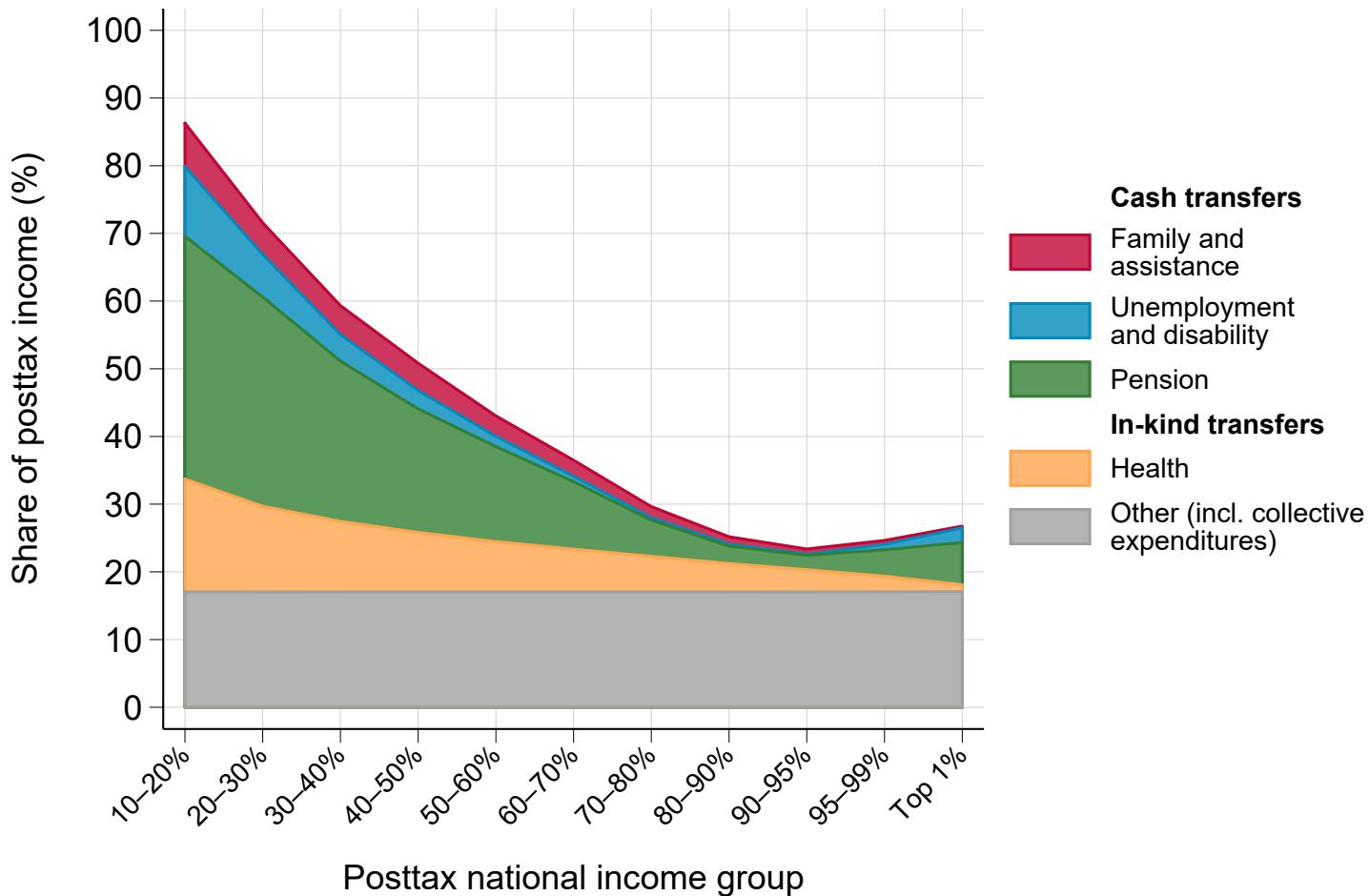
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.5.8**  
**Malta: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



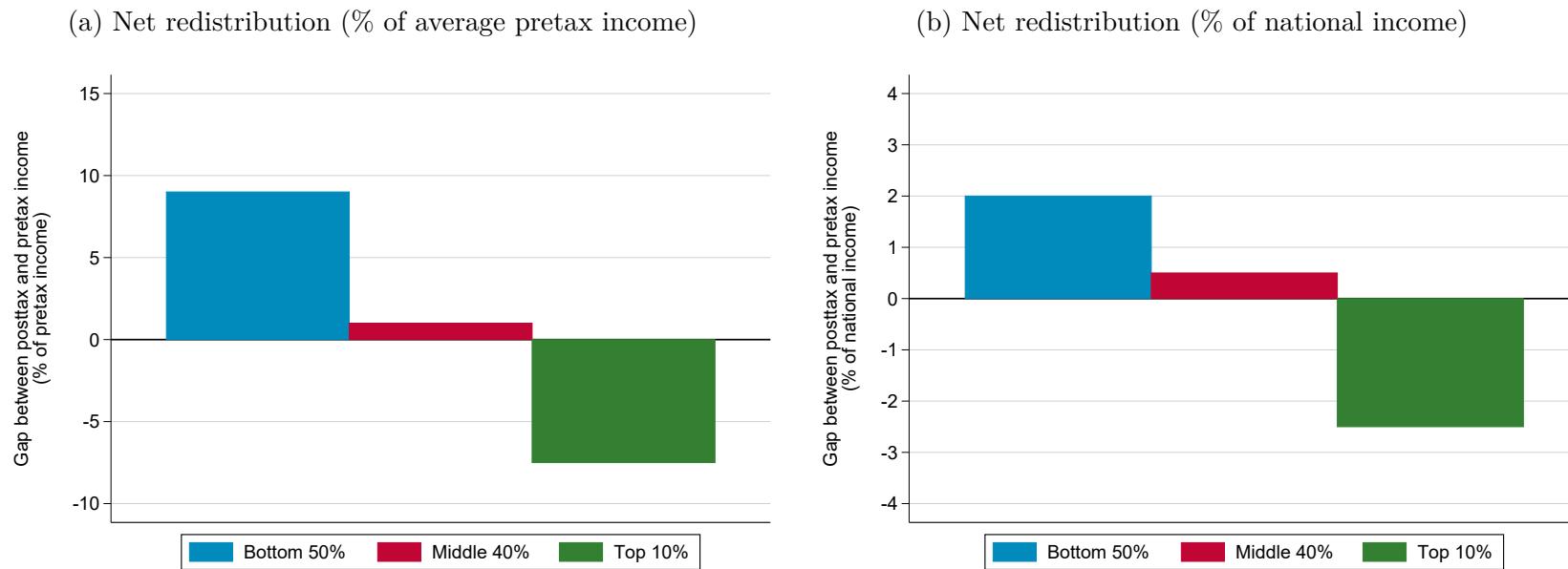
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.4.5.9**  
**Malta: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.5.10**  
**Malta: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.5.1**  
**Malta: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980								x	
1981								x	
1982								x	
1983								x	
1984								x	
1985								x	
1986								x	
1987								x	
1988								x	
1989								x	
1990								x	
1991								x	
1992								x	
1993								x	
1994								x	
1995								x	
1996						x		x	
1997						x		x	
1998						x		x	
1999						x		x	
2000						x	x		x
2001						x	x		x
2002						x	x		x
2003						x	x		x
2004						x	x		x
2005						x	x		x
2006	x	x				x	x		x
2007	x	x				x	x		x
2008	x	x				x	x		x
2009	x	x				x	x		x
2010	x	x				x	x		x
2011	x	x				x	x		x
2012	x	x				x	x		x
2013	x	x				x	x		x
2014	x	x				x	x		x
2015	x	x				x	x		x
2016	x	x				x	x		x
2017	x	x				x	x		x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.5.2**  
**Malta: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2006–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employer contributions (EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 98.9% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies increases the top 10% share of pretax income by 0.1 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (SILC, 2006–2013; SILC, 2006–2017); pretax income (SILC, 2006–2013; SILC, 2006–2017)	See section 1.3.	No estimation of pretax and posttax income needed.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.	
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.0 pp. higher than in the raw survey. The top 1% share of posttax income is 0.7 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCS, 2010, 2014, 2016 (corporate stocks); EU-SILC, 2006–2013 (imputed rents); HBS, 2010 (consumption)	We estimate that the top 10% of pretax income earners own, on average, 25.4% of stocks, capture 11.0% of imputed rents, and account for 17.0% of consumption.	
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 1.8 pp. on average; Imputed rents decrease the top 10% share of income by 0.4 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.9 pp. on average; Taxes on products increase the top 10% share of posttax income by 1.4 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.0 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.5.3**  
**The distribution of national income in Malta, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€32,300	100%	€32,300	100%	€32,300	100%
Bottom 50%	€13,900	21.5%	€13,700	21.2%	€15,100	23.4%
Bottom 20%	€7,400	4.6%	€6,600	4.1%	€8,600	5.3%
Next 30%	€18,200	16.9%	€18,400	17.1%	€19,500	18.1%
Middle 40%	€36,800	45.5%	€37,600	46.6%	€37,200	46.1%
Top 10%	€106,000	33.0%	€104,000	32.2%	€98,500	30.5%
Top 1%	€310,000	9.6%	€256,000	7.9%	€238,000	7.4%
Top 0.1%	€919,000	2.8%	€571,000	1.8%	€529,000	1.6%
Top 0.01%	€2,740,000	0.8%	€1,230,000	0.4%	€1,130,000	0.4%
Top 0.001%	€8,150,000	0.3%	€2,590,000	0.1%	€2,390,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

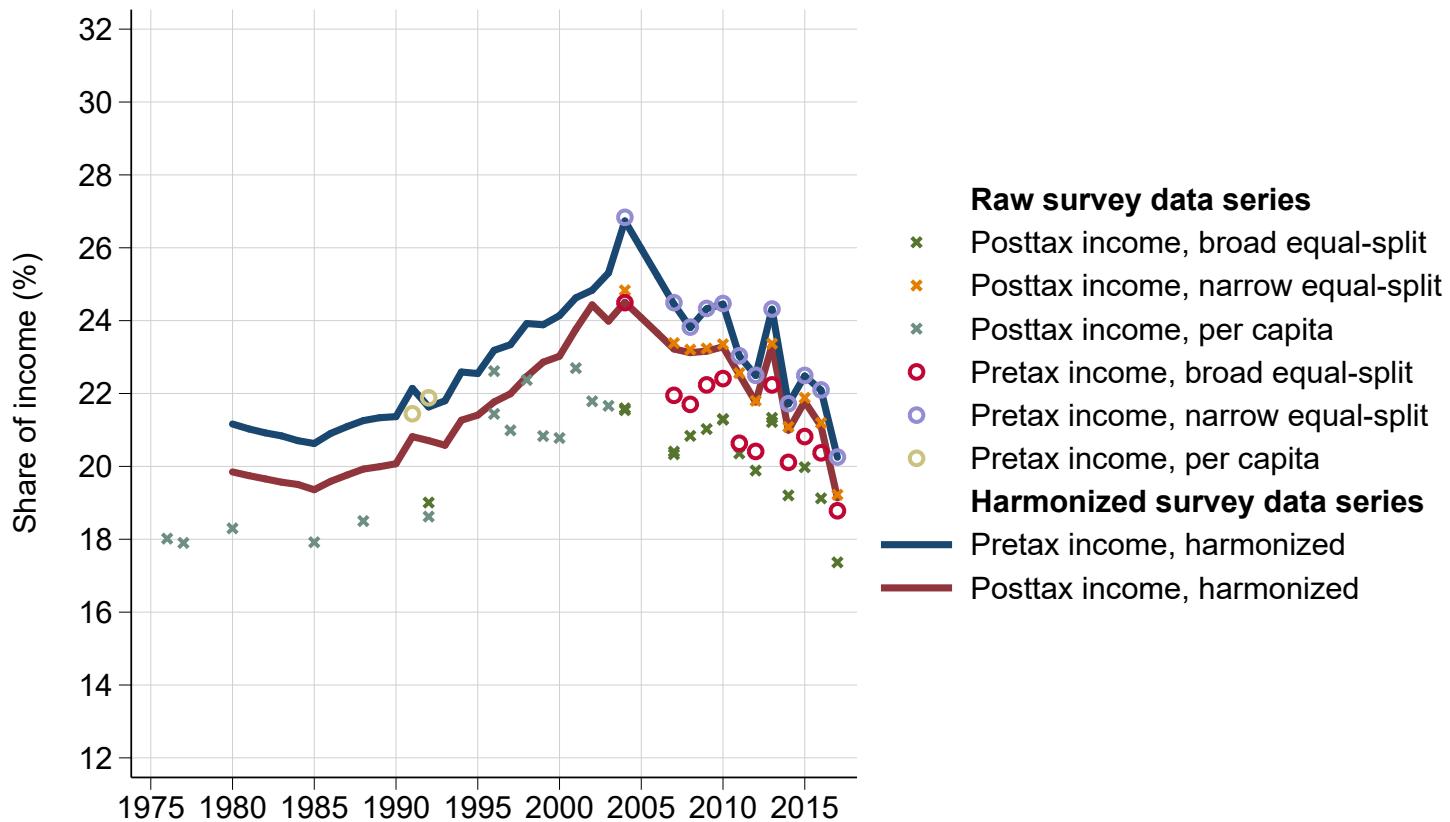
**Table A.4.5.4**  
**The distribution of national income growth in Malta, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	2.3%	2.6%	2.3%	2.6%	2.3%	2.6%
Bottom 50%	1.9%	1.9%	1.8%	1.7%	2.0%	1.9%
Bottom 20%	1.9%	1.8%	1.6%	1.7%	2.1%	2.3%
Next 30%	2.0%	1.9%	1.9%	1.7%	2.0%	1.8%
Middle 40%	2.2%	2.0%	2.2%	1.9%	2.2%	2.0%
Top 10%	2.6%	3.9%	2.7%	4.3%	2.6%	4.2%
Top 1%	2.9%	6.3%	2.7%	6.2%	2.6%	6.0%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

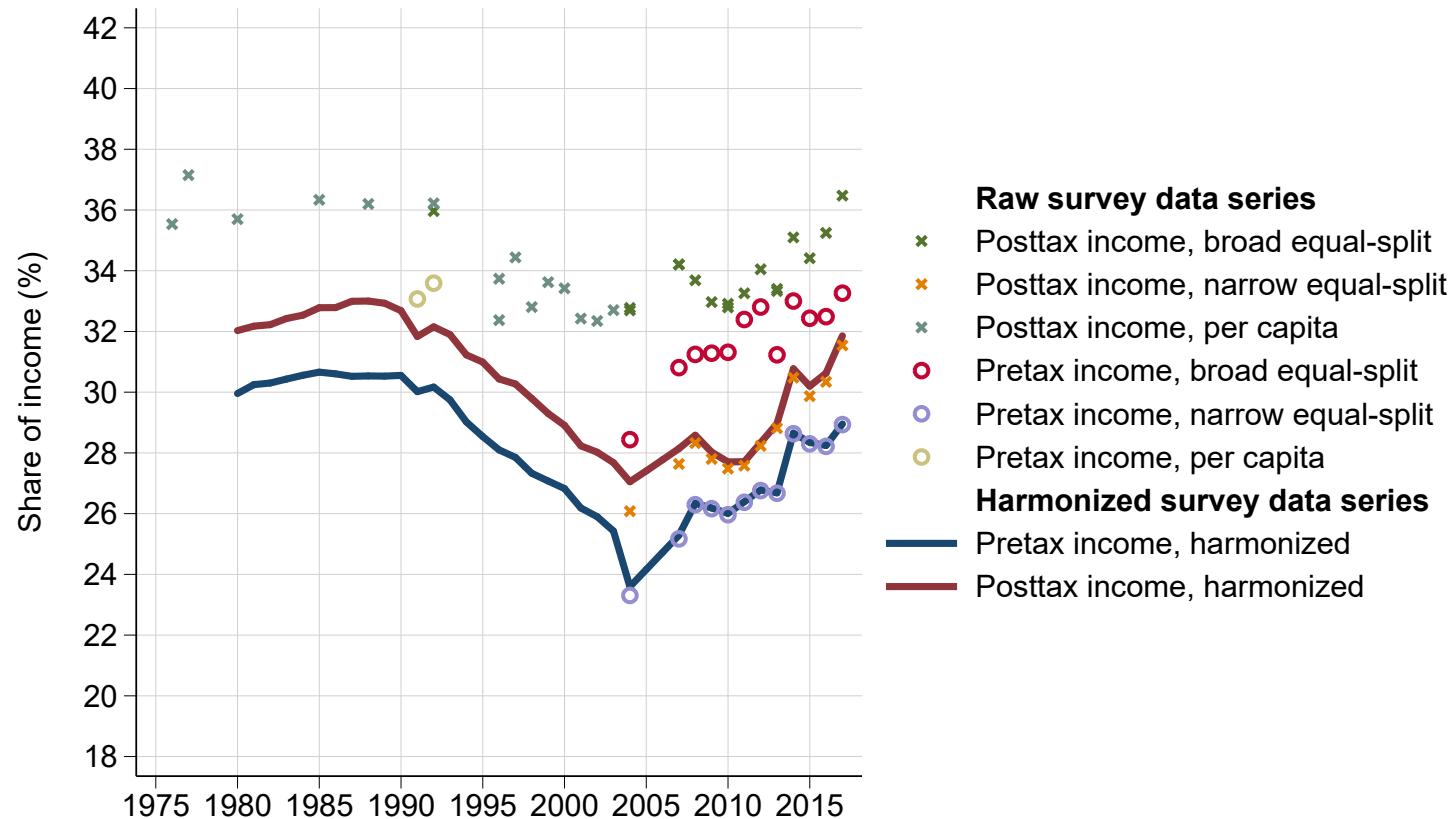
## 4.6 Slovakia

Figure A.4.6.1  
Slovakia: harmonization of survey data  
Top 10% pretax income share



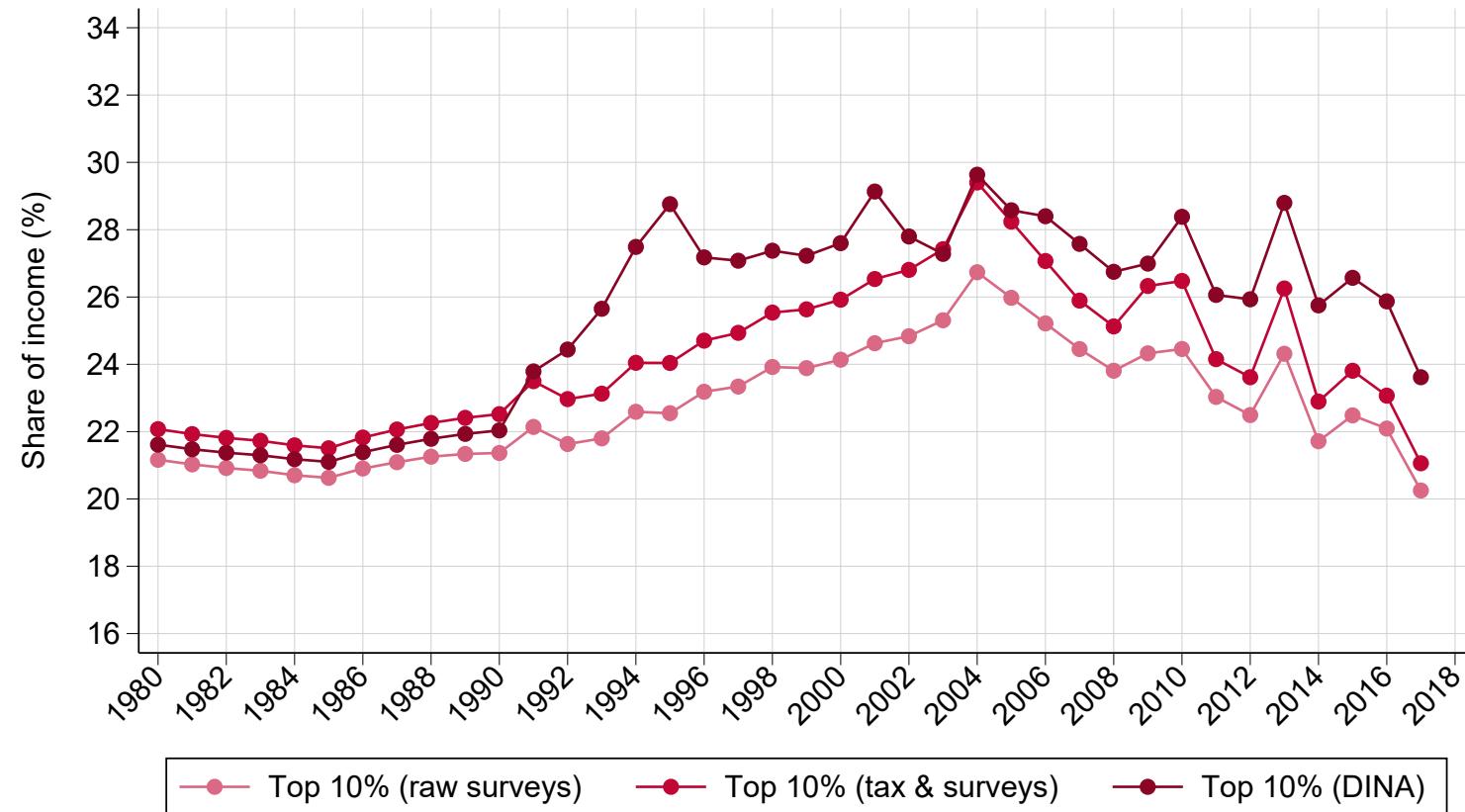
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.6.2**  
**Slovakia: harmonization of survey data**  
**Bottom 50% pretax income share**



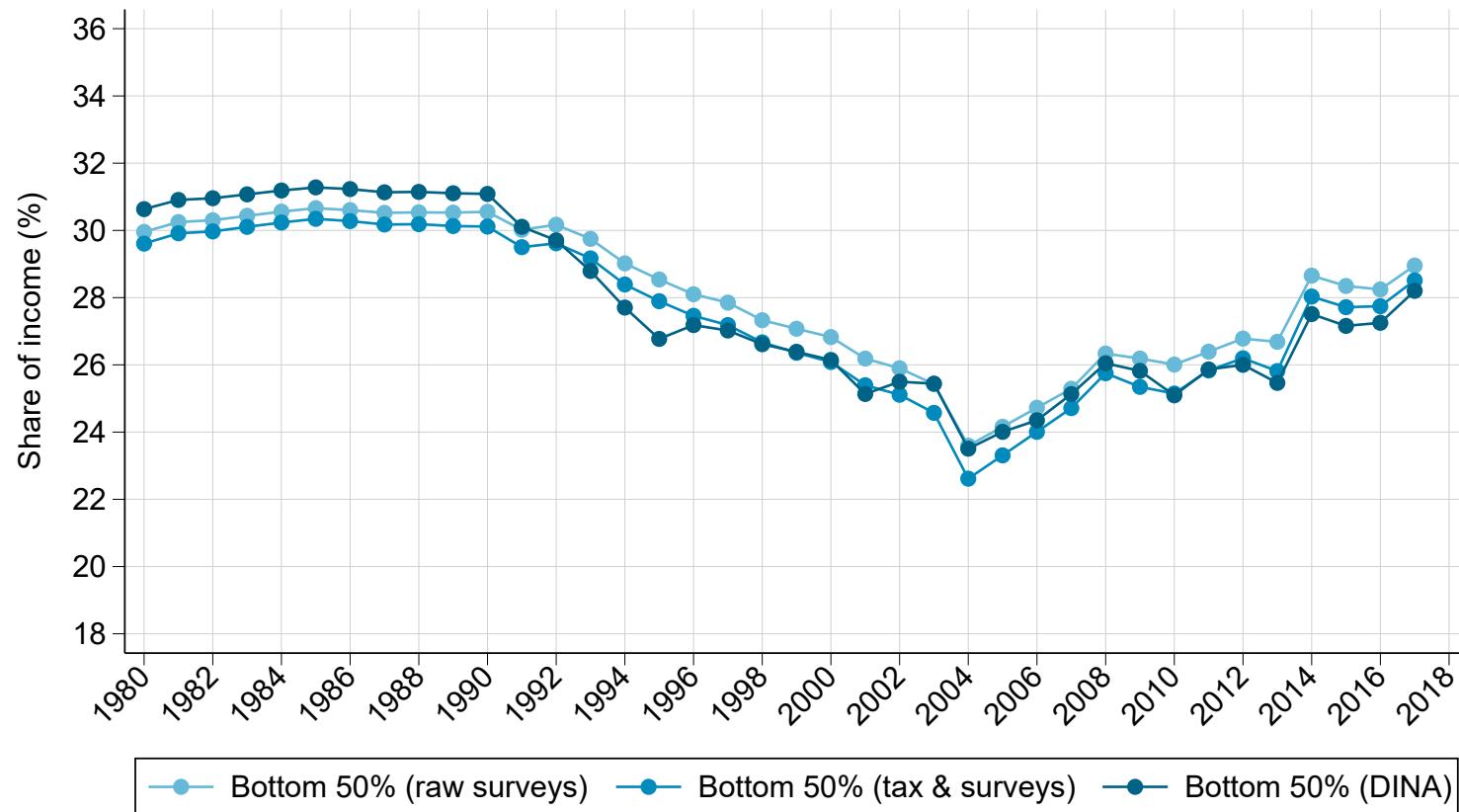
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.6.3**  
Slovakia: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



