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Fiscal Drag in Greece

Maria Flevotomou and Nikos Ventouris*

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**The views expressed here are those of the authors themselves, and do not necessarily represent the views of the Bank of Greece.*

Economic Analysis and Research Directorate | **Fiscal Policy Division**

Background

- **Fiscal drag:** the increase in tax revenue that occurs when nominal tax bases grow but monetary parameters of tax legislation are not updated.
- In the context of Personal Income Taxation, this causes:
  - Bracket creeping
  - Erosion of tax benefits
- **Motivation:** recent episode of high inflation (2021-23) led to nominal income growth, potentially inducing
  - a fiscal drag effect on revenues/tax burden and
  - an interest in reform evaluation

Background

- **ESCB Network on Microsimulation Modelling**
  - García-Miralles et al. (2026), “Fiscal drag in theory and in practice: A European perspective”, European Economic Review, Vol. 185
  - Analyses fiscal drag across all EA countries and HU.
- **Focus:** What happened in Greece between 2019-2023?
  - Flevotomou M. and Ventouris N. (2025), Fiscal Drag in Greece, Bank of Greece Economic Bulletin, Issue 62.

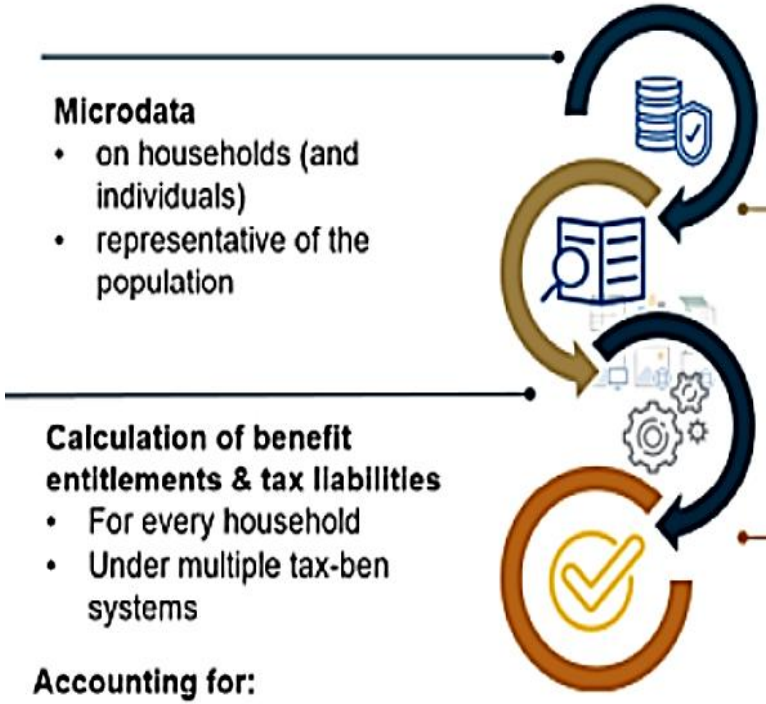
Outline

- Methodology
- Fiscal Drag in Theory: Tax-to-base elasticities
- Fiscal Drag in Practice: change in tax revenues compared to counterfactual scenarios
- Conclusions

Methodology

- Microsimulation
  - Twofold microsimulation approach (Balladares and García-Miralles, 2025)
  - Implemented with EUROMOD (Leventi, Mazzon & Orlandi, 2024)
- Potential versus actual fiscal drag

EUROMOD: Tax-benefit microsimulation model for EU countries



Microdata
- on households (and individuals)
- representative of the population

Tax-benefit policy rules
- current or historical systems
- hypothetical systems

Calculation of benefit entitlements & tax liabilities
- For every household
- Under multiple tax-ben systems

Accounting for:
- Interactions between policies
- Heterogeneity of households characteristics

Analysis
- Household incomes
- Budgetary impact
- Work incentives

Potential fiscal drag

- **Static approach:** estimate **potential fiscal drag** embedded in each country's legislation.
  - What happens if the tax base increases by 1% and countries do not change
    - Indexation legislation
    - Tax policies
- **Tax-to-base elasticity (TTB)**

$$\boldsymbol{TTB} = \frac{\%\Delta(\boldsymbol{Revenue})}{\%\Delta(\boldsymbol{Nominal\ Tax\ Base})} = \frac{\boldsymbol{MTR}}{\boldsymbol{ATR}}$$

- Indicator of the progressivity of the tax system.
- When $TTB > 1 \rightarrow$ potential fiscal drag