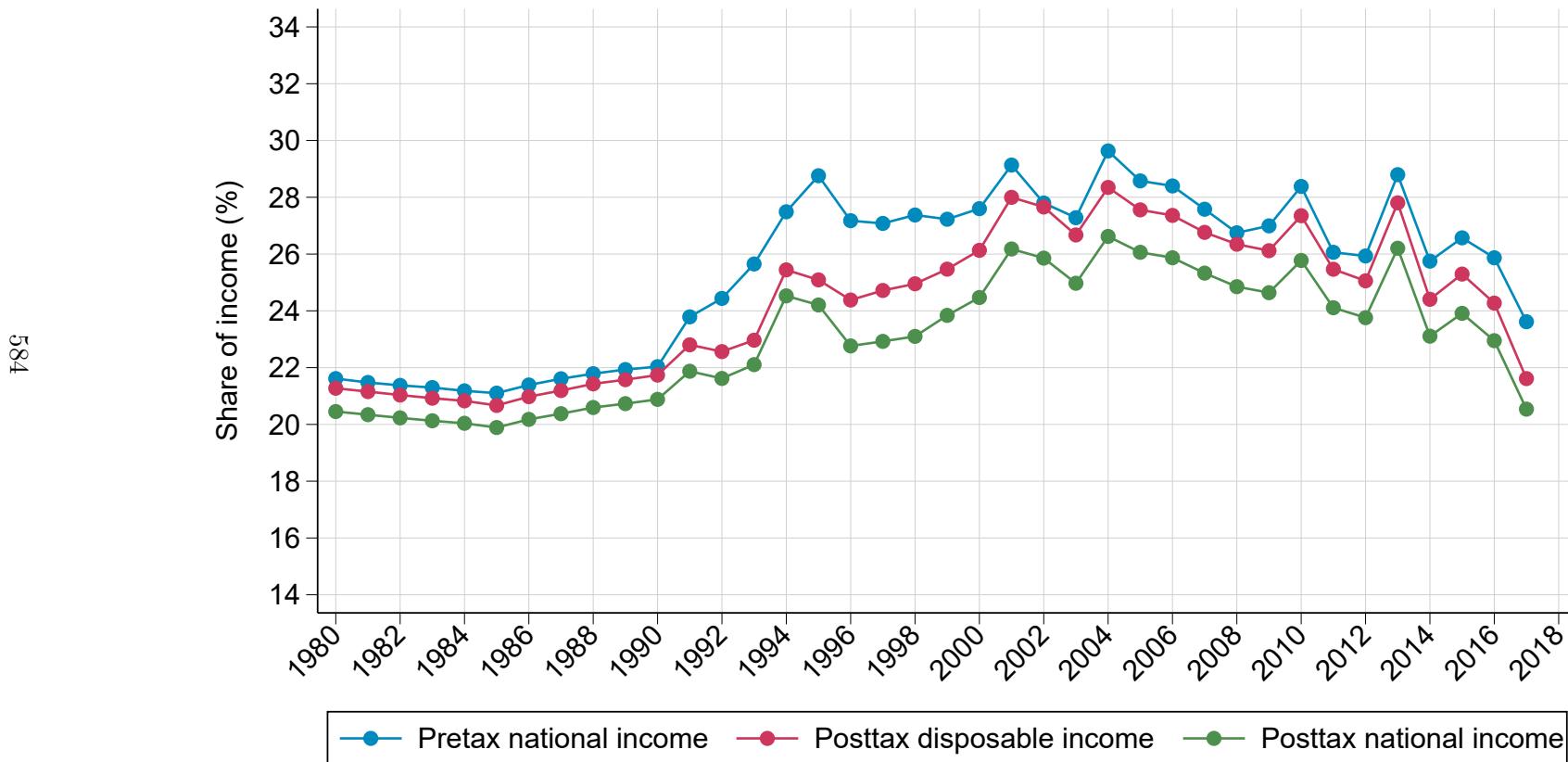
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.6.4**  
Slovakia: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



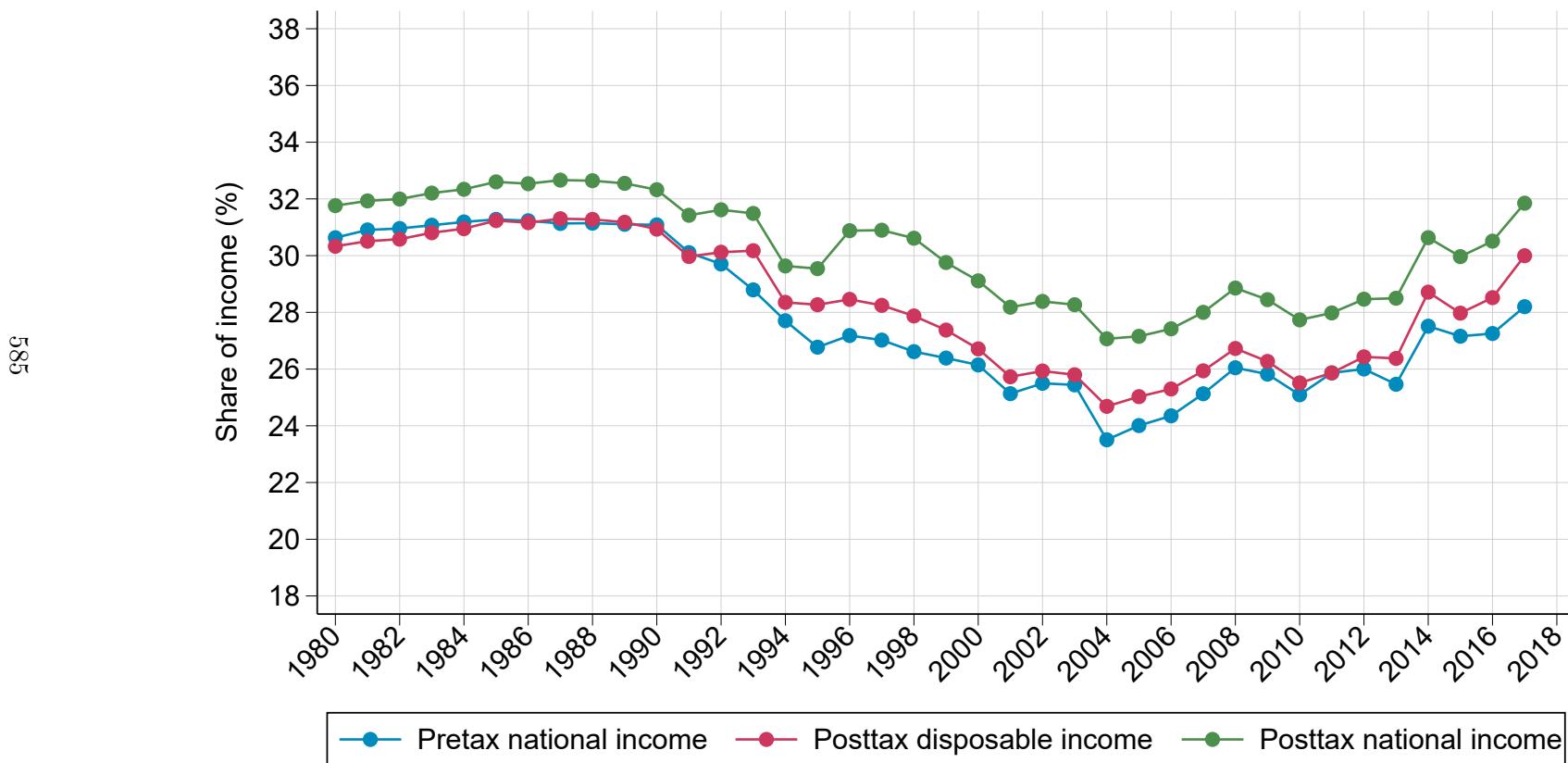
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.6.5**  
**Slovakia: from pretax national income to posttax national income**  
**Top 10% income share**



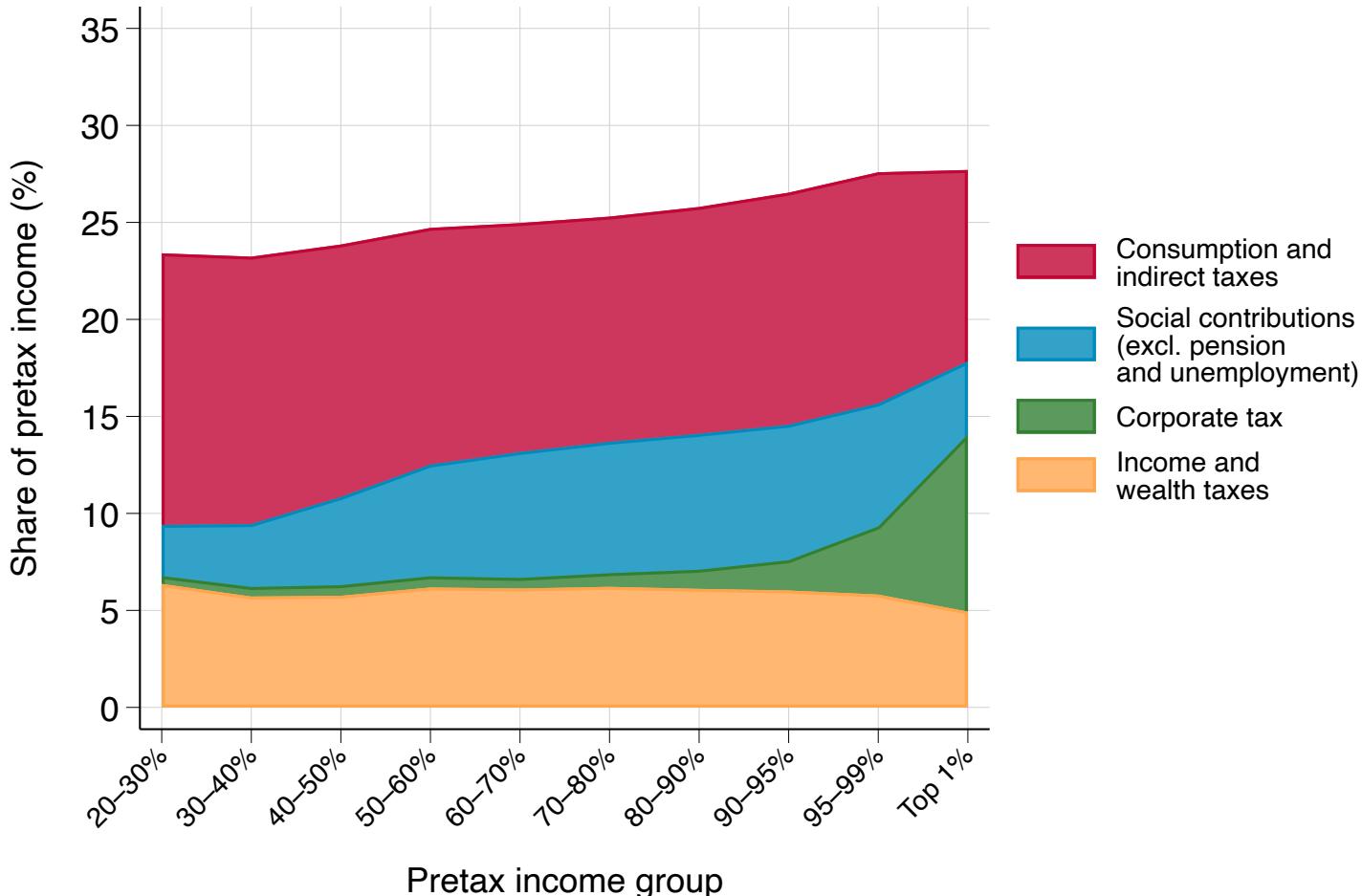
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.6.6**  
**Slovakia: from pretax national income to posttax national income**  
**Bottom 50% income share**



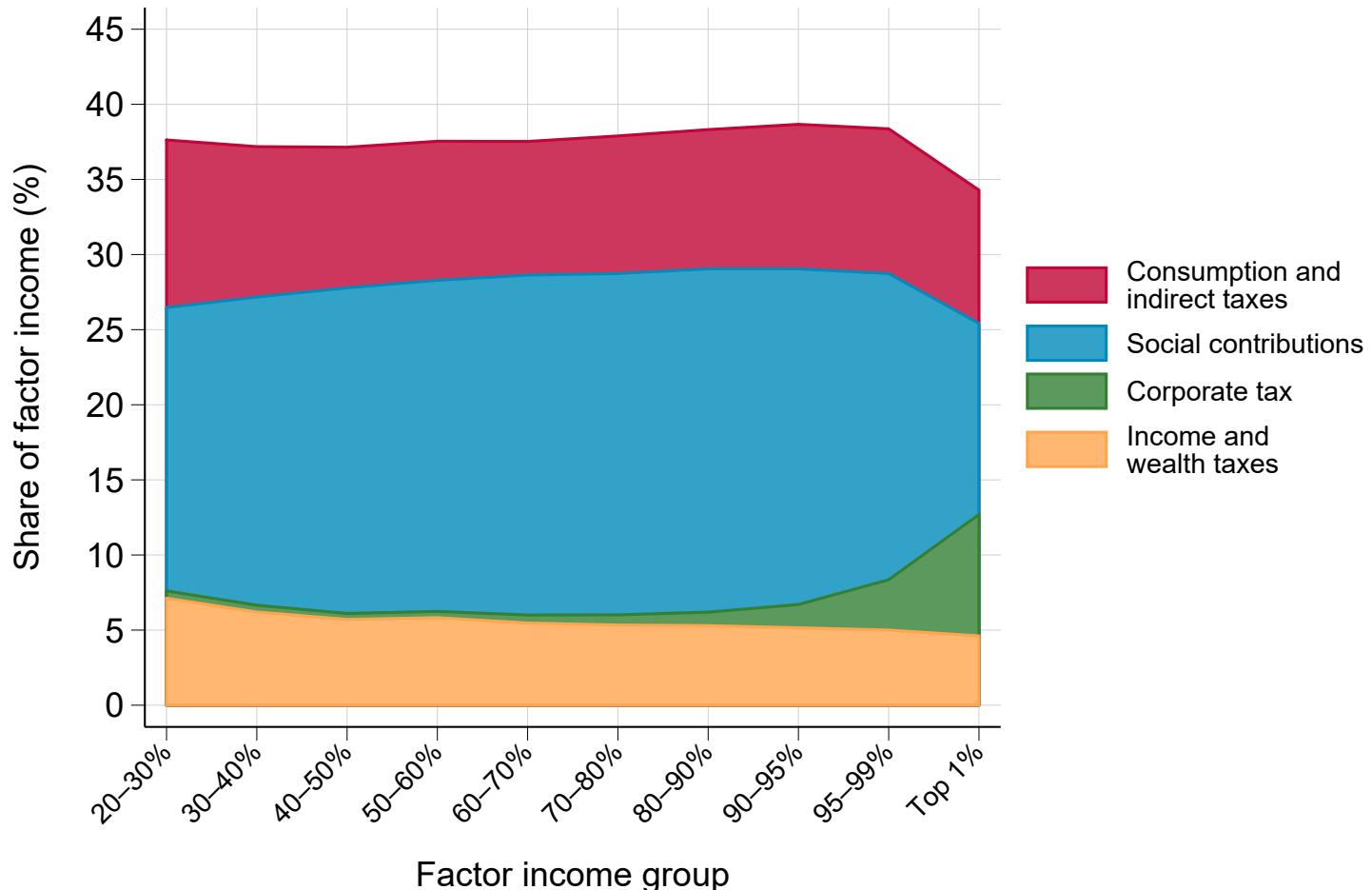
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.6.7**  
**Slovakia: distribution of taxes**  
**Non-contributory taxes paid as a share of pretax income**



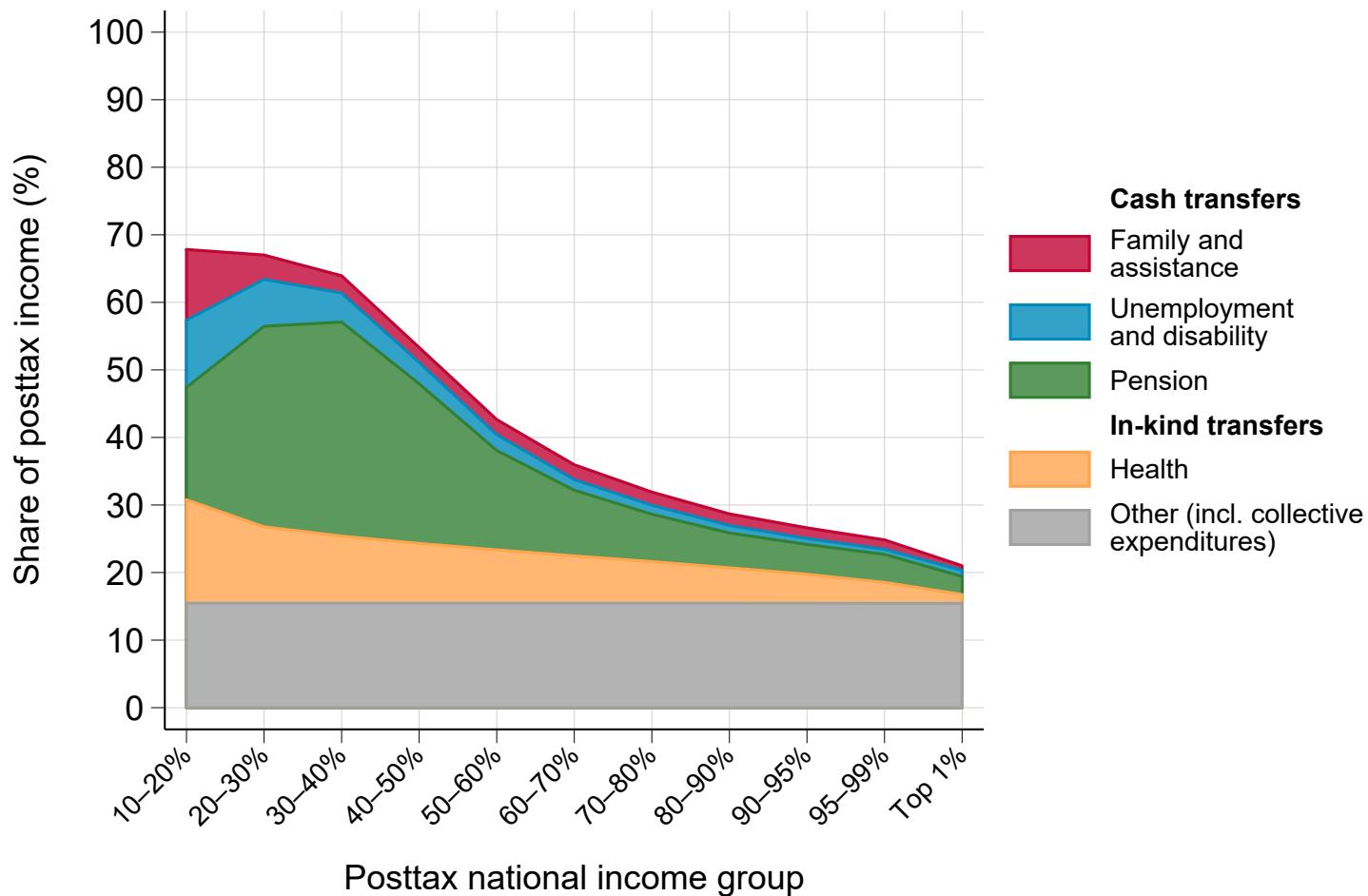
*Notes.* The figure represents total non-contributory taxes (that is, all taxes except social contributions financing the pension and unemployment insurance systems) paid by pretax income group, expressed as a share of pretax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.6.8**  
**Slovakia: distribution of taxes**  
**Total taxes paid as a share of factor income (working-age population)**



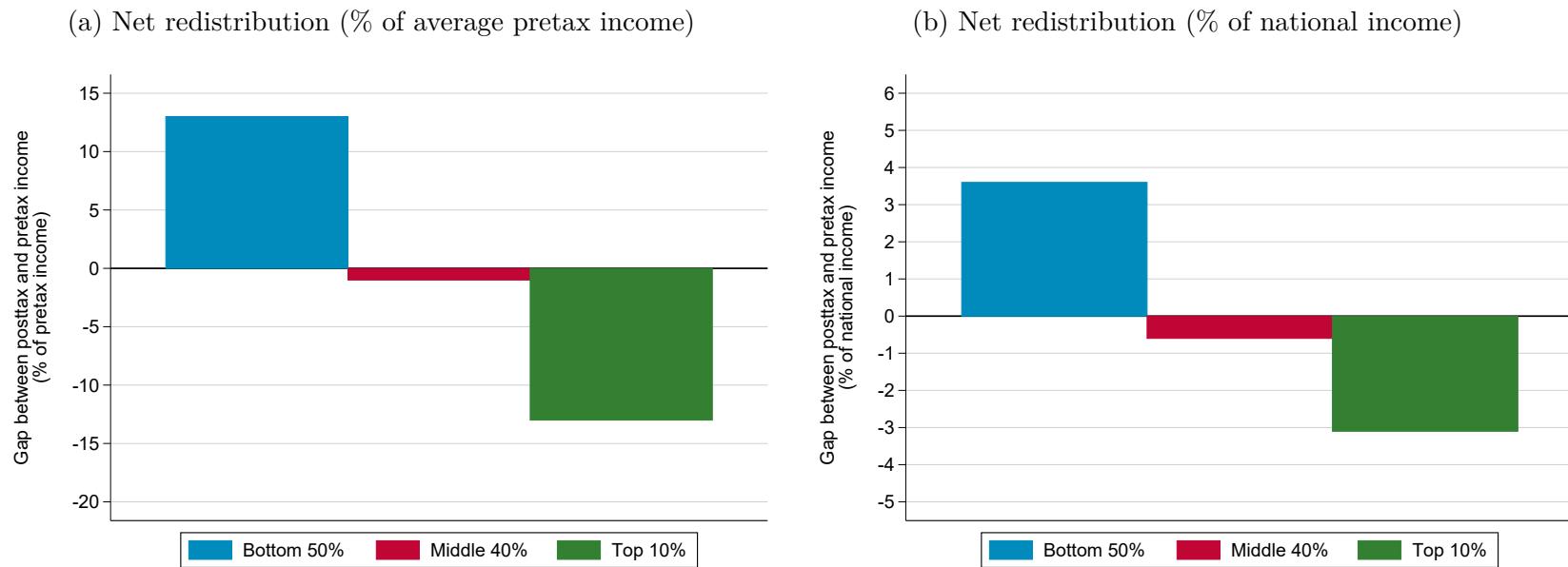
*Notes.* The figure represents total taxes (including all direct and indirect taxes, as well as all social contributions) paid by factor income group, expressed as a share of factor income, over the 2007-2017 period. The unit of observation is the adult individual aged between 25 and 59. Income is split equally among spouses.

**Figure A.4.6.9**  
**Slovakia: distribution of transfers**



*Notes.* The figure represents the share of transfers received by posttax income group, expressed as a share of posttax income, over the 2007-2017 period. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.6.10**  
**Slovakia: net redistribution operated by the tax-and-transfer system**



*Notes.* The figure represents the net redistribution operated by the tax-and-transfer system between pretax income groups in 2017, expressed as a share of pretax average income (panel a) and as a share of net national income (panel b). The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.6.1**  
**Slovakia: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1976	x								
1977	x								
1980	x								
1981									
1982									
1983									
1984									
1985	x								
1986									
1987									
1988	x								
1989									
1990									
1991	x								
1992	x	x						x	
1993								x	
1994								x	
1995			x	x	x	x	x	x	x
1996	x		x	x	x	x	x	x	x
1997	x		x	x	x	x	x	x	x
1998	x		x	x	x	x	x	x	x
1999	x		x	x	x	x	x	x	x
2000	x		x	x	x	x	x	x	x
2001	x		x	x	x	x	x	x	x
2002	x		x	x	x	x	x	x	x
2003	x		x	x	x	x	x	x	x
2004	x	x	x	x	x	x	x	x	x
2005			x	x	x	x	x	x	x
2006			x	x	x	x	x	x	x
2007	x	x	x	x	x	x	x	x	x
2008	x	x	x	x	x	x	x	x	x
2009	x	x	x	x	x	x	x	x	x
2010	x	x	x	x	x	x	x	x	x
2011	x	x	x	x	x	x	x	x	x
2012	x	x	x	x	x	x	x	x	x
2013	x	x	x	x	x	x	x	x	x
2014	x	x	x	x	x	x	x	x	x
2015	x	x	x	x	x	x	x	x	x
2016	x	x	x	x	x	x	x	x	x
2017	x	x	x	x	x	x	x	x	x

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.6.2**  
**Slovakia: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.	EU-SILC (2004–2017)	See section 1.2.1.	
	Imputation of social contributions.	Employee contributions (OECD, 2004–2017); Employer contributions (OECD, 2004–2005, EU-SILC, 2006–2017)	See section 1.2.2. The compulsory levies that pay for the contributory social insurance system can vary over time and between countries. Here, we estimate that, on average, 79.8% of social contributions are contributory (i.e., pay for pensions and unemployment).	The deduction of contributory mandatory levies decreases the top 10% share of pretax income by 0.5 pp. on average.
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (HBS, 2010); posttax income (LIS, 1992–2013; SILC, 2004–2017; Atkinson and Micklewright 1992, CS, 1976–1988; PovcalNet, 1992–1996; Transmonee 2004, 1998–2002; Transmonee 2005, 2003; Transmonee 2011, 1996–2001; UN 1981, CS, 1977); pretax income (SILC, 2004–2017; Milanovic and Ying 1996, CS, 1991–1992)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 1.2 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.	
	Application of the correction to all survey distributions.		See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.0 pp. higher than in the raw survey. The top 1% share of posttax income is 0.7 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.	HFCS, 2010, 2014, 2017 (corporate stocks); EU-SILC, 2006–2017 (imputed rents); HBS, 2010 (consumption)		We estimate that the top 10% of pretax income earners own, on average, 19.5% of stocks, capture 14.7% of imputed rents, and account for 19.0% of consumption.
	Missing incomes matched statistically to calibrated survey distributions.		See section 1.5.	Undistributed corporate profits increase the top 10% share of income by 1.0 pp. on average; Imputed rents decrease the top 10% share of income by 0.5 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.8 pp. on average; Taxes on products increase the top 10% share of posttax income by 0.9 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.2 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.6.3**  
**The distribution of national income in Slovakia, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€23,200	100%	€23,200	100%	€23,200	100%
Bottom 50%	€13,100	28.2%	€13,900	30.0%	€14,800	31.8%
Bottom 20%	€7,400	6.4%	€7,700	6.7%	€9,200	7.9%
Next 30%	€16,900	21.8%	€18,000	23.3%	€18,500	24.0%
Middle 40%	€27,900	48.2%	€28,000	48.4%	€27,600	47.6%
Top 10%	€54,800	23.6%	€50,100	21.6%	€47,600	20.5%
Top 1%	€130,000	5.6%	€100,000	4.3%	€92,900	4.0%
Top 0.1%	€368,000	1.6%	€225,000	1.0%	€206,000	0.9%
Top 0.01%	€1,120,000	0.5%	€535,000	0.2%	€487,000	0.2%
Top 0.001%	€3,530,000	0.2%	€1,310,000	0.1%	€1,190,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

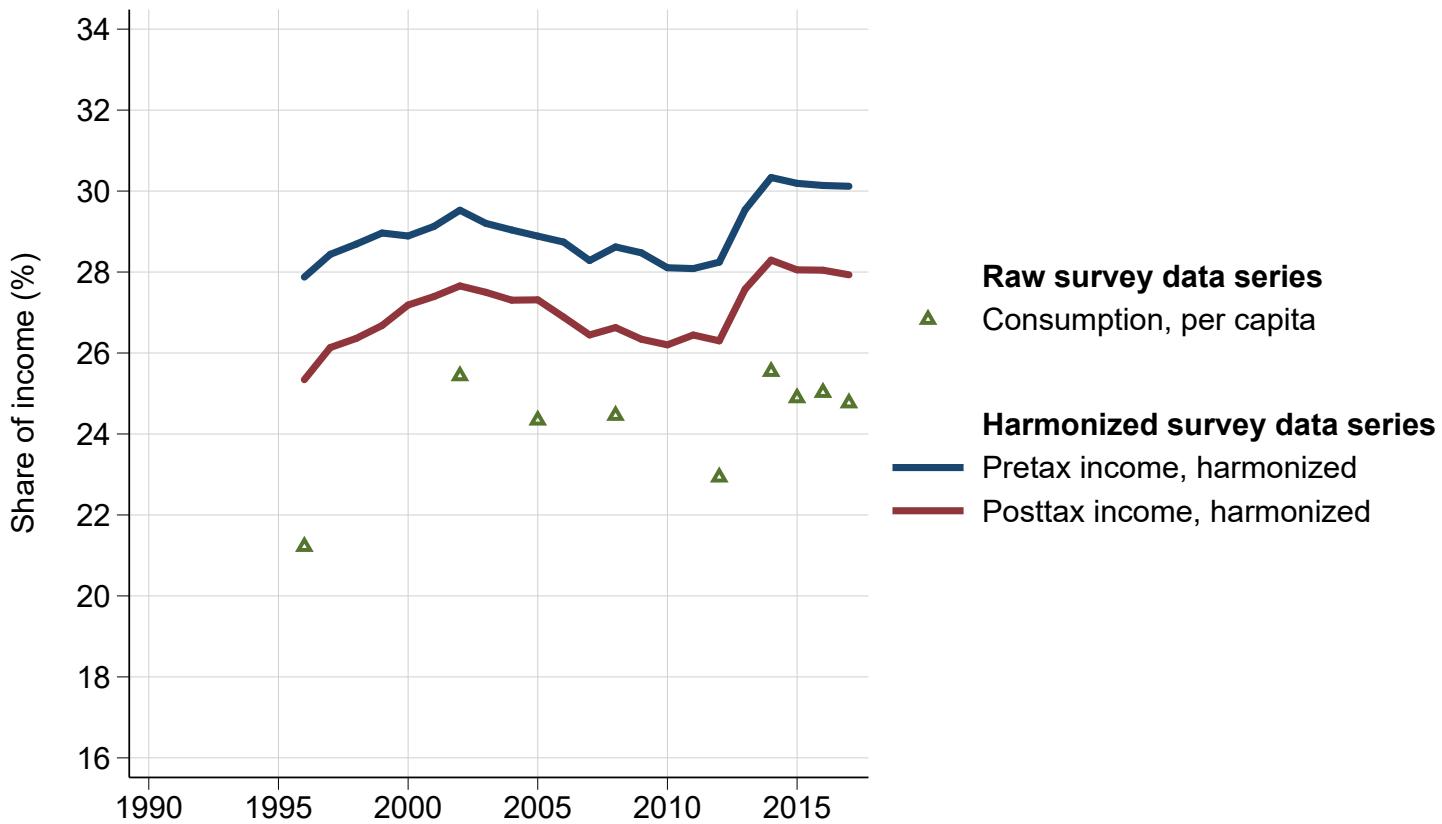
**Table A.4.6.4**  
**The distribution of national income growth in Slovakia, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.7%	2.1%	1.7%	2.1%	1.7%	2.1%
Bottom 50%	1.4%	3.3%	1.6%	3.6%	1.7%	3.5%
Bottom 20%	1.0%	4.4%	1.3%	5.5%	1.5%	4.8%
Next 30%	1.6%	3.0%	1.7%	3.2%	1.8%	3.1%
Middle 40%	1.7%	2.3%	1.7%	2.4%	1.7%	2.4%
Top 10%	1.9%	0.6%	1.7%	0.0%	1.7%	0.0%
Top 1%	2.7%	0.1%	2.2%	-1.9%	2.1%	-1.9%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

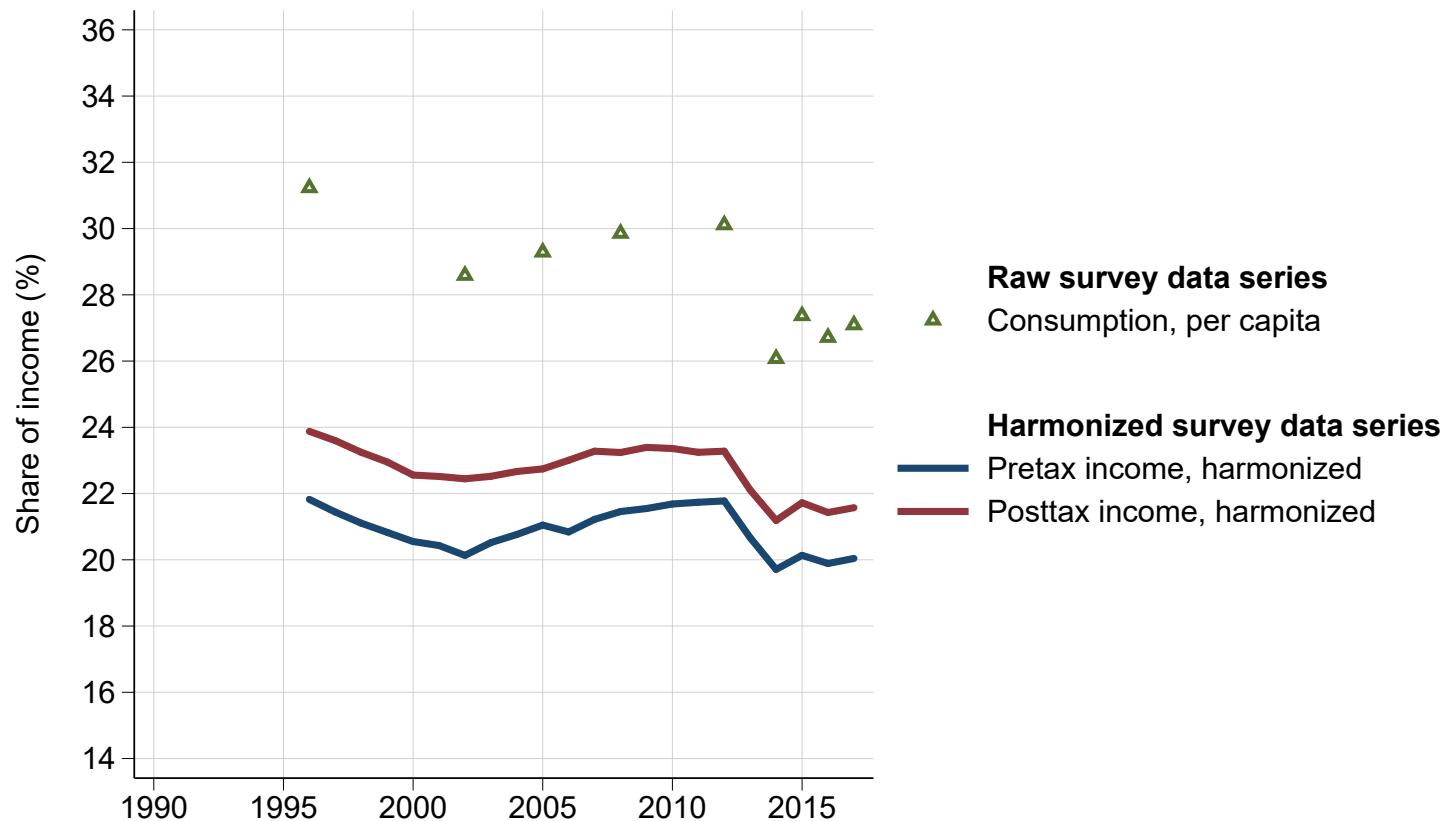
## 4.7 Albania

Figure A.4.7.1  
Albania: harmonization of survey data  
Top 10% pretax income share



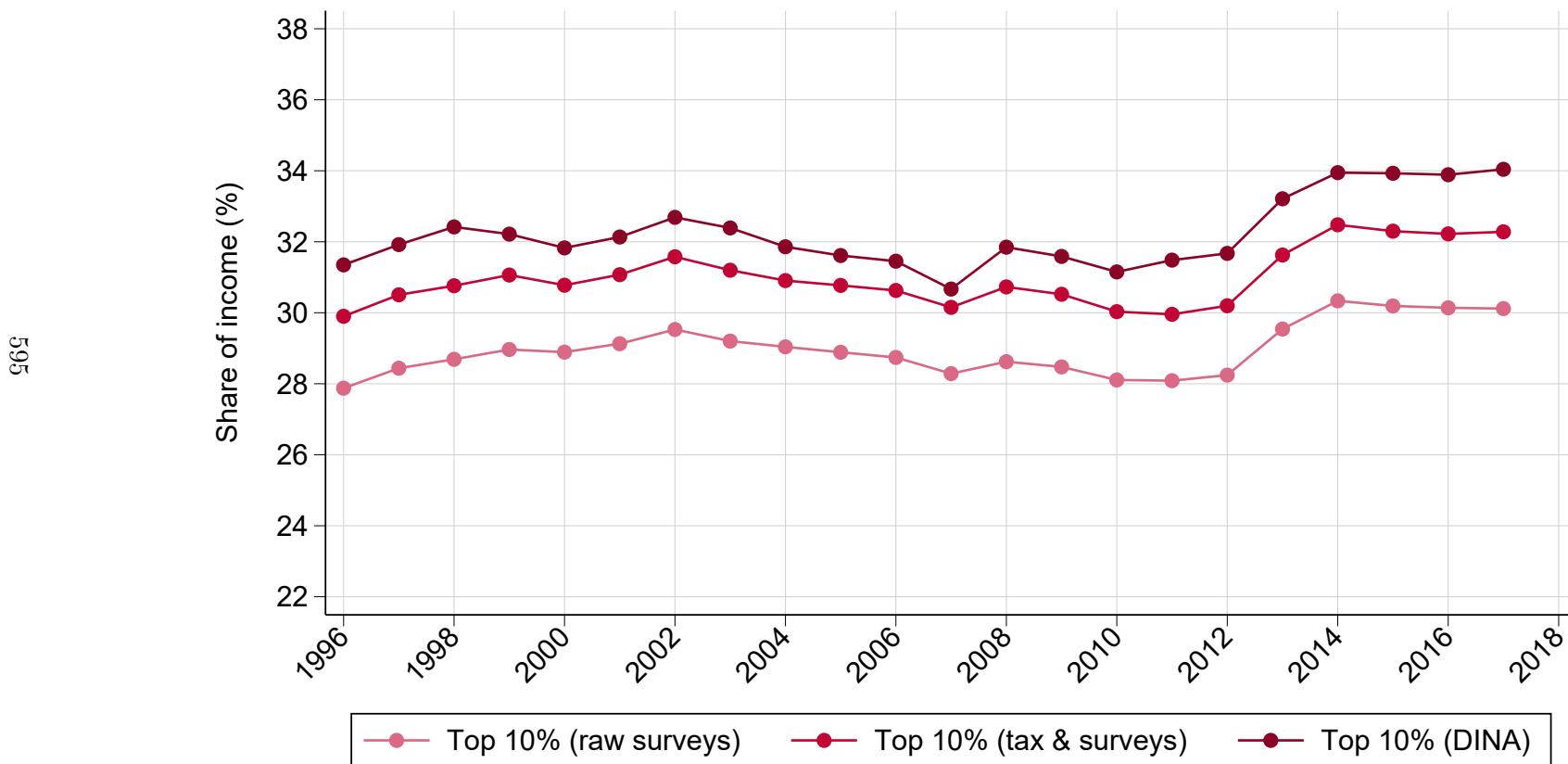
Notes. The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.4.7.2  
Albania: harmonization of survey data  
Bottom 50% pretax income share



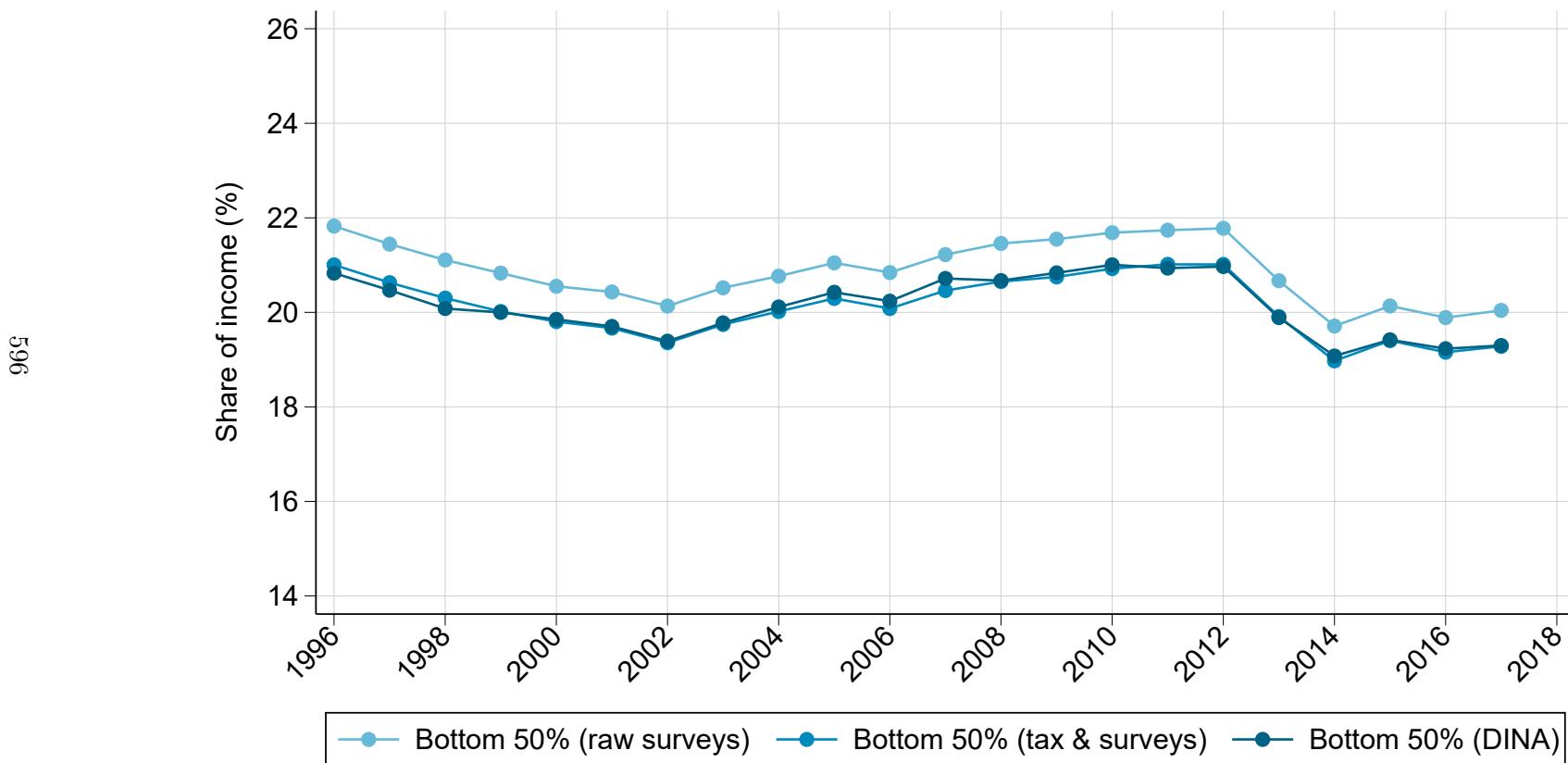
Notes. The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.7.3**  
Albania: from harmonized surveys to distributional national accounts  
**Top 10% pretax income share**



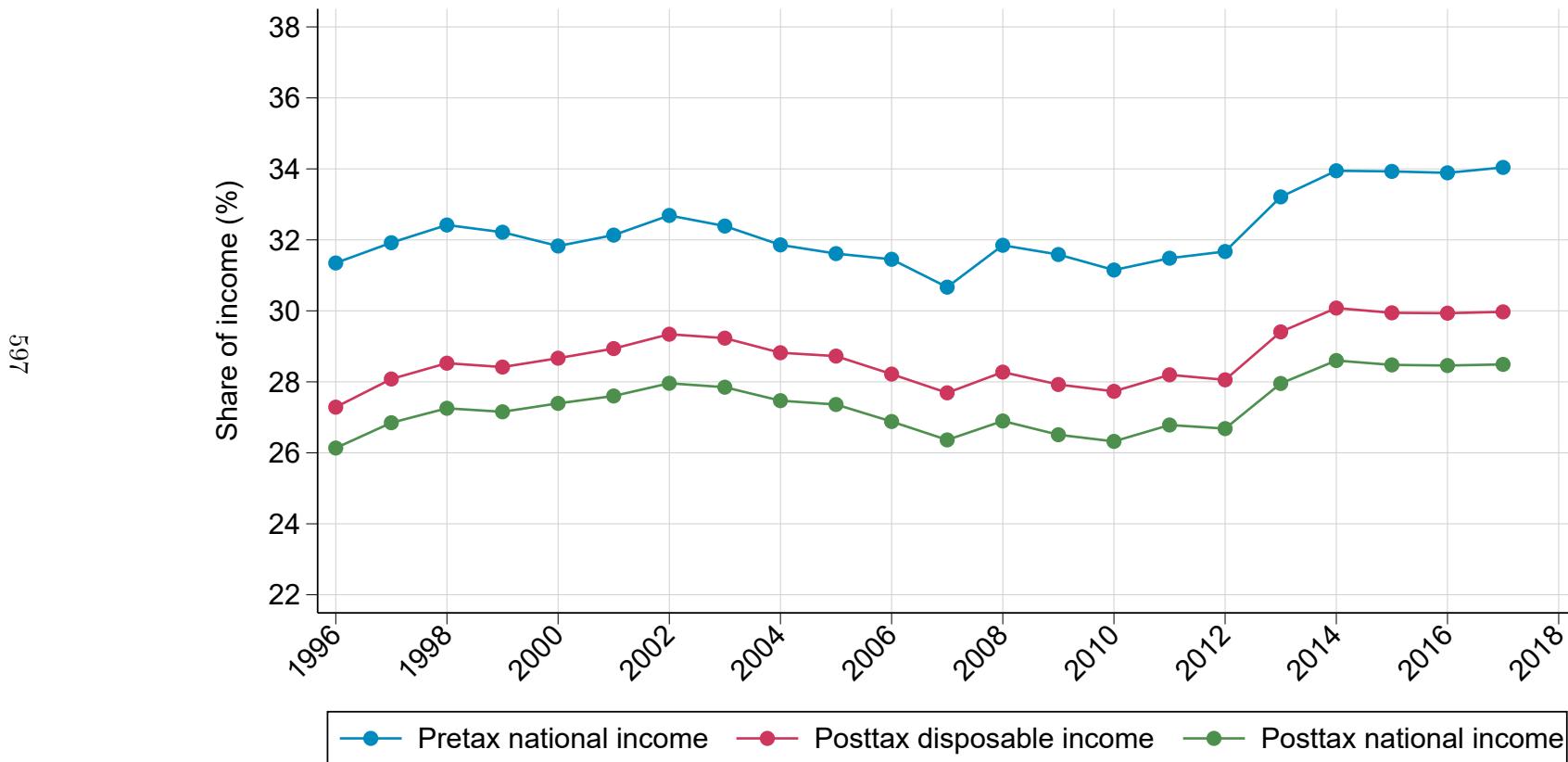
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.7.4**  
Albania: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



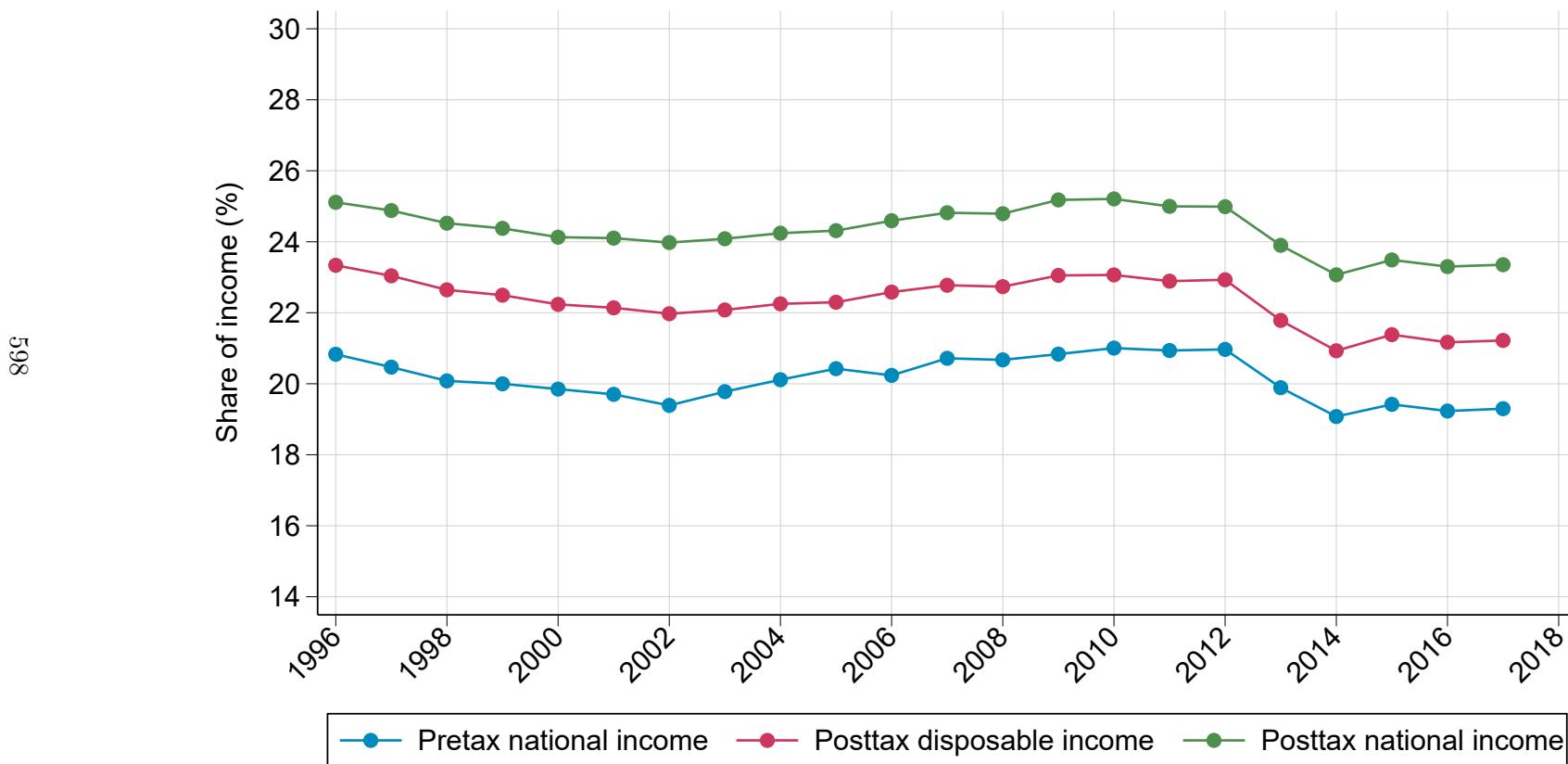
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.7.5**  
**Albania: from pretax national income to posttax national income**  
**Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.7.6**  
**Albania: from pretax national income to posttax national income**  
**Bottom 50% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.7.1**  
**Albania: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988									
1989									
1990									
1991									
1992									
1993									
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1996	x								
1997									
1998									
1999									
2000									
2001									
2002	x								
2003									
2004									
2005	x								
2006									
2007									
2008	x								
2009									
2010									
2011									
2012	x								
2013									
2014	x								
2015	x								
2016	x								
2017	x								

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.7.2**  
**Albania: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.  Imputation of social contributions.		See section 1.2.1.  See section 1.2.2.	
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (PovcalNet, 1996–2017)	See section 1.3.	Pretax and posttax incomes entirely estimated from consumption. On average, the top 10% share is 1.9 pp. higher for posttax income than consumption and 3.8 pp. for pretax income than consumption.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.  See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.4 pp. higher than in the raw survey. The top 1% share of posttax income is 1.0 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.		Due to lack of data, we use the average European distribution for corporate stocks, imputed rents and consumption.  See section 1.5.	NA  Undistributed corporate profits increase the top 10% share of income by 0.6 pp. on average; Imputed rents decrease the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 0.3 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.2 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.7.3**  
**The distribution of national income in Albania, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€11,100	100%	€11,100	100%	€11,100	100%
Bottom 50%	€4,300	19.3%	€4,700	21.2%	€5,200	23.4%
Bottom 20%	€1,800	3.2%	€2,100	3.8%	€2,700	5.0%
Next 30%	€6,000	16.1%	€6,500	17.5%	€6,800	18.4%
Middle 40%	€12,900	46.7%	€13,500	48.8%	€13,300	48.2%
Top 10%	€37,700	34.0%	€33,200	30.0%	€31,600	28.5%
Top 1%	€100,000	9.1%	€76,500	6.9%	€71,200	6.4%
Top 0.1%	€267,000	2.4%	€176,000	1.6%	€161,000	1.4%
Top 0.01%	€711,000	0.6%	€406,000	0.4%	€362,000	0.3%
Top 0.001%	€1,890,000	0.2%	€936,000	0.1%	€816,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

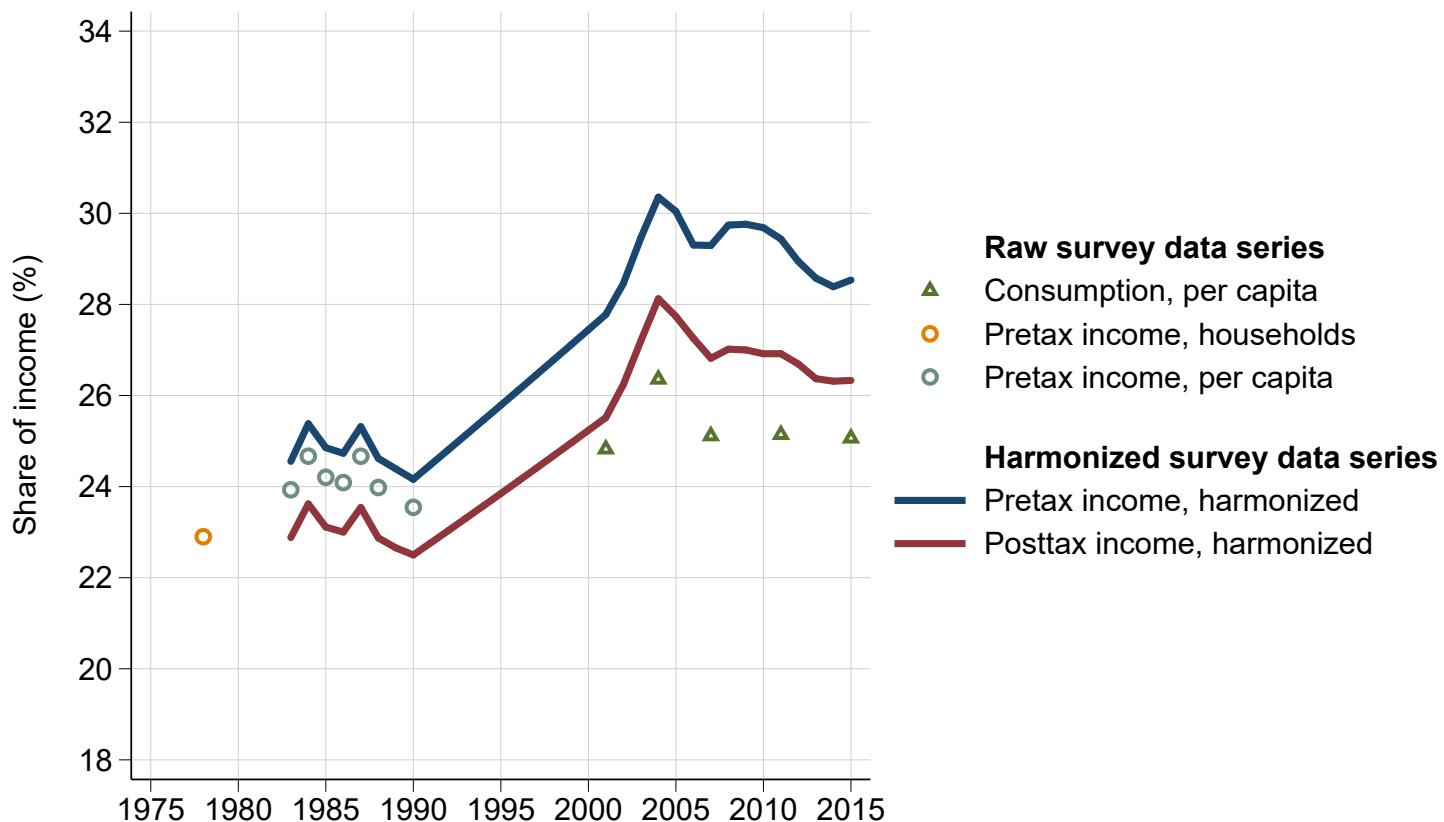
**Table A.4.7.4**  
**The distribution of national income growth in Albania, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	1.4%	1.9%	1.4%	1.9%	1.4%	1.9%
Bottom 50%	1.1%	1.2%	1.1%	1.2%	1.2%	1.3%
Bottom 20%	1.6%	1.7%	1.4%	1.9%	1.6%	1.9%
Next 30%	1.0%	1.1%	1.0%	1.0%	1.1%	1.1%
Middle 40%	1.2%	1.5%	1.3%	1.7%	1.3%	1.8%
Top 10%	1.8%	3.0%	1.7%	2.7%	1.7%	2.7%
Top 1%	2.2%	4.1%	2.1%	3.4%	2.0%	3.4%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

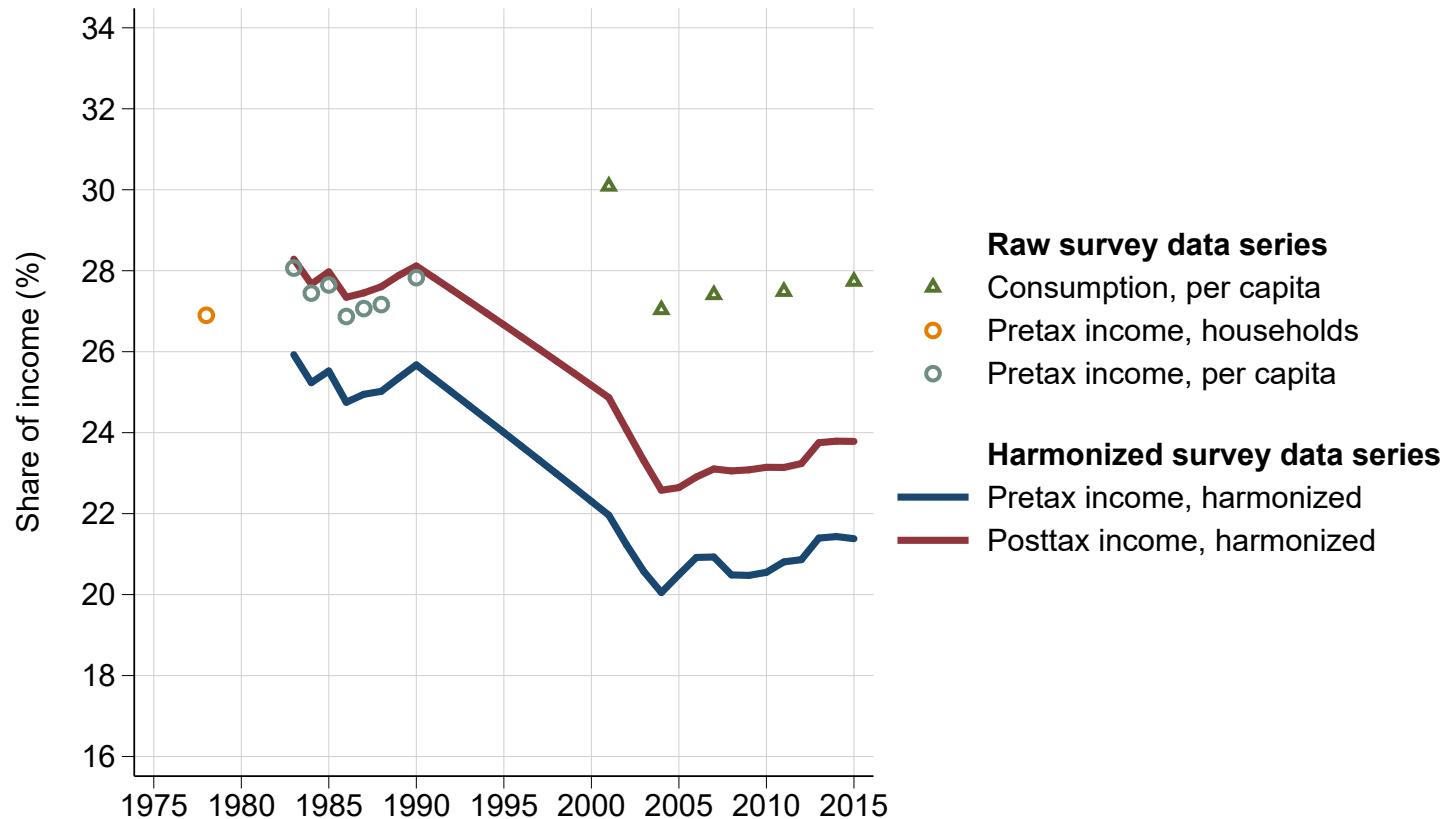
## 4.8 Bosnia and Herzegovina

Figure A.4.8.1  
Bosnia and Herzegovina: harmonization of survey data  
Top 10% pretax income share



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

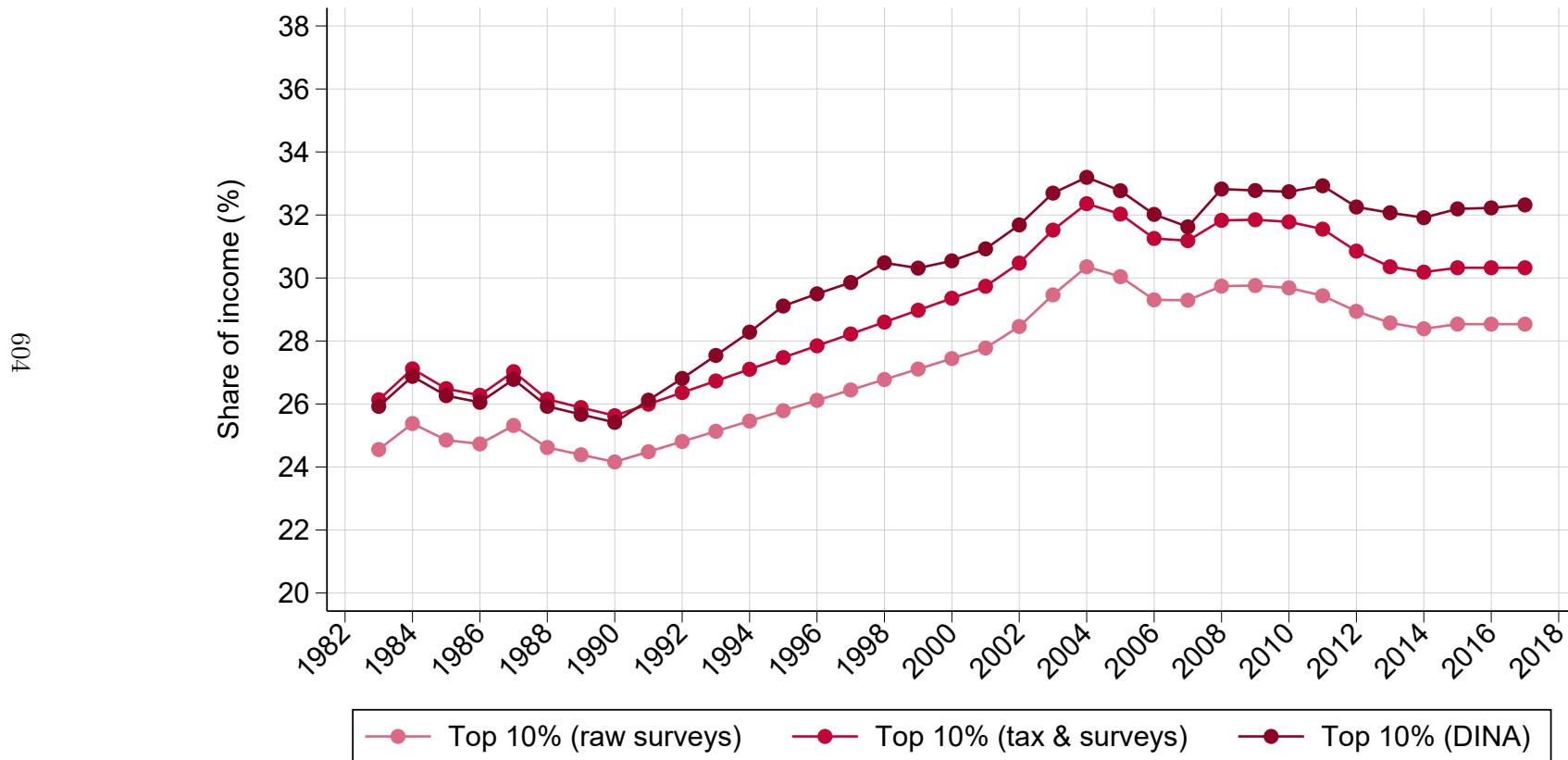
**Figure A.4.8.2**  
**Bosnia and Herzegovina: harmonization of survey data**  
**Bottom 50% pretax income share**



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.4.8.3

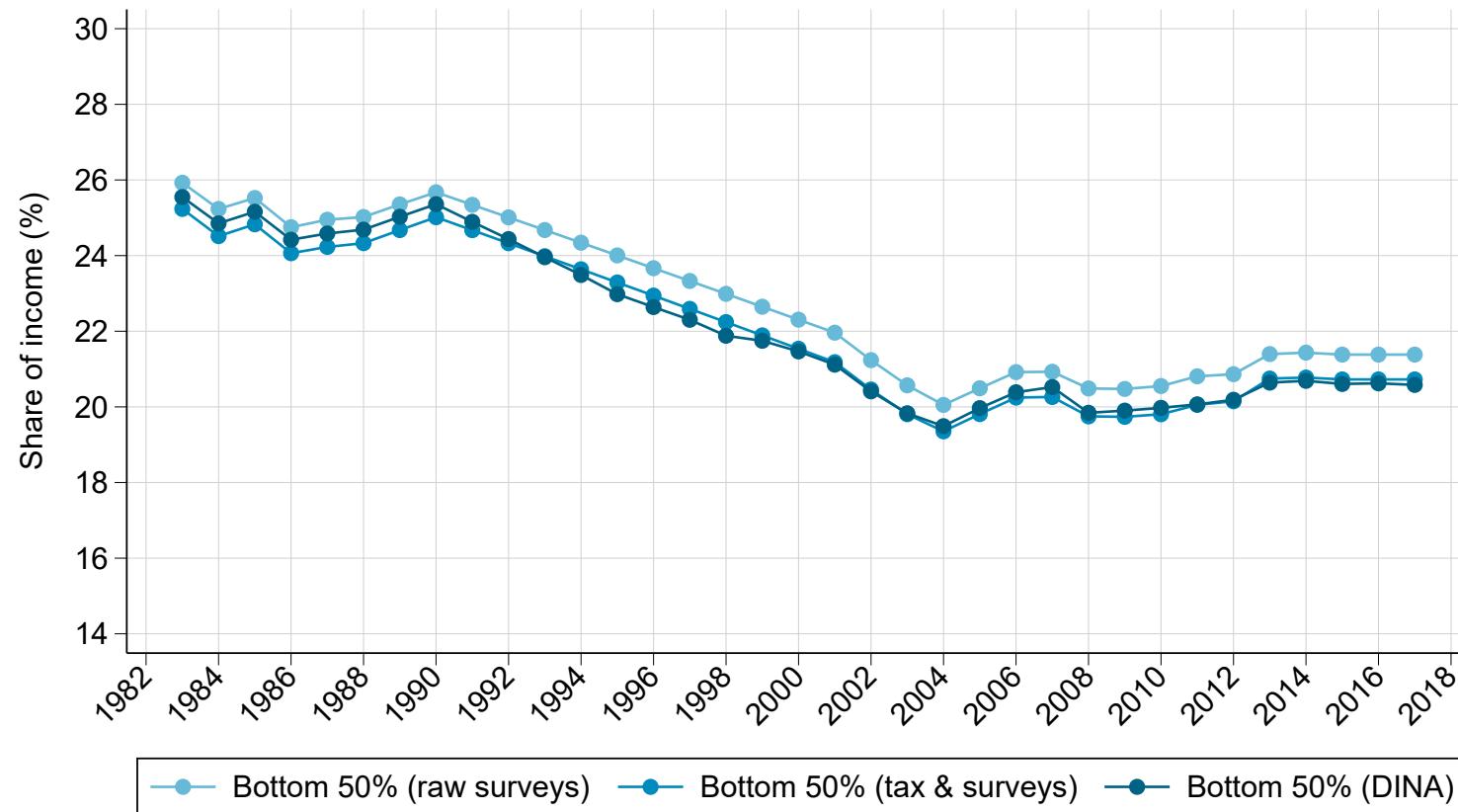
Bosnia and Herzegovina: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.4.8.4

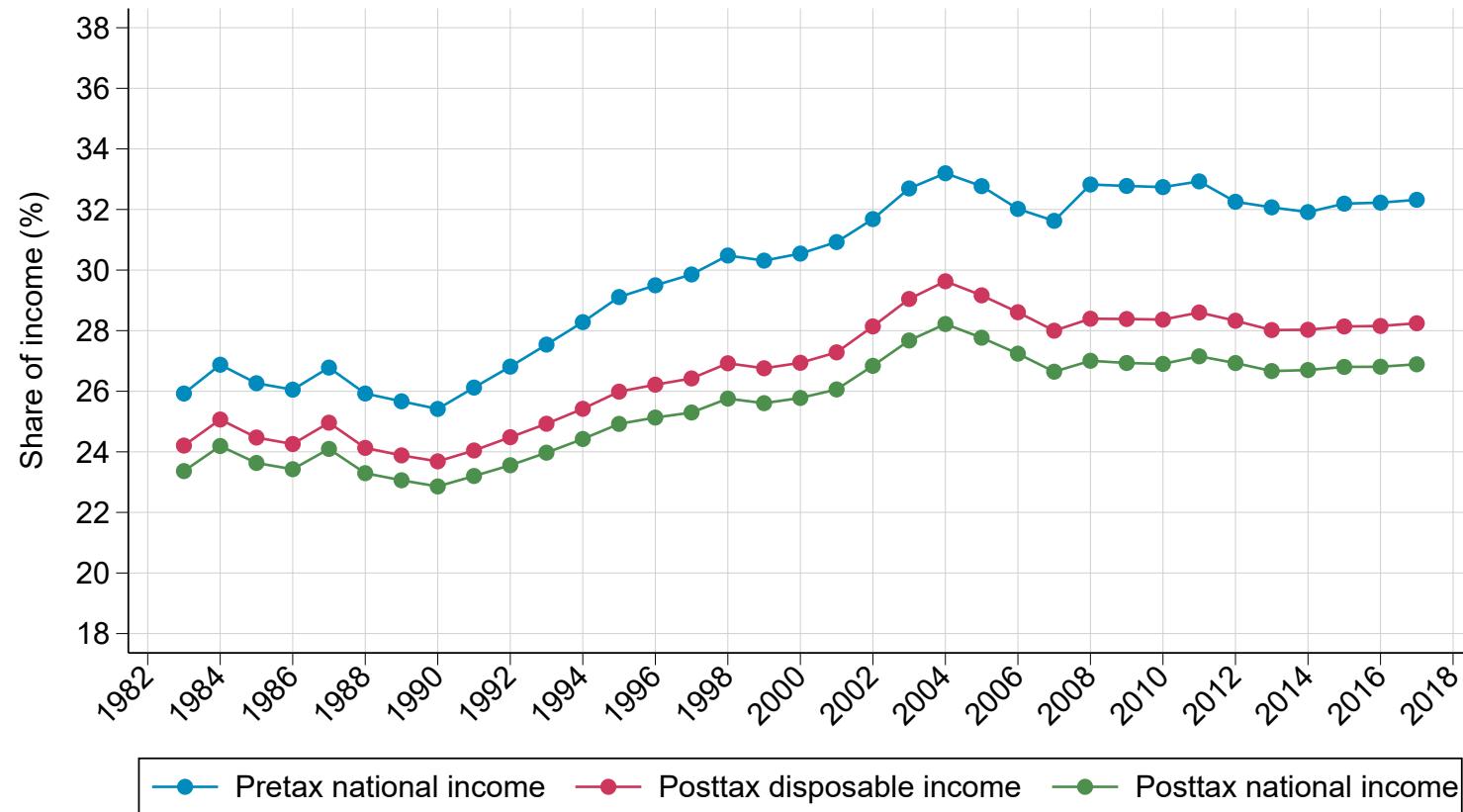
Bosnia and Herzegovina: from harmonized surveys to distributional national accounts  
Bottom 50% pretax income share



Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.4.8.5

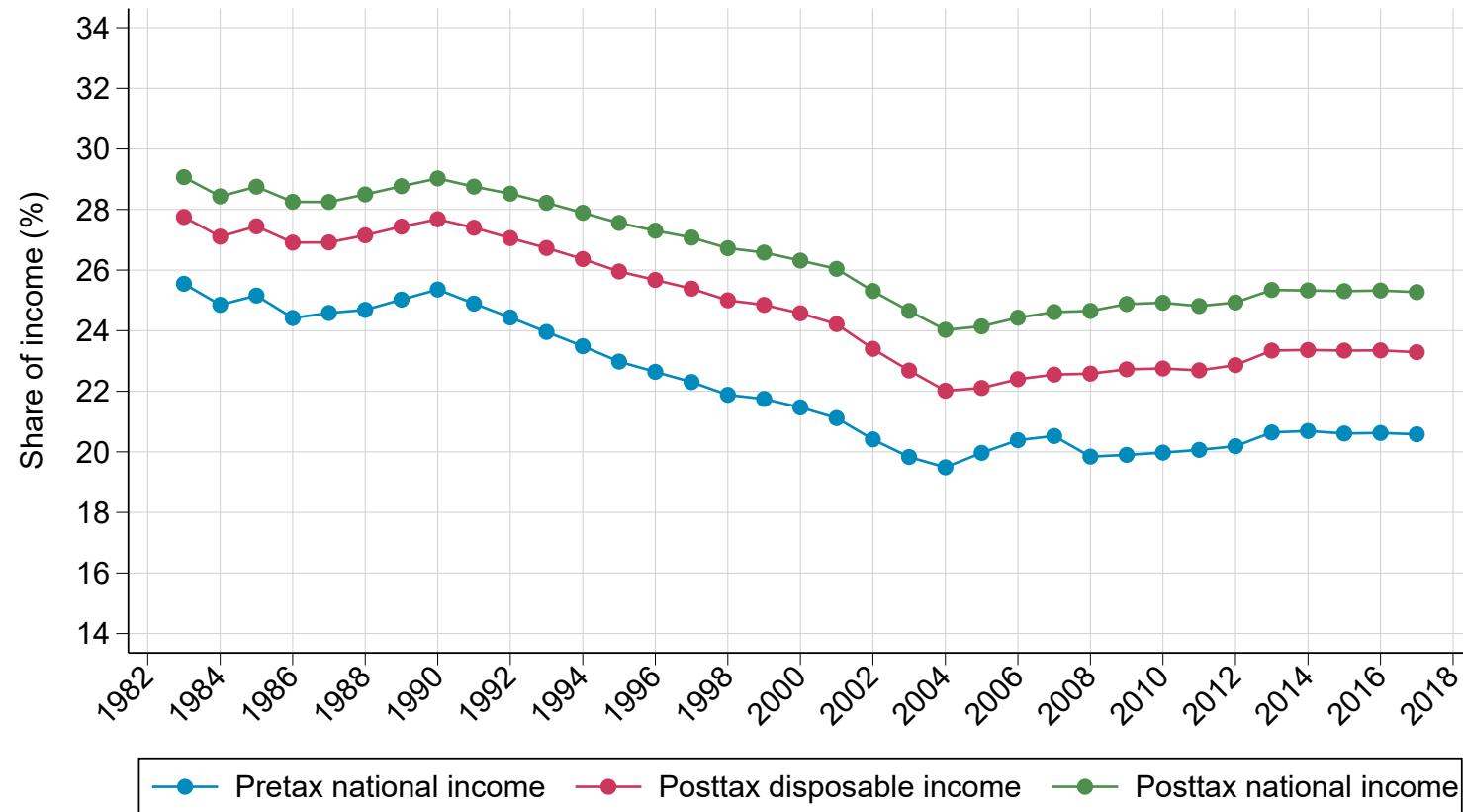
Bosnia and Herzegovina: from pretax national income to posttax national income  
Top 10% income share



Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.4.8.6

Bosnia and Herzegovina: from pretax national income to posttax national income  
Bottom 50% income share



Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.8.1**  
**Bosnia and Herzegovina: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1978	x								
1980									
1981									
1982									
1983	x								
1984	x								
1985	x								
1986	x								
1987	x								
1988	x								
1989									
1990	x								
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001	x								
2002									
2003									
2004	x								
2005									
2006									
2007	x								
2008									
2009									
2010									
2011	x								
2012									
2013									
2014									
2015	x								
2016									
2017									

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.8.2**  
**Bosnia and Herzegovina: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.		See section 1.2.1.	
	Imputation of social contributions.		See section 1.2.2.	
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (PovcalNet, 2001–2015); pretax income (Milanovic and Ying 1996, YU, 1983–1990; van Ginneken and Park 1984, YU, 1978)	See section 1.3.	Pretax and posttax incomes partially estimated from consumption. On average, the top 10% share is 0.8 pp. higher for posttax income than consumption and 3.1 pp. for pretax income than consumption.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.  See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.3 pp. higher than in the raw survey. The top 1% share of posttax income is 1.0 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.		Due to lack of data, we use the average European distribution for corporate stocks, imputed rents and consumption.  See section 1.5.	NA  Undistributed corporate profits increase the top 10% share of income by 0.7 pp. on average; Imputed rents decrease the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 0.3 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.8.3**  
**The distribution of national income in Bosnia and Herzegovina, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€11,400	100%	€11,400	100%	€11,400	100%
Bottom 50%	€4,700	20.6%	€5,300	23.3%	€5,800	25.3%
Bottom 20%	€2,100	3.6%	€2,500	4.3%	€3,100	5.5%
Next 30%	€6,500	17.0%	€7,200	19.0%	€7,500	19.8%
Middle 40%	€13,400	47.1%	€13,800	48.5%	€13,600	47.8%
Top 10%	€36,900	32.3%	€32,200	28.2%	€30,700	26.9%
Top 1%	€99,000	8.7%	€72,600	6.4%	€68,100	6.0%
Top 0.1%	€287,000	2.5%	€169,000	1.5%	€157,000	1.4%
Top 0.01%	€857,000	0.8%	€396,000	0.3%	€368,000	0.3%
Top 0.001%	€2,580,000	0.2%	€938,000	0.1%	€868,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

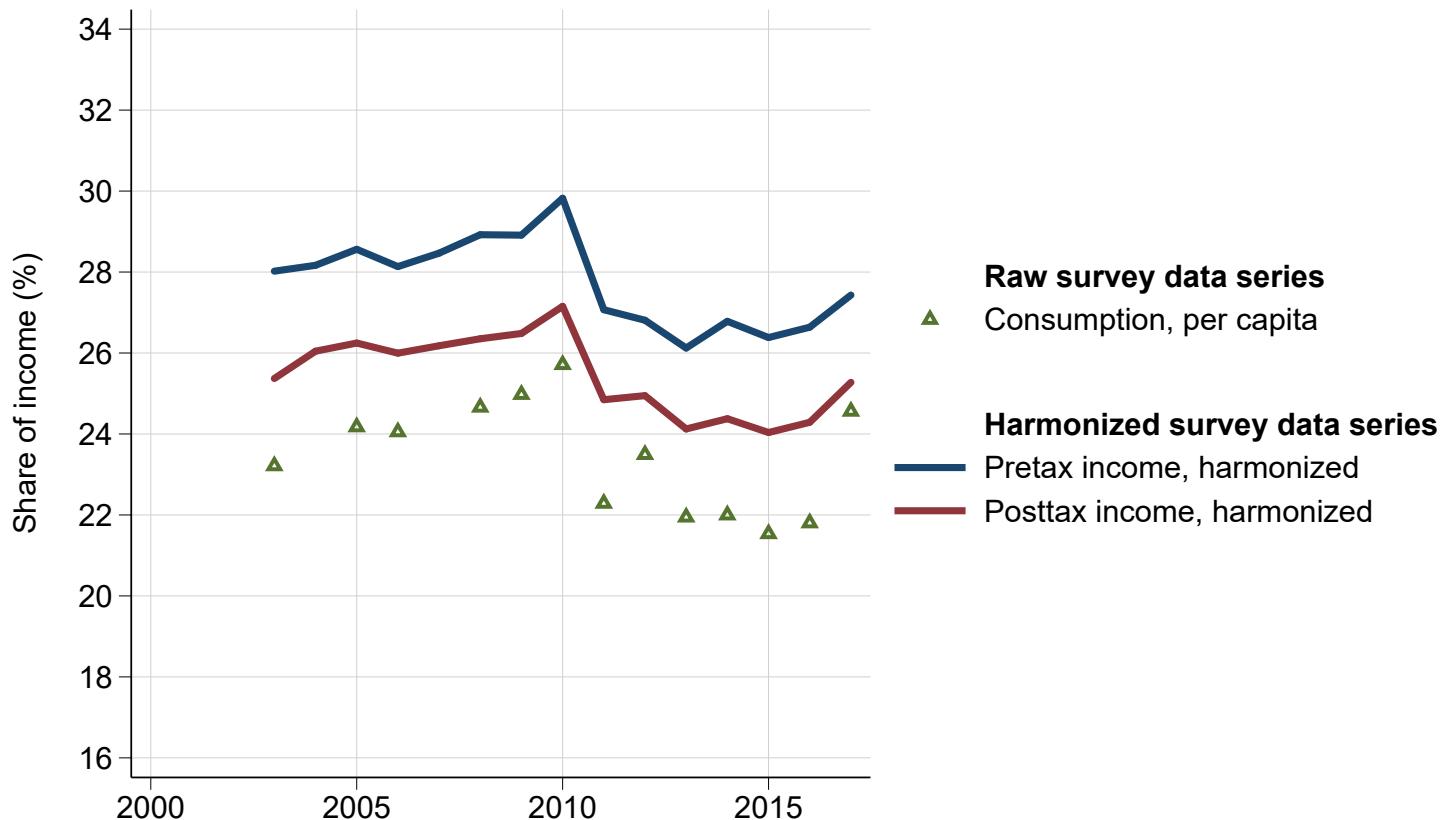
**Table A.4.8.4**  
**The distribution of national income growth in Bosnia and Herzegovina, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	4.8%	1.8%	4.8%	1.8%	4.8%	1.8%
Bottom 50%	4.2%	1.8%	4.3%	2.1%	4.4%	2.1%
Bottom 20%	3.3%	1.1%	3.5%	2.6%	3.9%	2.4%
Next 30%	4.4%	2.0%	4.5%	2.0%	4.5%	2.0%
Middle 40%	4.7%	1.6%	4.8%	1.6%	4.8%	1.6%
Top 10%	5.4%	2.0%	5.2%	1.9%	5.2%	1.9%
Top 1%	6.0%	3.3%	5.1%	3.2%	5.1%	3.2%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

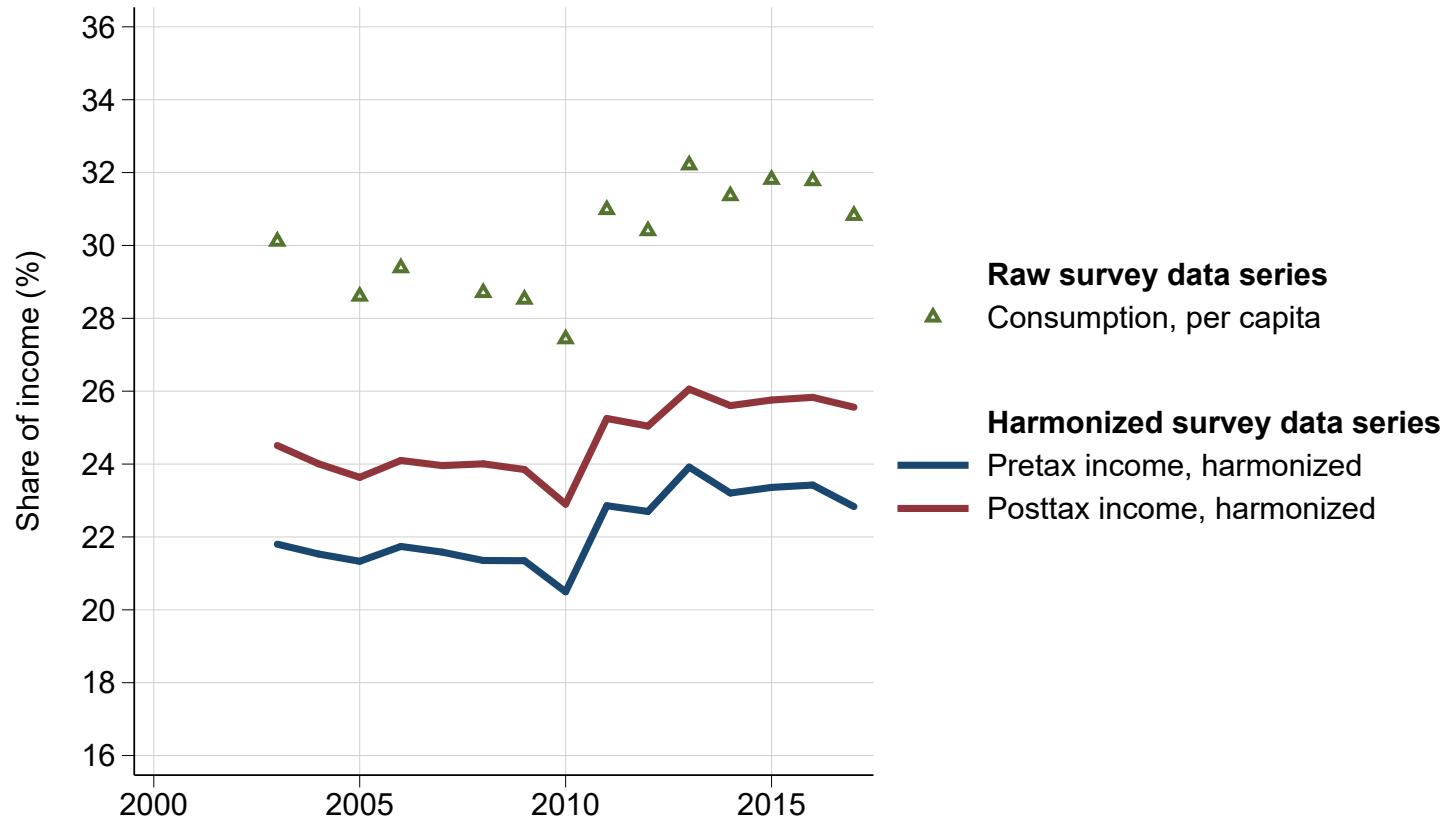
## 4.9 Kosovo

Figure A.4.9.1  
Kosovo: harmonization of survey data  
Top 10% pretax income share



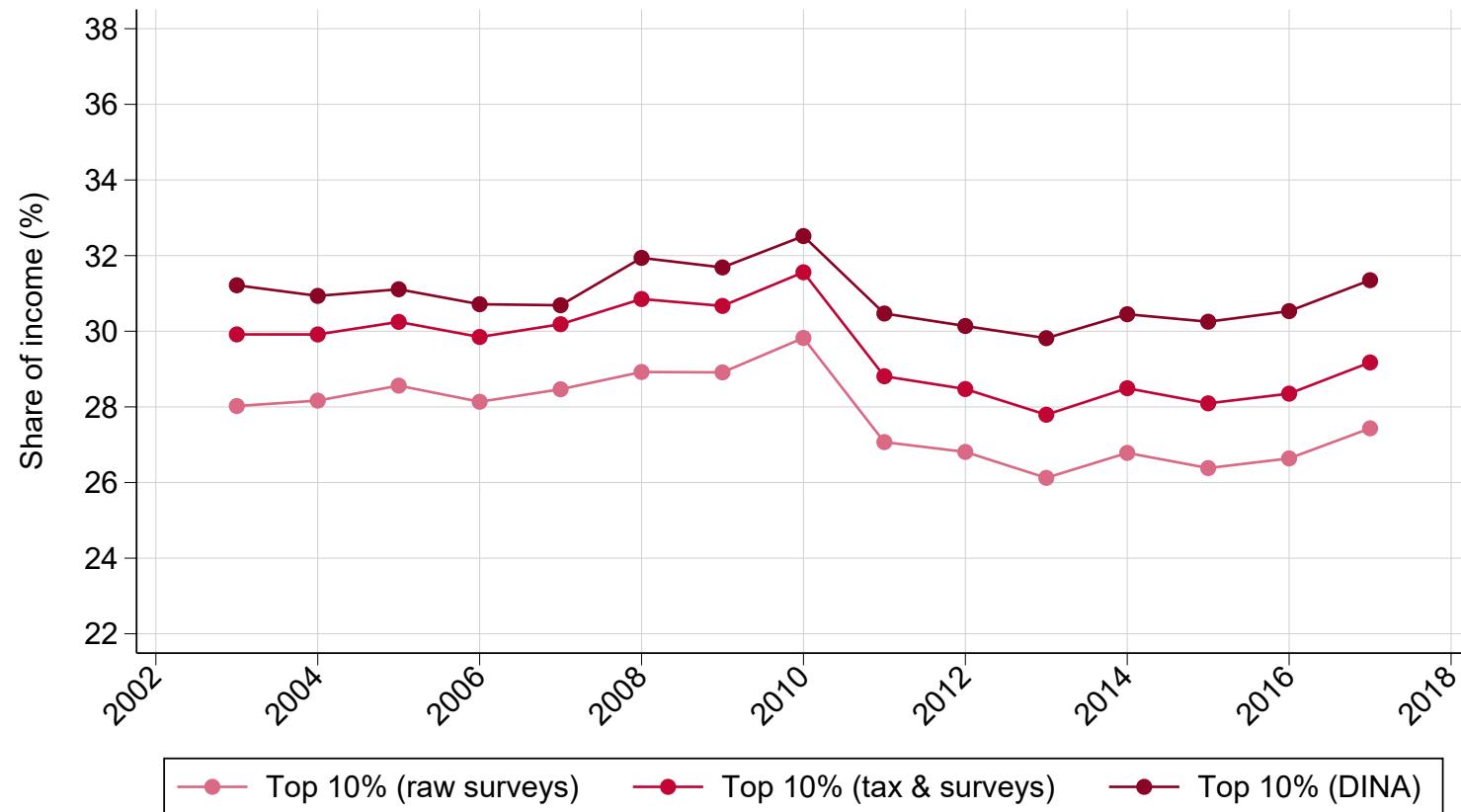
Notes. The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.9.2**  
**Kosovo: harmonization of survey data**  
**Bottom 50% pretax income share**



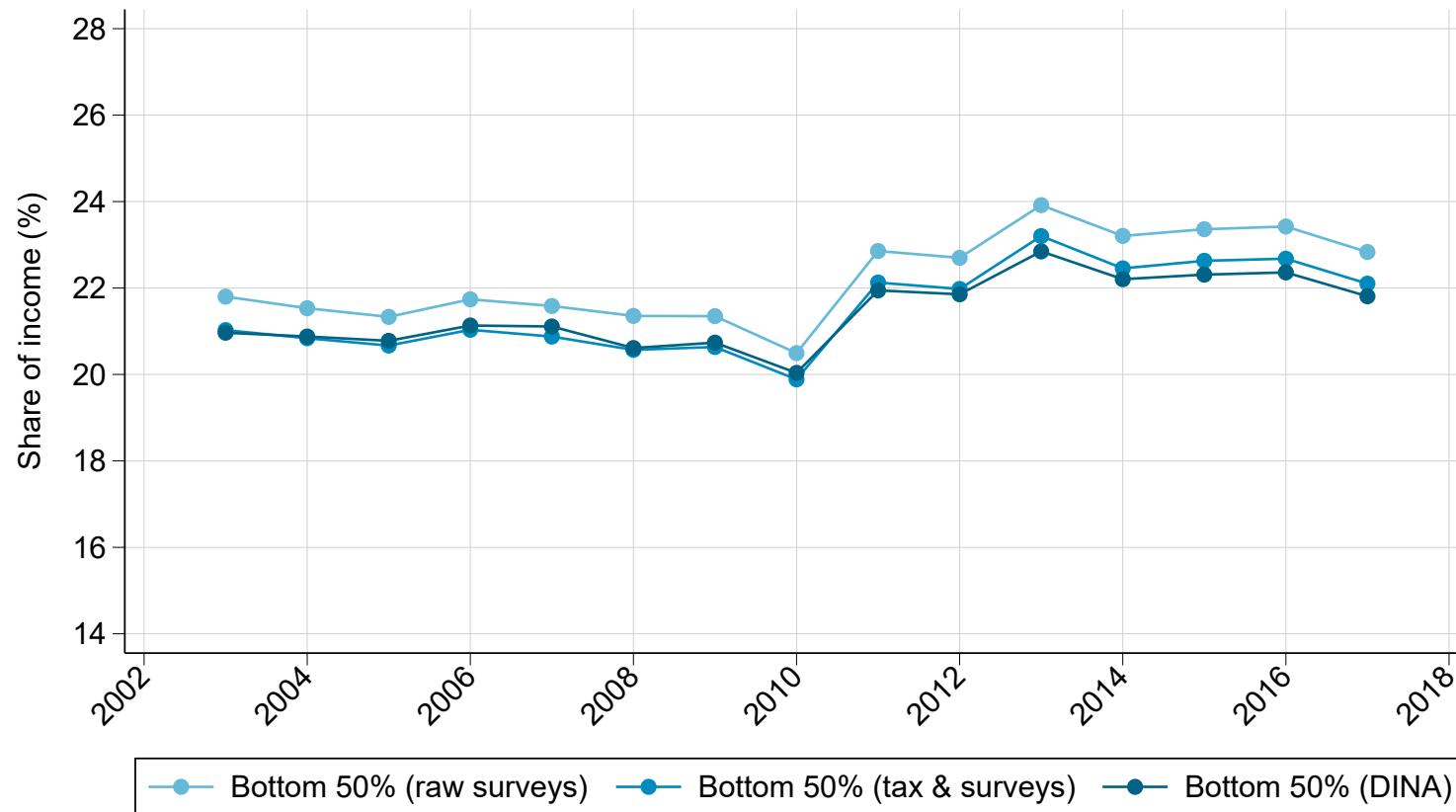
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.9.3**  
**Kosovo: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



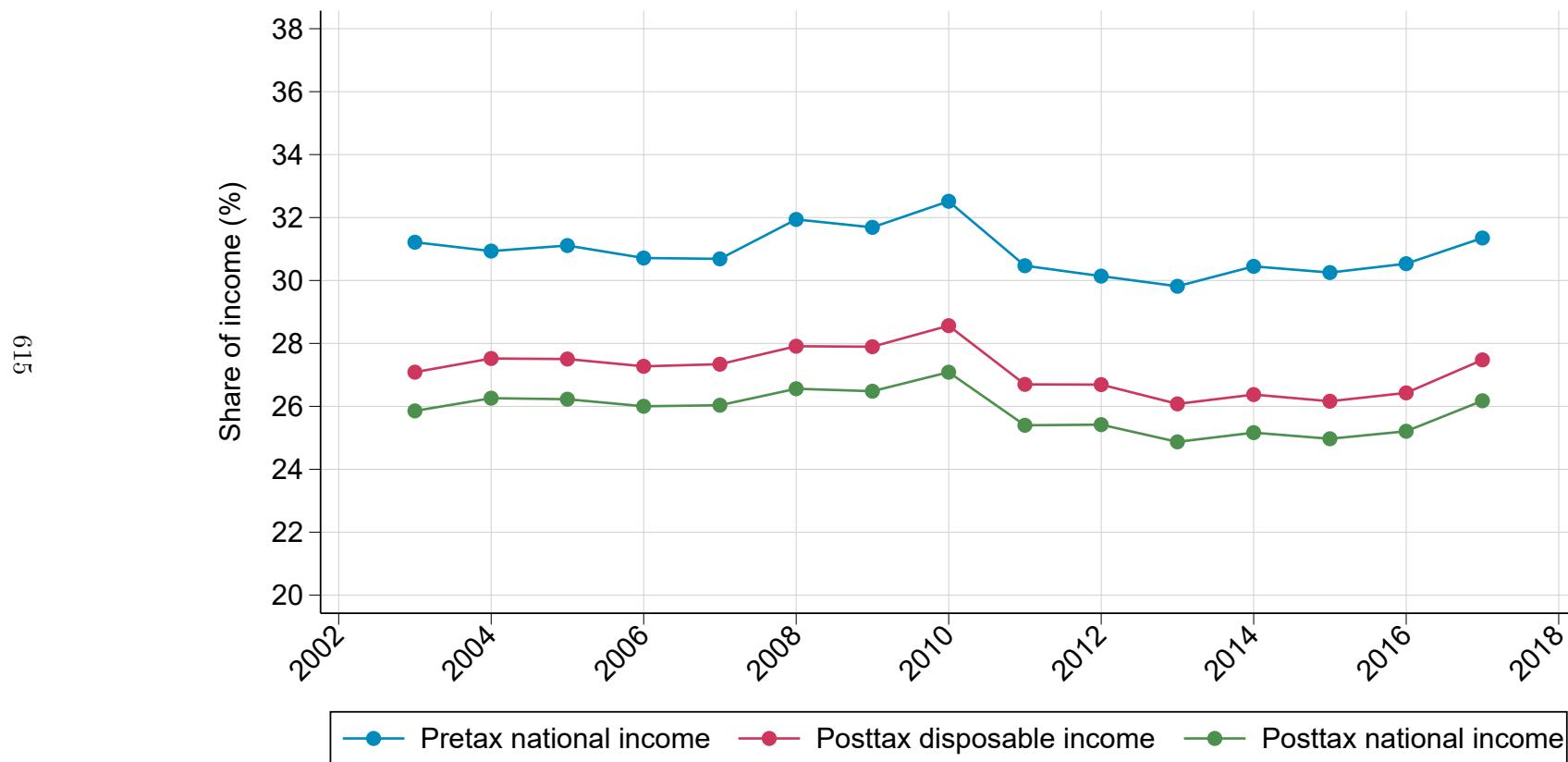
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.9.4**  
**Kosovo: from harmonized surveys to distributional national accounts**  
**Bottom 50% pretax income share**



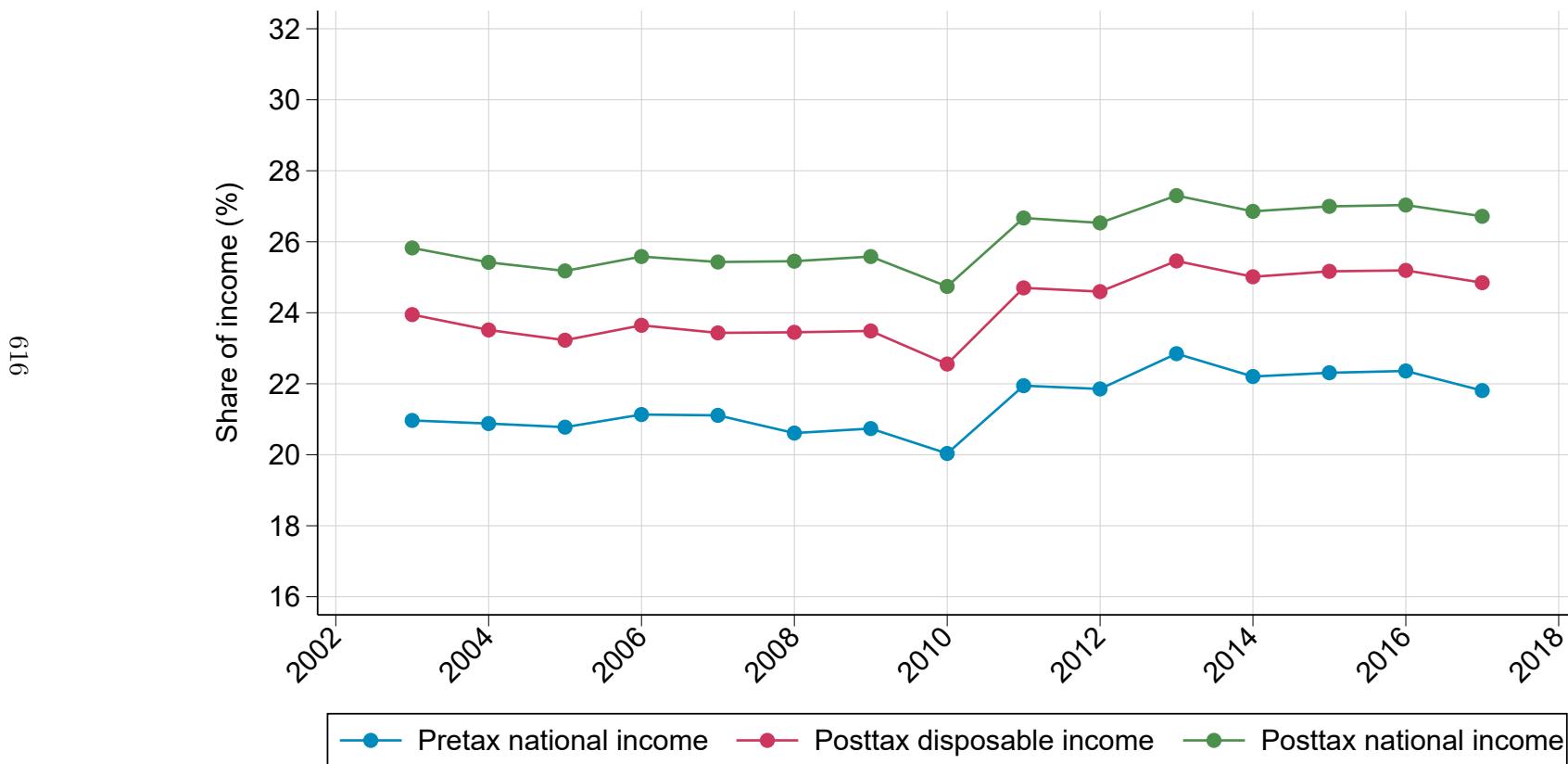
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.9.5**  
**Kosovo: from pretax national income to posttax national income**  
**Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.9.6**  
**Kosovo: from pretax national income to posttax national income**  
**Bottom 50% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.9.1**  
**Kosovo: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988									
1989									
1990									
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2000									
2001									
2002									
2003	x								
2004									
2005	x								
2006	x								
2007									
2008	x								
2009	x								
2010	x								
2011	x								
2012	x								
2013	x								
2014	x								
2015	x								
2016	x								
2017	x								

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.9.2**  
**Kosovo: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.  Imputation of social contributions.		See section 1.2.1.  See section 1.2.2.	
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (PovcalNet, 2003–2017; WYD, 2008)	See section 1.3.	Pretax and posttax incomes entirely estimated from consumption. On average, the top 10% share is 1.3 pp. higher for posttax income than consumption and 3.5 pp. for pretax income than consumption.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.  See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.2 pp. higher than in the raw survey. The top 1% share of posttax income is 0.9 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.		Due to lack of data, we use the average European distribution for corporate stocks, imputed rents and consumption.  See section 1.5.	NA  Undistributed corporate profits increase the top 10% share of income by 0.7 pp. on average; Imputed rents decrease the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 0.3 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.9.3**  
**The distribution of national income in Kosovo, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€9,600	100%	€9,600	100%	€9,600	100%
Bottom 50%	€4,200	21.8%	€4,800	24.8%	€5,100	26.7%
Bottom 20%	€1,900	3.9%	€2,300	4.8%	€2,900	5.9%
Next 30%	€5,700	17.9%	€6,400	20.0%	€6,700	20.8%
Middle 40%	€11,300	46.8%	€11,500	47.7%	€11,300	47.1%
Top 10%	€30,100	31.4%	€26,400	27.5%	€25,200	26.2%
Top 1%	€83,000	8.6%	€64,300	6.7%	€60,200	6.3%
Top 0.1%	€241,000	2.5%	€169,000	1.8%	€157,000	1.6%
Top 0.01%	€717,000	0.7%	€459,000	0.5%	€426,000	0.4%
Top 0.001%	€2,140,000	0.2%	€1,260,000	0.1%	€1,170,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

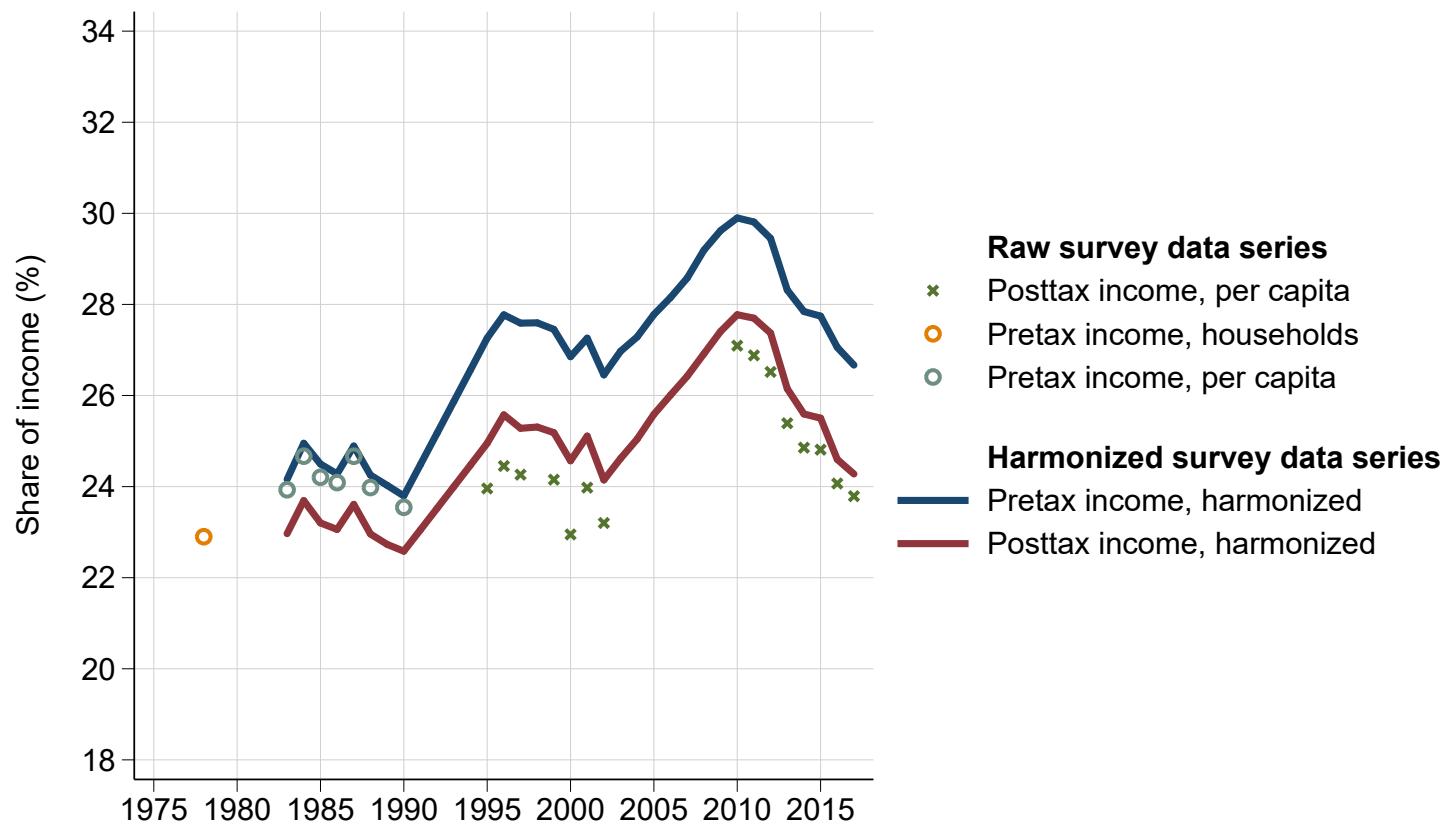
**Table A.4.9.4**  
**The distribution of national income growth in Kosovo, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population		2.0%		2.0%		2.0%
Bottom 50%		2.4%		2.6%		2.5%
Bottom 20%		2.8%		3.5%		3.1%
Next 30%		2.3%		2.4%		2.4%
Middle 40%		1.7%		1.7%		1.7%
Top 10%		2.2%		2.1%		2.1%
Top 1%		4.1%		4.0%		4.0%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

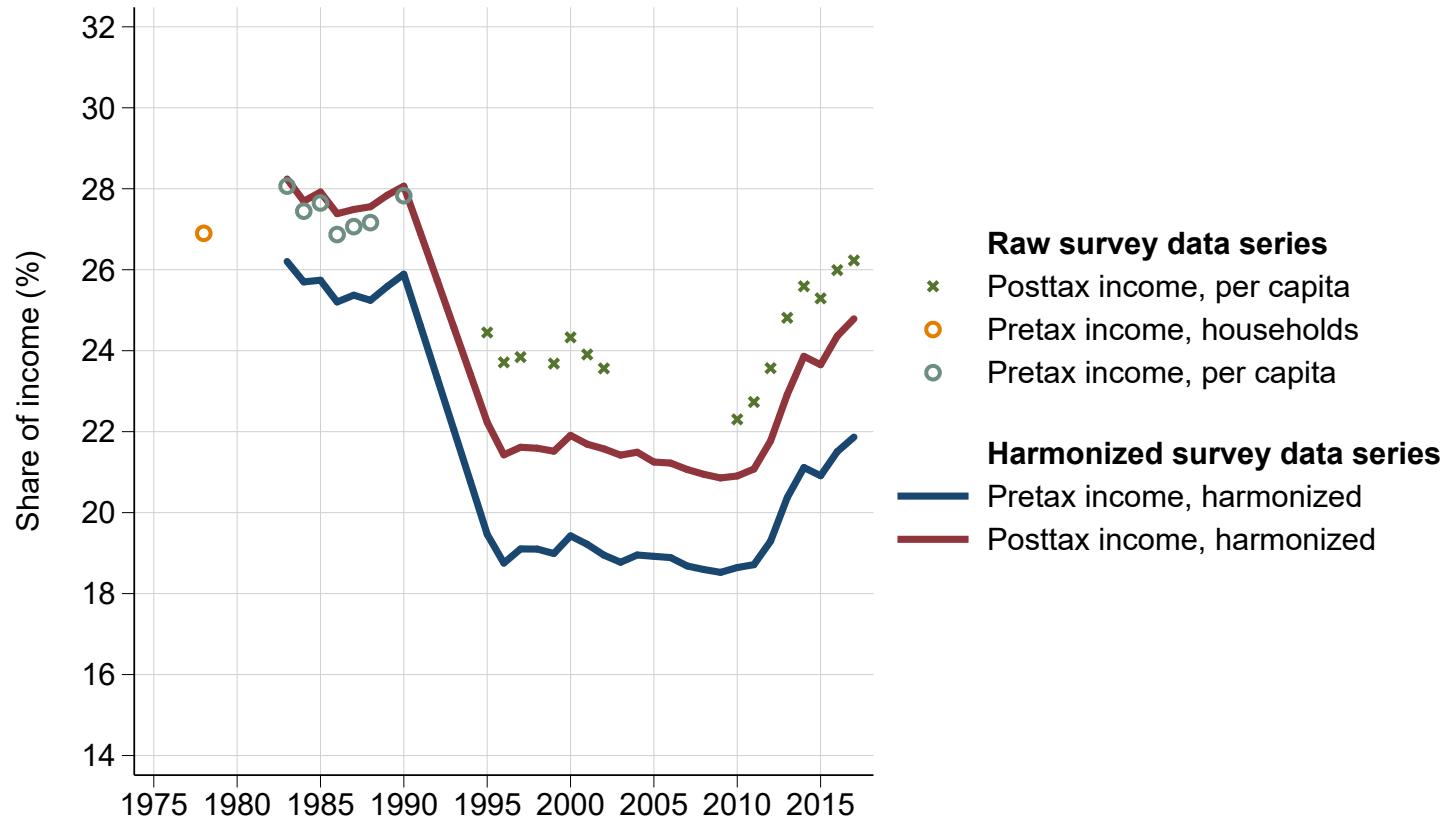
## 4.10 North Macedonia

**Figure A.4.10.1**  
North Macedonia: harmonization of survey data  
Top 10% pretax income share



*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

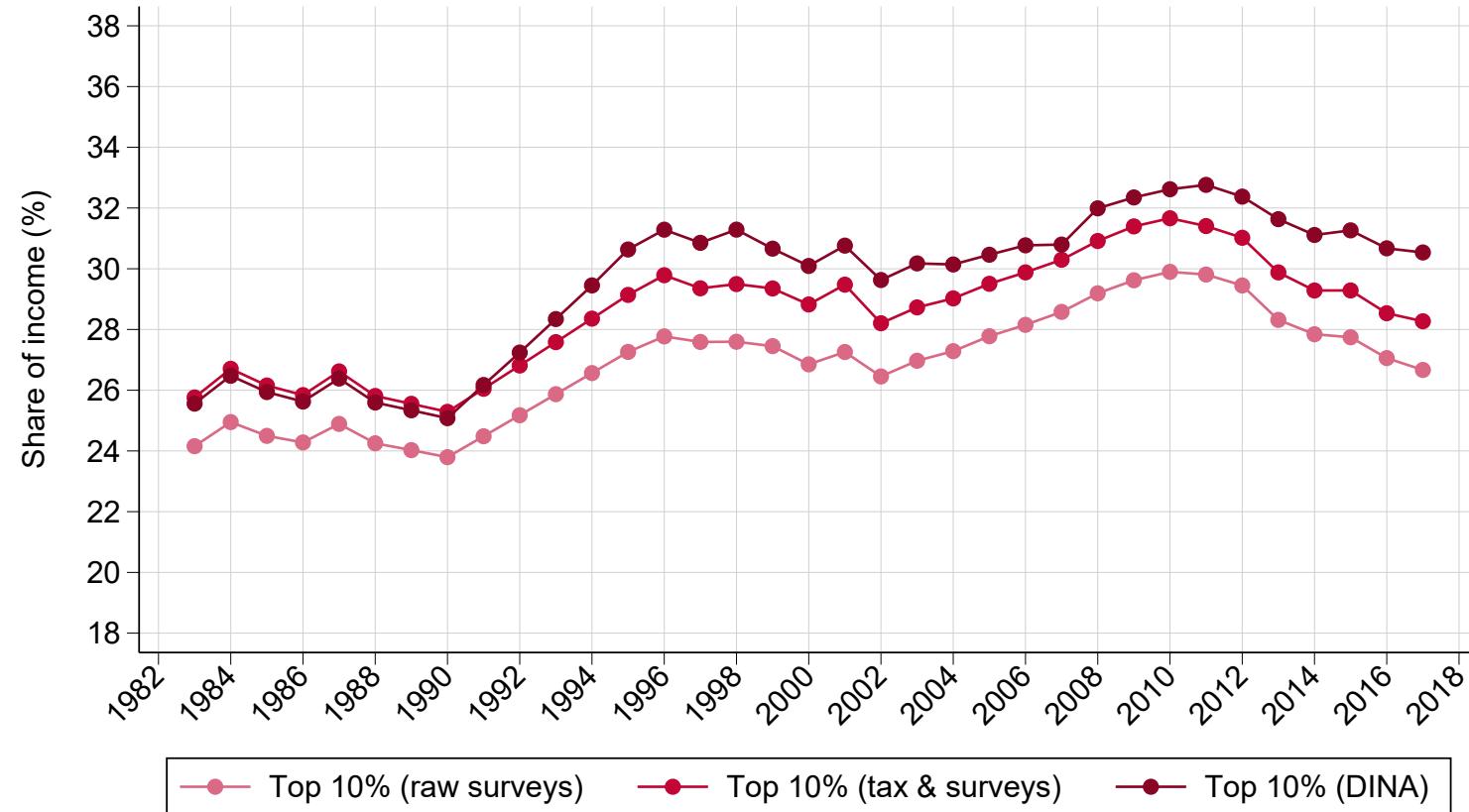
**Figure A.4.10.2**  
**North Macedonia: harmonization of survey data**  
**Bottom 50% pretax income share**



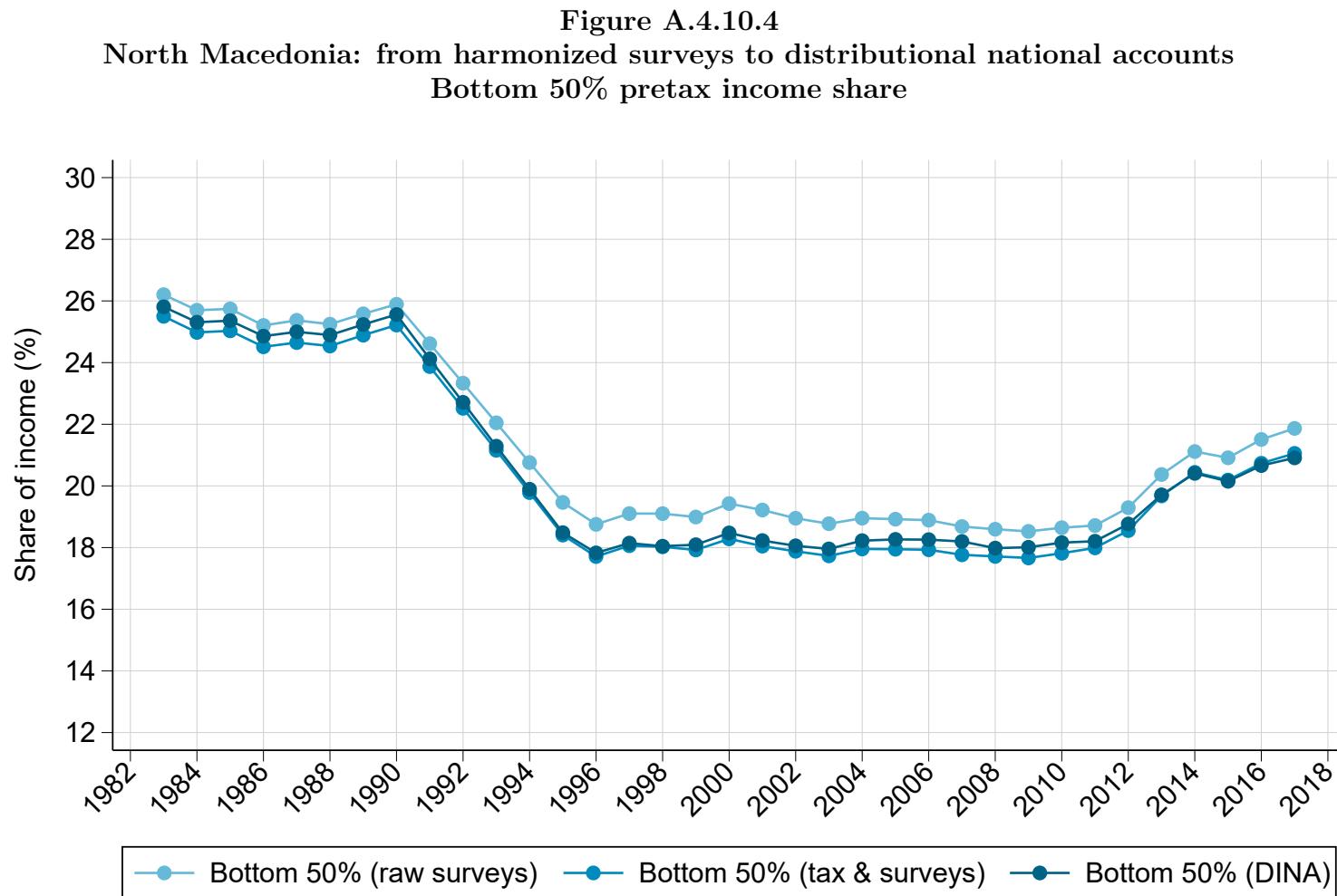
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

Figure A.4.10.3

North Macedonia: from harmonized surveys to distributional national accounts  
Top 10% pretax income share



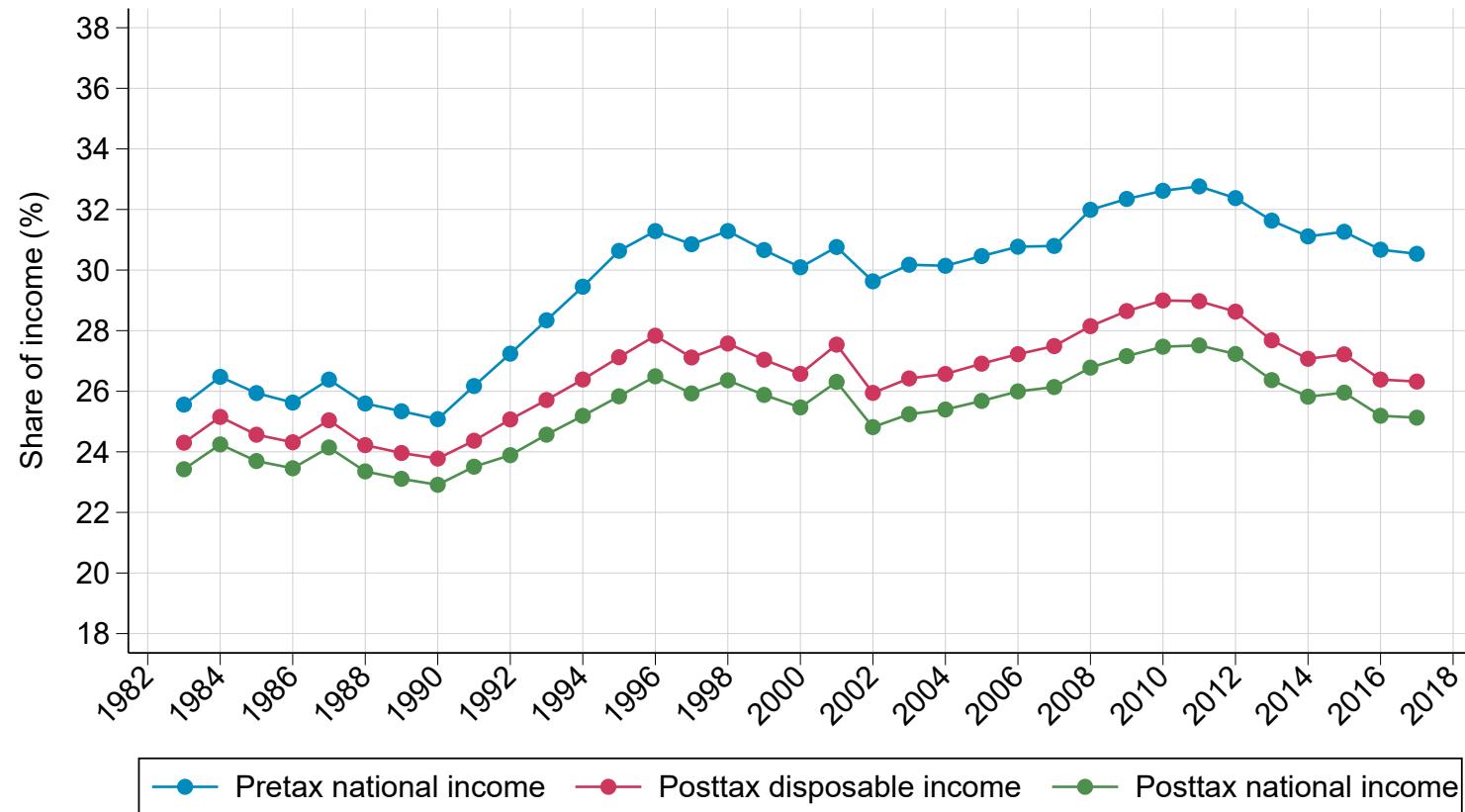
Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

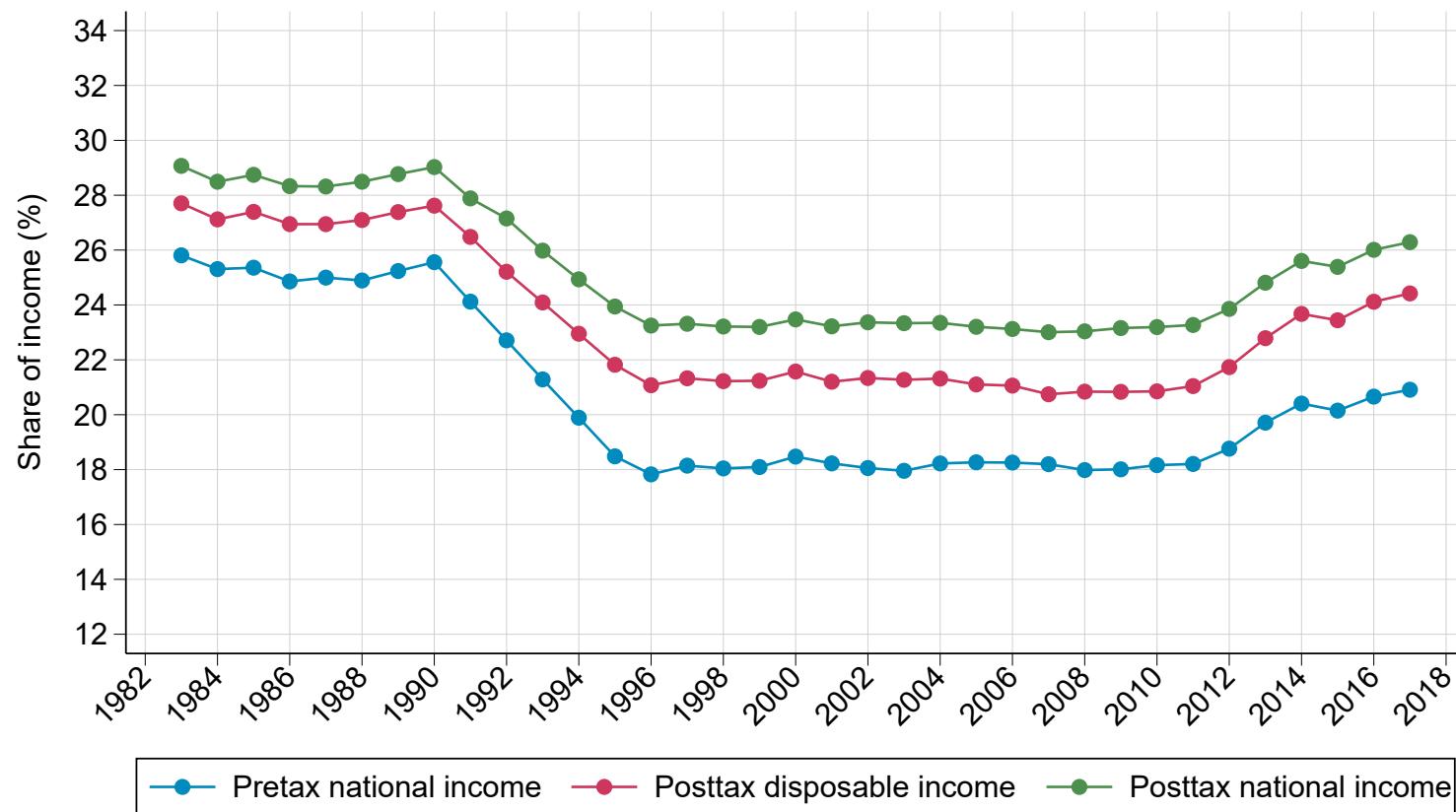
**Figure A.4.10.5**

**North Macedonia: from pretax national income to posttax national income  
Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.10.6**  
**North Macedonia: from pretax national income to posttax national income**  
**Bottom 50% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.10.1**  
**North Macedonia: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1978	x								
1980									
1981									
1982									
1983	x								
1984	x								
1985	x								
1986	x								
1987	x								
1988	x								
1989									
1990	x								
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2002	x								
2003									
2004									
2005									
2006									
2007									
2008									
2009									
2010	x								
2011	x								
2012	x								
2013	x								
2014	x								
2015	x								
2016	x								
2017	x								

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.10.2**  
**North Macedonia: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.		See section 1.2.1.	
	Imputation of social contributions.		See section 1.2.2.	
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	posttax income (PovcalNet, 2010–2017; Transmonee 2004, 1999–2000; Transmonee 2011, 1995–2002); pretax income (Milanovic and Ying 1996, YU, 1983–1990; van Ginneken and Park 1984, YU, 1978)	See section 1.3.	Pretax income partially estimated from posttax income. On average, the top 10% share is 1.9 pp. higher for pretax income than posttax income.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.  See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.1 pp. higher than in the raw survey. The top 1% share of posttax income is 0.9 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.		Due to lack of data, we use the average European distribution for corporate stocks, imputed rents and consumption.  See section 1.5.	NA  Undistributed corporate profits increase the top 10% share of income by 0.7 pp. on average; Imputed rents decrease the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 0.3 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.10.3**  
**The distribution of national income in North Macedonia, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€11,800	100%	€11,800	100%	€11,800	100%
Bottom 50%	€5,000	20.9%	€5,800	24.4%	€6,200	26.3%
Bottom 20%	€1,900	3.2%	€2,600	4.4%	€3,300	5.5%
Next 30%	€7,000	17.7%	€7,900	20.1%	€8,200	20.8%
Middle 40%	€14,400	48.6%	€14,600	49.3%	€14,400	48.6%
Top 10%	€36,200	30.5%	€31,200	26.3%	€29,800	25.1%
Top 1%	€94,000	7.9%	€72,000	6.1%	€67,600	5.7%
Top 0.1%	€264,000	2.2%	€181,000	1.5%	€168,000	1.4%
Top 0.01%	€766,000	0.6%	€471,000	0.4%	€437,000	0.4%
Top 0.001%	€2,250,000	0.2%	€1,240,000	0.1%	€1,150,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

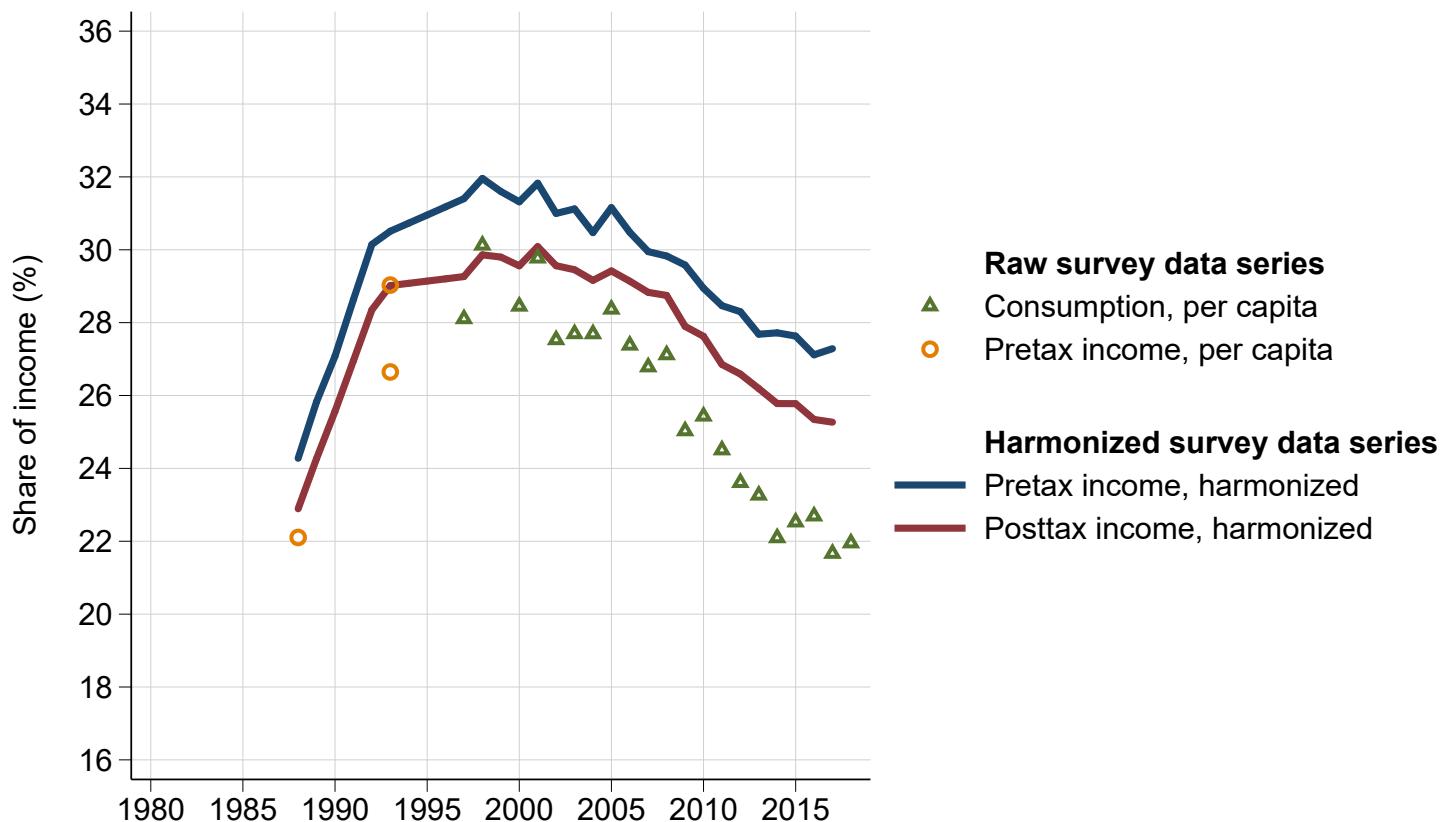
**Table A.4.10.4**  
**The distribution of national income growth in North Macedonia, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	-0.2%	1.9%	-0.2%	1.9%	-0.2%	1.9%
Bottom 50%	-0.8%	3.3%	-0.6%	3.5%	-0.5%	3.2%
Bottom 20%	-2.0%	6.6%	-1.4%	8.0%	-1.1%	5.7%
Next 30%	-0.5%	2.8%	-0.4%	2.8%	-0.3%	2.7%
Middle 40%	-0.2%	1.4%	-0.2%	1.4%	-0.2%	1.4%
Top 10%	0.2%	1.8%	0.0%	1.4%	-0.1%	1.5%
Top 1%	0.6%	3.8%	0.0%	3.1%	-0.1%	3.1%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

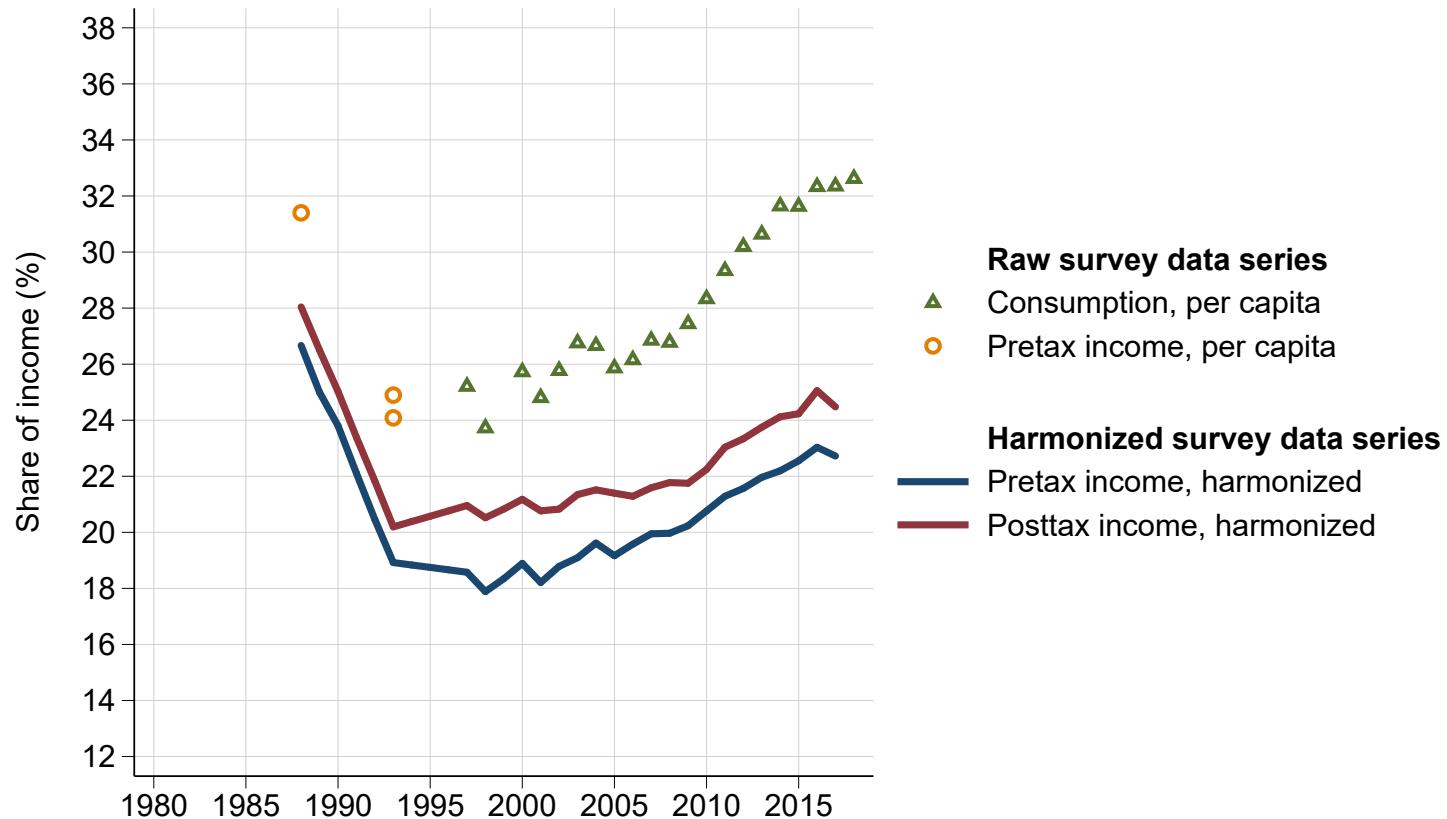
## 4.11 Moldova

**Figure A.4.11.1**  
**Moldova: harmonization of survey data**  
**Top 10% pretax income share**



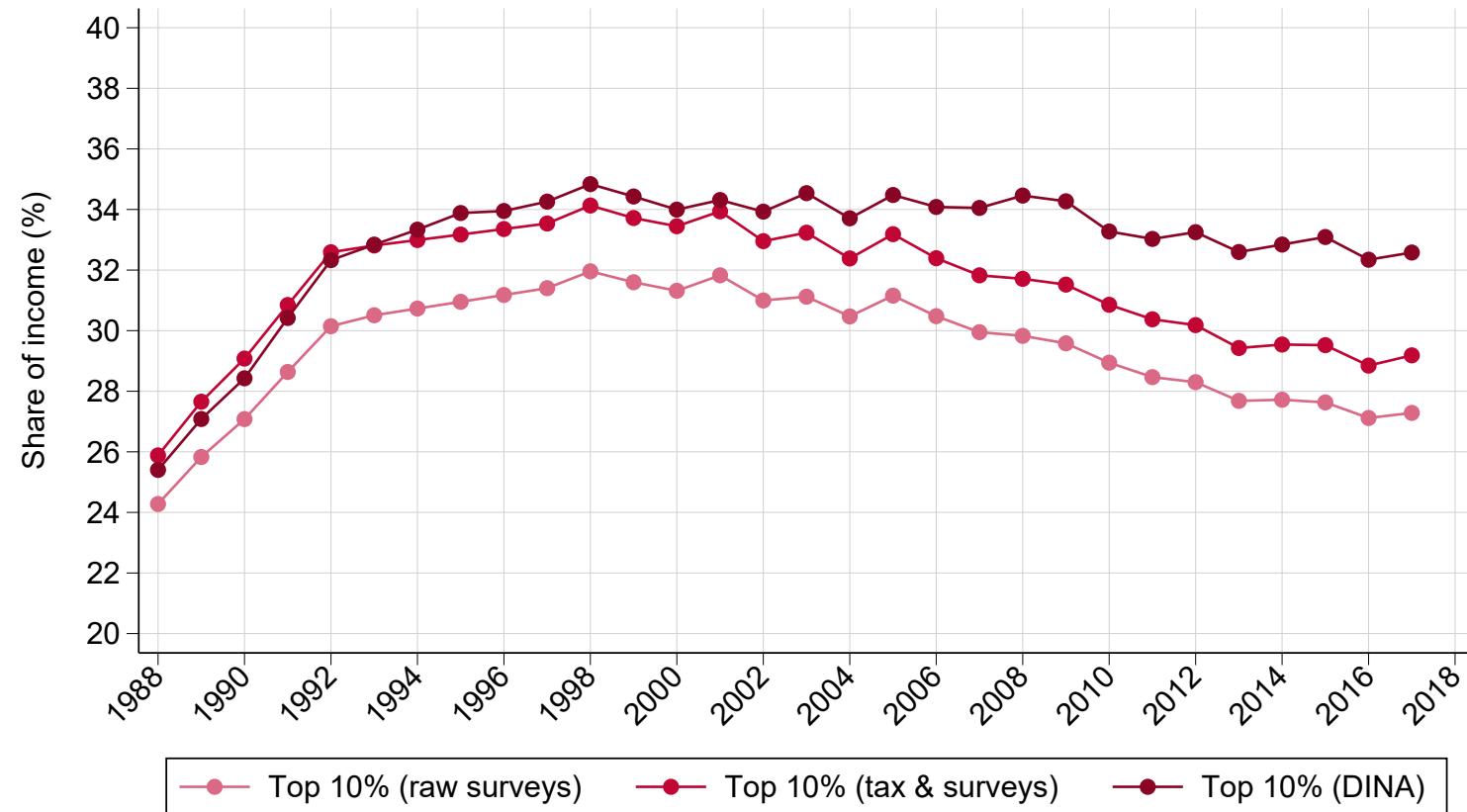
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.11.2**  
**Moldova: harmonization of survey data**  
**Bottom 50% pretax income share**



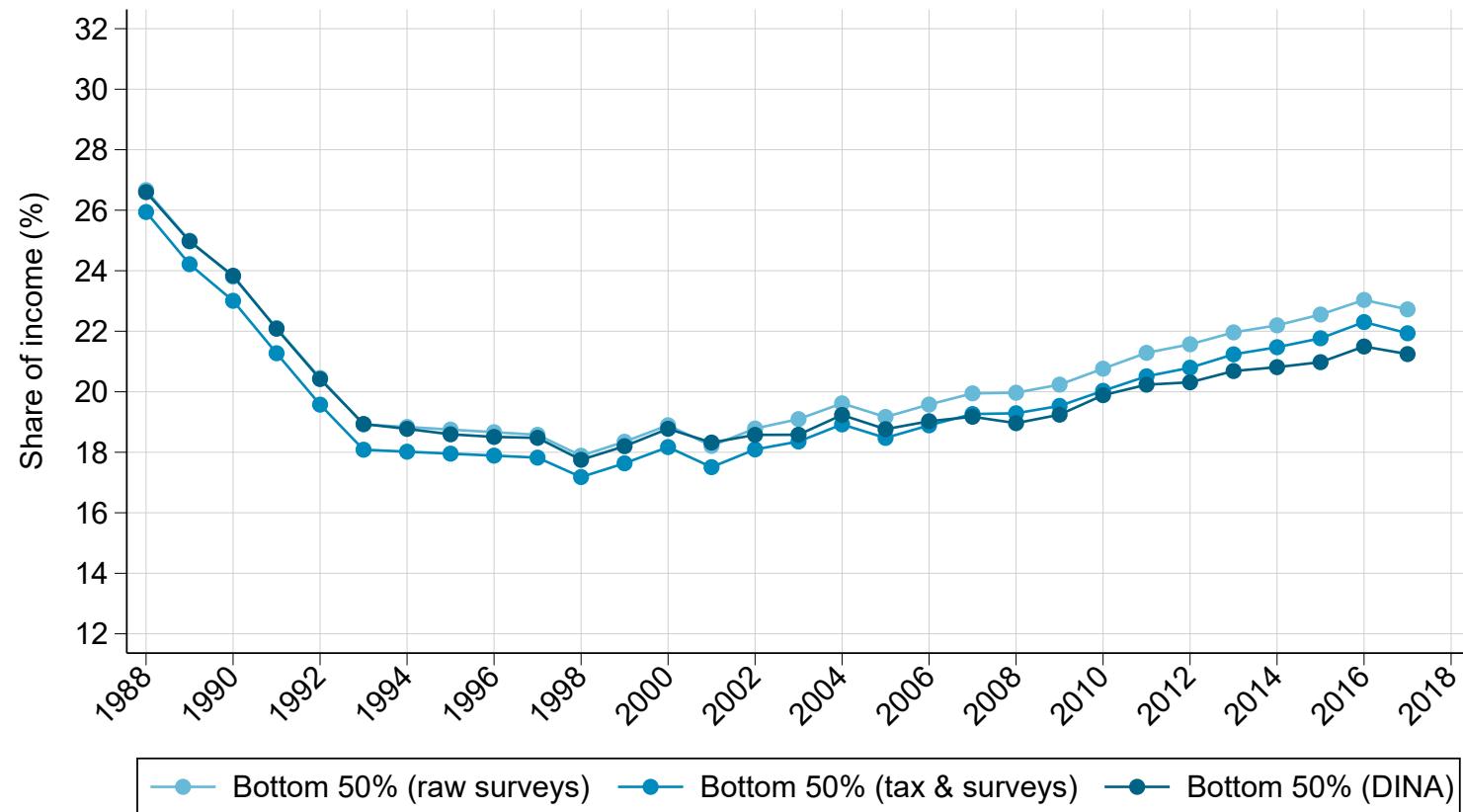
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.11.3**  
**Moldova: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



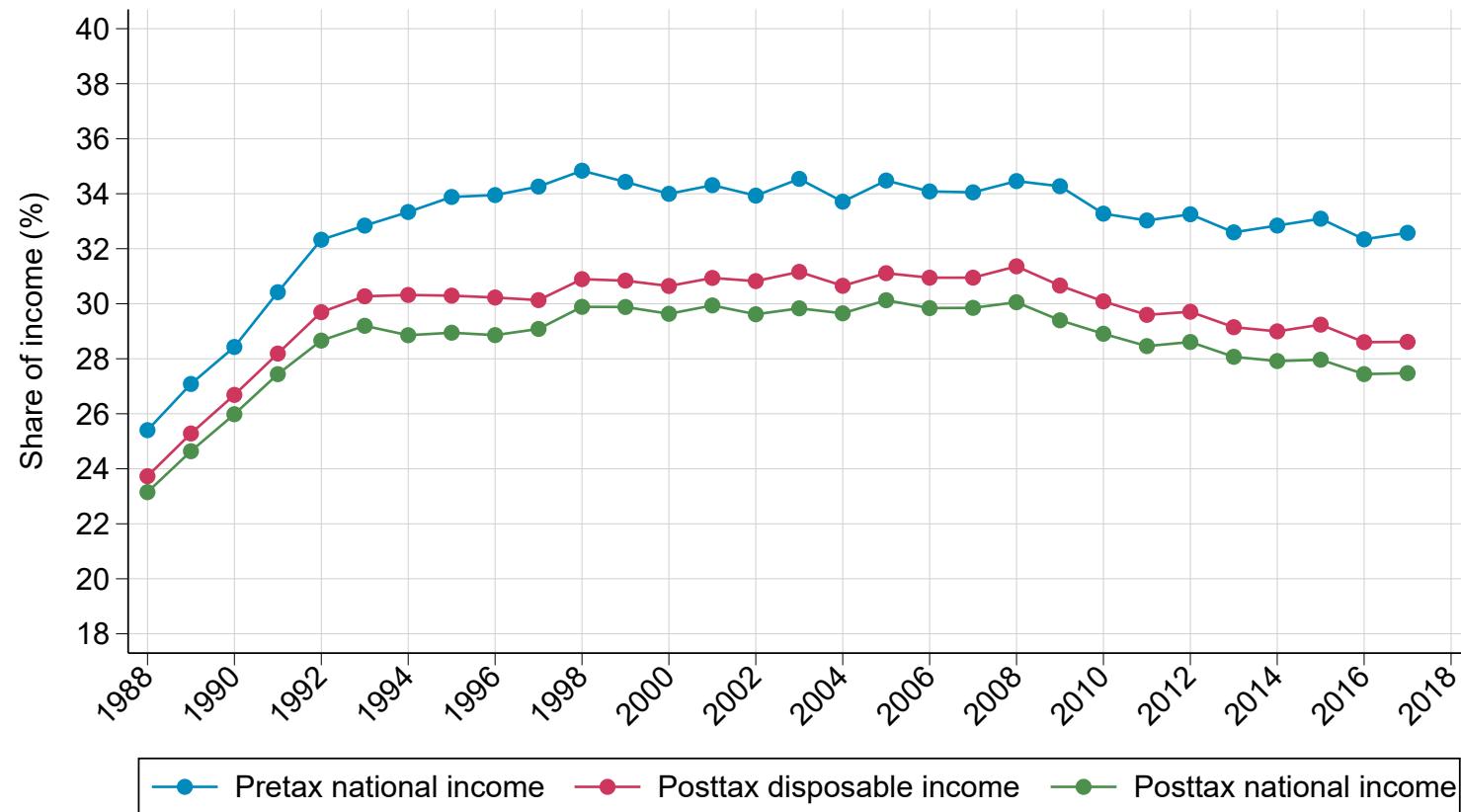
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.11.4**  
Moldova: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



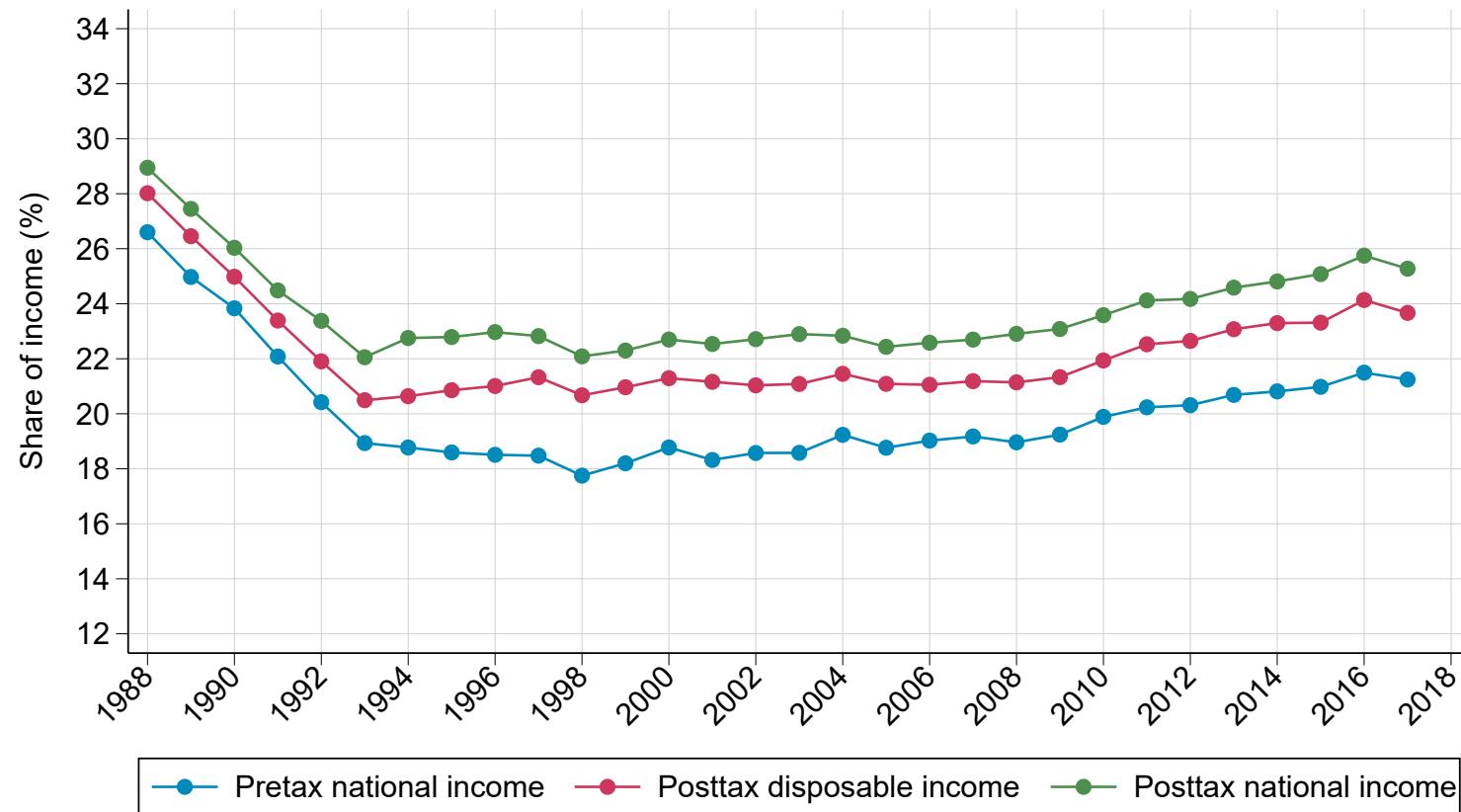
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.11.5**  
Moldova: from pretax national income to posttax national income  
**Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.11.6**  
**Moldova: from pretax national income to posttax national income**  
**Bottom 50% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.11.1**  
**Moldova: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988	x								
1989									
1990									
1991								x	
1992								x	
1993	x							x	
1994								x	
1995								x	
1996								x	
1997	x							x	
1998	x							x	
1999								x	
2000	x							x	
2001	x							x	
2002	x							x	
2003	x							x	
2004	x							x	
2005	x							x	
2006	x							x	
2007	x							x	
2008	x							x	
2009	x							x	
2010	x							x	
2011	x							x	
2012	x							x	
2013	x							x	
2014	x							x	
2015	x							x	
2016	x							x	
2017	x							x	

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.11.2**  
**Moldova: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.  Imputation of social contributions.		See section 1.2.1.  See section 1.2.2.	
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (PovcalNet, 1997–2018); pretax income (Milanovic 1998, 1993; Milanovic 1998 (raw), 1988–1993)	See section 1.3.	Pretax and posttax incomes partially estimated from consumption. On average, the top 10% share is 1.2 pp. higher for posttax income than consumption and 2.5 pp. for pretax income than consumption.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.  See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.4 pp. higher than in the raw survey. The top 1% share of posttax income is 1.1 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.		Due to lack of data, we use the average European distribution for corporate stocks, imputed rents and consumption.  See section 1.5.	NA  Undistributed corporate profits increase the top 10% share of income by 1.1 pp. on average; Imputed rents decrease the top 10% share of income by 0.5 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 0.4 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 0.9 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.11.3**  
**The distribution of national income in Moldova, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€5,400	100%	€5,400	100%	€5,400	100%
Bottom 50%	€2,300	21.2%	€2,600	23.7%	€2,700	25.3%
Bottom 20%	€900	3.4%	€1,200	4.3%	€1,400	5.3%
Next 30%	€3,200	17.8%	€3,500	19.4%	€3,600	20.0%
Middle 40%	€6,200	46.2%	€6,400	47.7%	€6,400	47.2%
Top 10%	€17,600	32.6%	€15,400	28.6%	€14,800	27.5%
Top 1%	€53,800	10.0%	€42,500	7.9%	€40,200	7.5%
Top 0.1%	€181,000	3.4%	€135,000	2.5%	€127,000	2.4%
Top 0.01%	€631,000	1.2%	€450,000	0.8%	€422,000	0.8%
Top 0.001%	€2,220,000	0.4%	€1,520,000	0.3%	€1,430,000	0.3%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

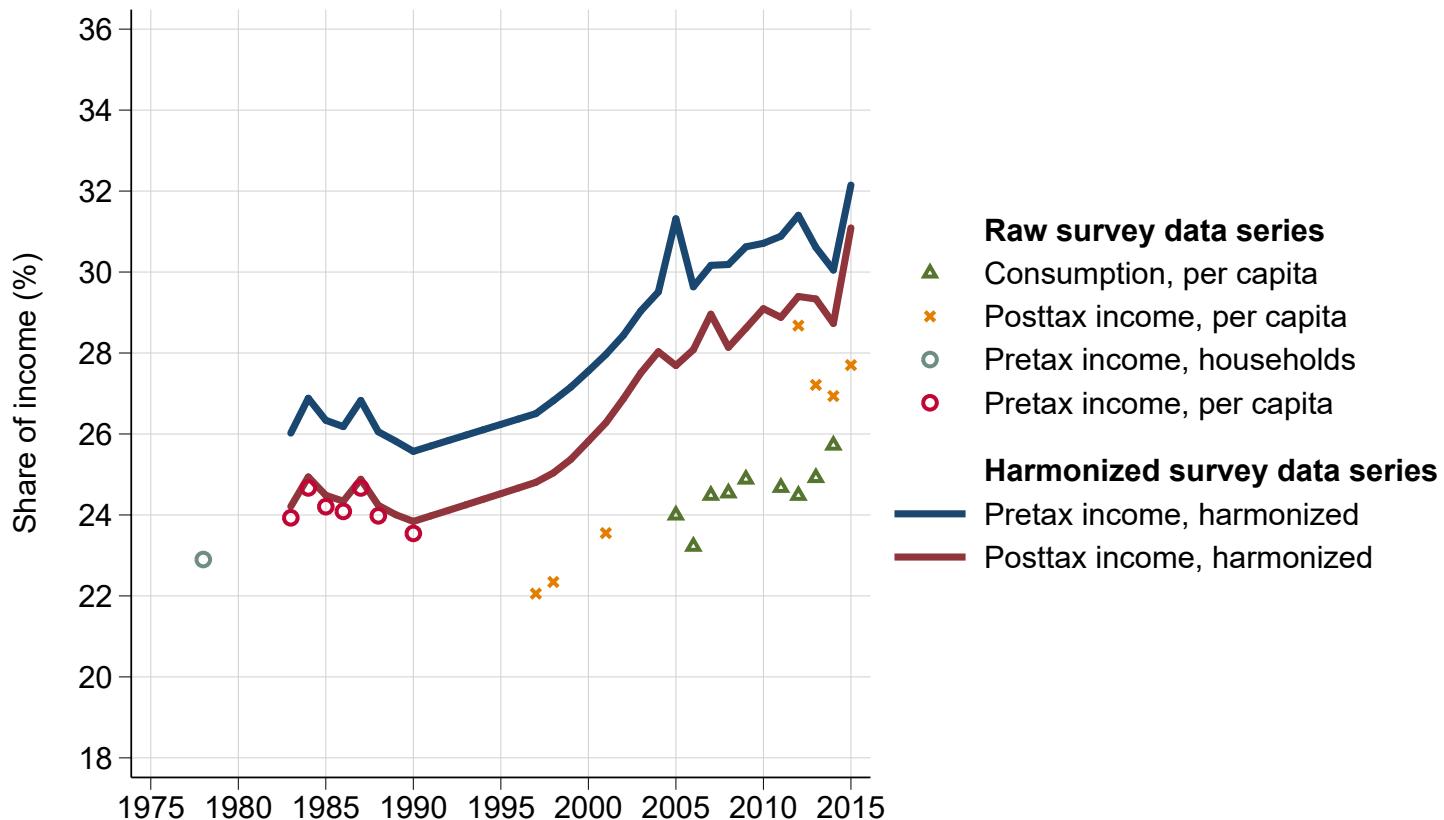
**Table A.4.11.4**  
**The distribution of national income growth in Moldova, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	-0.7%	2.7%	-0.7%	2.7%	-0.7%	2.7%
Bottom 50%	-1.3%	3.7%	-1.2%	3.8%	-1.1%	3.8%
Bottom 20%	-1.7%	2.9%	-1.3%	4.1%	-1.1%	4.1%
Next 30%	-1.2%	3.9%	-1.1%	3.8%	-1.1%	3.7%
Middle 40%	-0.8%	2.6%	-0.7%	2.7%	-0.8%	2.6%
Top 10%	0.0%	2.2%	-0.2%	1.9%	-0.3%	1.8%
Top 1%	0.8%	3.7%	0.4%	3.4%	0.3%	3.3%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

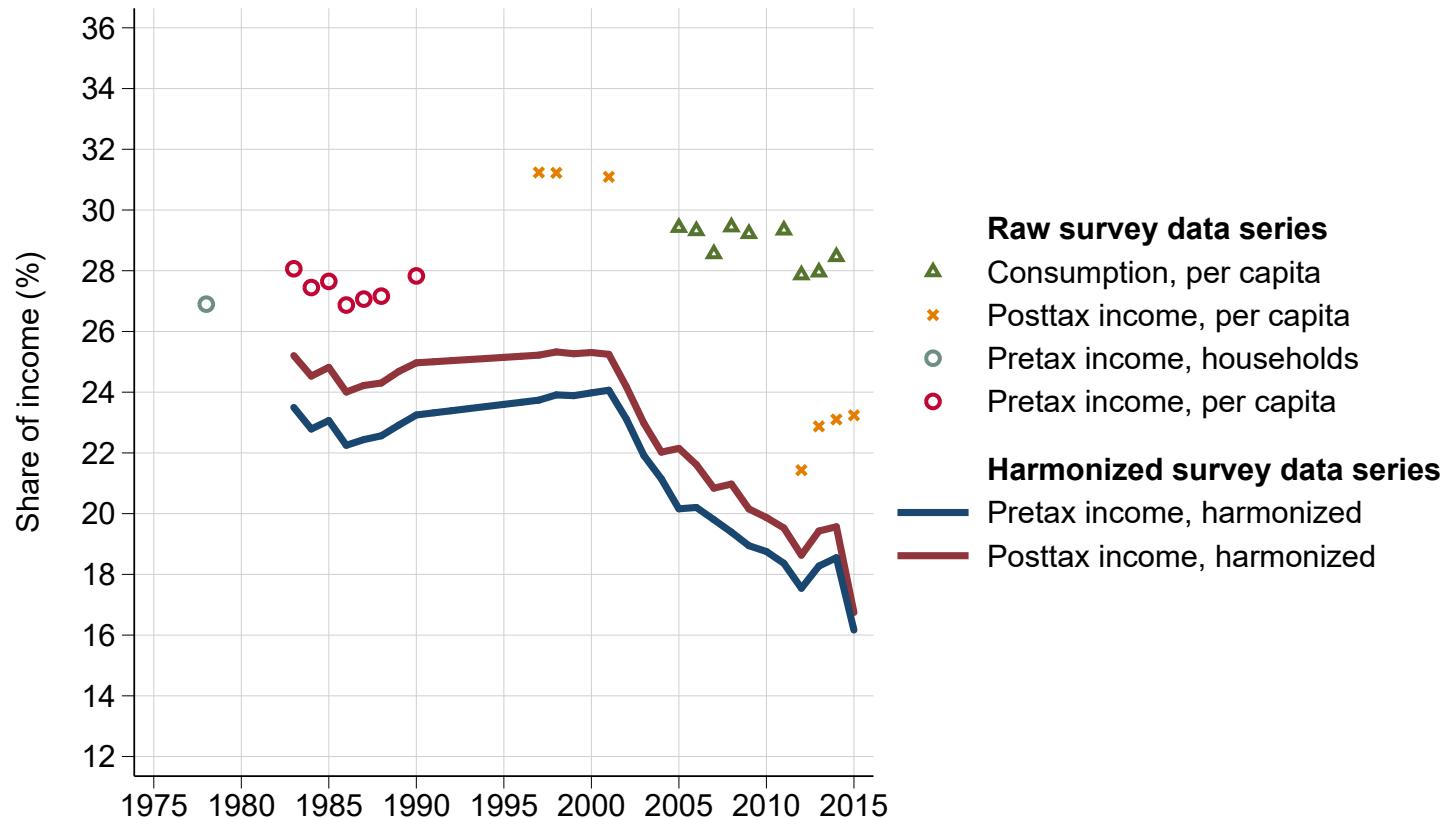
## 4.12 Montenegro

**Figure A.4.12.1**  
Montenegro: harmonization of survey data  
Top 10% pretax income share



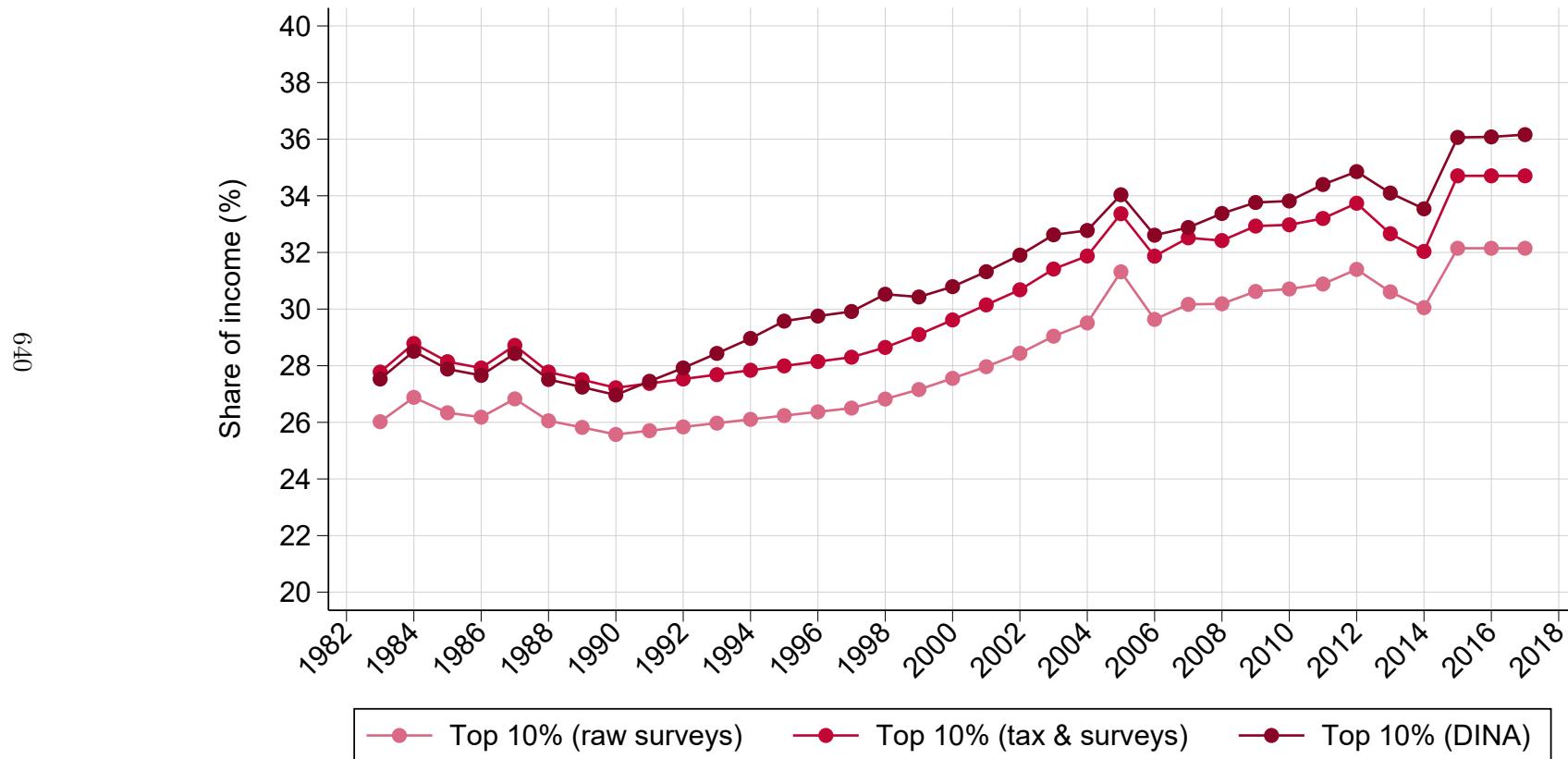
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.12.2**  
**Montenegro: harmonization of survey data**  
**Bottom 50% pretax income share**



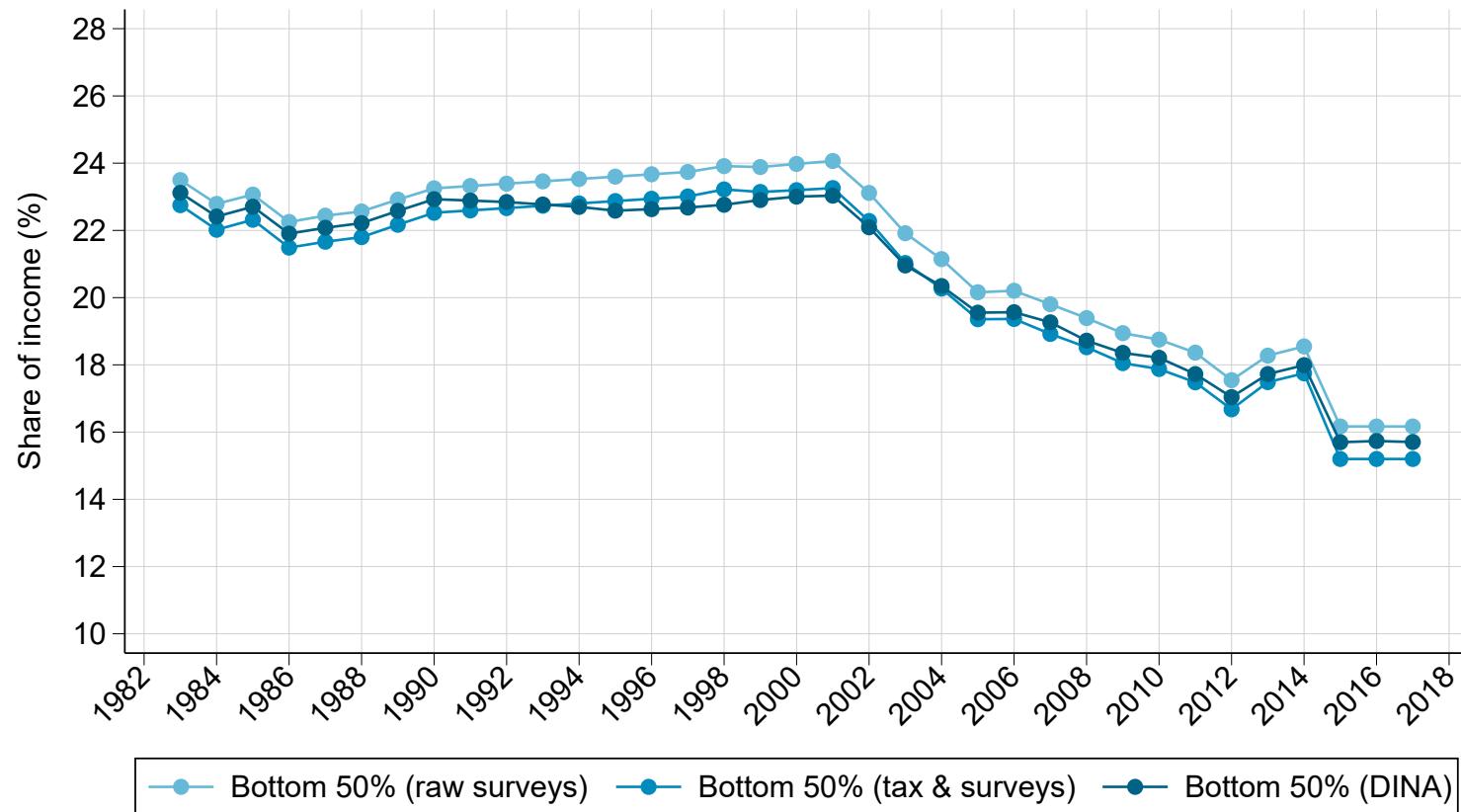
*Notes.* The figure shows how raw survey data sources covering different income concepts and equivalence scales are converted to a single harmonized pretax income and posttax income survey data series, where income is split equally among couples (narrow equal-split).

**Figure A.4.12.3**  
**Montenegro: from harmonized surveys to distributional national accounts**  
**Top 10% pretax income share**



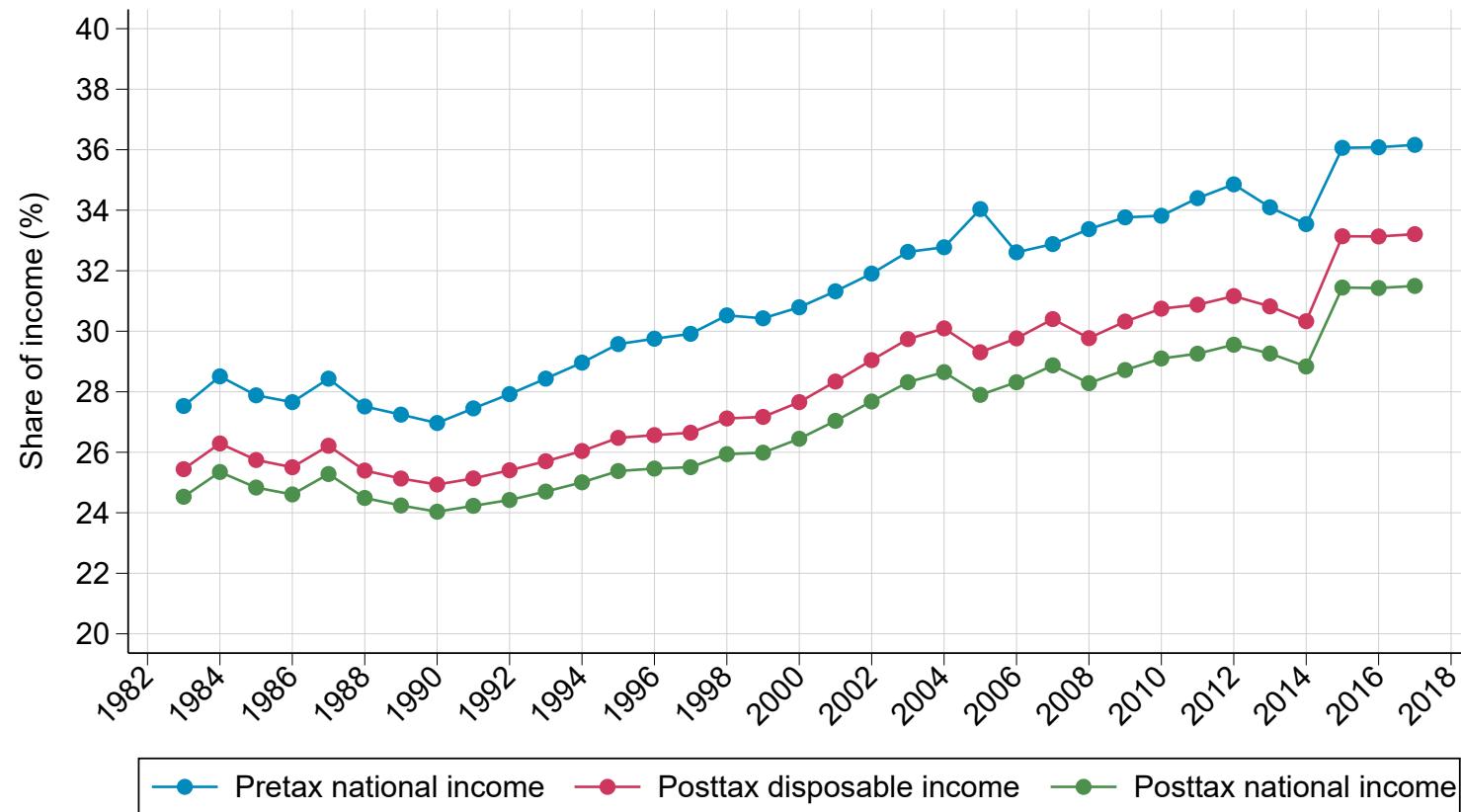
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.12.4**  
Montenegro: from harmonized surveys to distributional national accounts  
**Bottom 50% pretax income share**



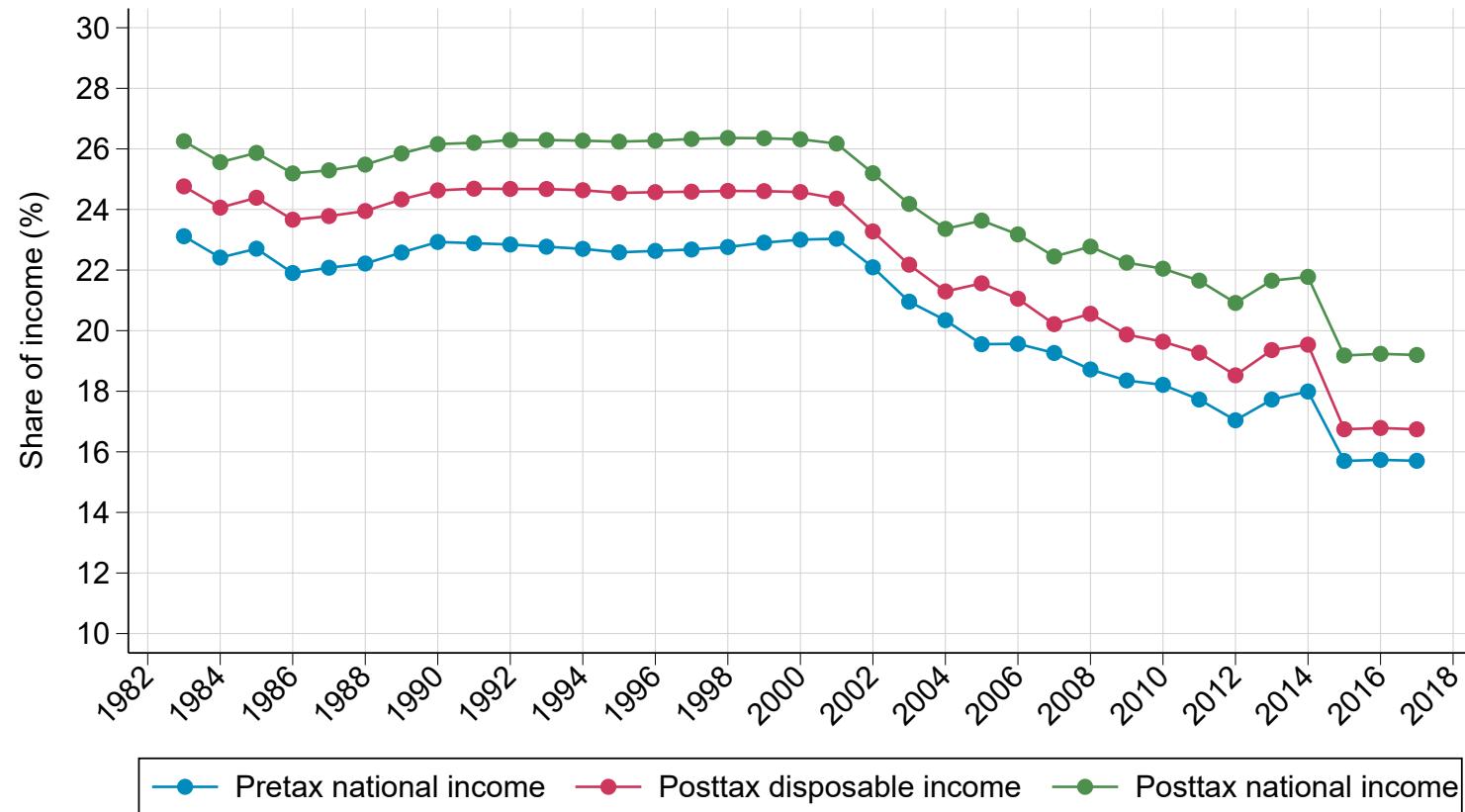
*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Figure A.4.12.5**  
**Montenegro: from pretax national income to posttax national income**  
**Top 10% income share**



*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

Figure A.4.12.6  
Montenegro: from pretax national income to posttax national income  
Bottom 50% income share



Notes. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.12.1**  
**Montenegro: data sources available by year**

Year	Survey tabulation	Survey microdata	Tax data	Retained earnings	of which: households' share	Imputed rents	Taxes on products	Corporate income tax	Health expenditures
1978	x								
1980									
1981									
1982									
1983	x								
1984	x								
1985	x								
1986	x								
1987	x								
1988	x								
1989									
1990	x								
1991									
1992									
1993									
1994									
1995									
1996									
1997	x								
1998	x								
1999									
2000									
2001	x								
2002									
2003									
2004									
2005	x								
2006	x								
2007	x								
2008	x								
2009	x								
2010									
2011	x								
2012	x								
2013	x								
2014	x								
2015	x								
2016									
2017									

*Notes.* The table shows the years for which surveys, tax data and key national accounts aggregates are available.

**Table A.4.12.2**  
**Montenegro: impact of the different methodological steps**

Methodological Step	Detailed Steps	Sources and Coverage	Detailed Methodology	Discussion / Impact
<b>Step 1:</b> Estimation of survey pretax and post-tax distributions using survey microdata.	Construction of pretax and post-tax income variables.		See section 1.2.1.	
	Imputation of social contributions.		See section 1.2.2.	
<b>Step 2:</b> Harmonization of other survey sources.	Collection of other data sources, interpolation of survey tabulations, and harmonization using a machine learning algorithm.	Consumption (PovcalNet, 2005–2014); posttax income (PovcalNet, 2012–2015; Transmonee 2004, RS-ME, 1997–2001); pretax income (Milanovic and Ying 1996, YU, 1983–1990; van Ginneken and Park 1984, YU, 1978)	See section 1.3.	Pretax and posttax incomes partially estimated from consumption. On average, the top 10% share is 2.7 pp. higher for posttax income than consumption and 4.6 pp. for pretax income than consumption.
<b>Step 3:</b> Calibration of survey sources on the tax data.	Calibration of survey microdata using the top share series.  Application of the correction to all survey distributions.	Since no tax data is available in this country, we use the average nonresponse profile of other countries.	See section 1.4.2.  See section 1.4.3.	After corrections using tax data, the top 1% share of pretax income is 1.4 pp. higher than in the raw survey. The top 1% share of posttax income is 1.0 pp. higher than in the raw survey.
<b>Step 4:</b> Distribution of additional income components.	Estimation and calibration of consumption, imputed rents and stock ownership.  Missing incomes matched statistically to calibrated survey distributions.		Due to lack of data, we use the average European distribution for corporate stocks, imputed rents and consumption.  See section 1.5.	NA  Undistributed corporate profits increase the top 10% share of income by 0.6 pp. on average; Imputed rents decrease the top 10% share of income by 0.3 pp. on average; The corporate tax increase the top 10% share of pretax income by 0.5 pp. on average; Taxes on products increase the top 10% share of posttax income by 0.3 pp. on average; Government final expenditures decrease the top 10% share of posttax income by 1.1 pp. on average

*Notes:* The table describes the impact of the different methodological steps on our series. Statistics in the table refer to averages over the entire available data period.

**Table A.4.12.3**  
**The distribution of national income in Montenegro, 2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	Average income	Income share	Average income	Income share	Average income	Income share
Full population	€17,400	100%	€17,400	100%	€17,400	100%
Bottom 50%	€5,500	15.7%	€5,800	16.7%	€6,700	19.2%
Bottom 20%	€1,600	1.8%	€1,100	1.3%	€2,300	2.7%
Next 30%	€8,100	13.9%	€9,000	15.4%	€9,600	16.5%
Middle 40%	€21,000	48.1%	€21,800	50.0%	€21,500	49.3%
Top 10%	€63,000	36.2%	€57,900	33.2%	€54,900	31.5%
Top 1%	€177,000	10.1%	€143,000	8.2%	€134,000	7.7%
Top 0.1%	€519,000	3.0%	€362,000	2.1%	€337,000	1.9%
Top 0.01%	€1,550,000	0.9%	€928,000	0.5%	€861,000	0.5%
Top 0.001%	€4,640,000	0.3%	€2,390,000	0.1%	€2,210,000	0.1%

*Notes.* Figures are reported in 2017 PPP euros. The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

**Table A.4.12.4**  
**The distribution of national income growth in Montenegro, 1980-2017**

	Pretax national income		Posttax disposable income		Posttax national income	
	1980-2017	2007-2017	1980-2017	2007-2017	1980-2017	2007-2017
Full population	-0.6%	1.6%	-0.6%	1.6%	-0.6%	1.6%
Bottom 50%	-1.6%	-0.4%	-1.6%	-0.3%	-1.4%	0.1%
Bottom 20%	-2.9%	-3.3%	-3.9%	-5.6%	-2.4%	-2.4%
Next 30%	-1.4%	0.0%	-1.3%	0.4%	-1.2%	0.5%
Middle 40%	-0.6%	1.7%	-0.6%	1.8%	-0.6%	1.8%
Top 10%	0.2%	2.6%	0.1%	2.5%	0.1%	2.5%
Top 1%	0.8%	3.3%	0.6%	4.7%	0.5%	4.7%

*Notes.* The unit of observation is the adult individual aged 20 or above. Income is split equally among spouses.

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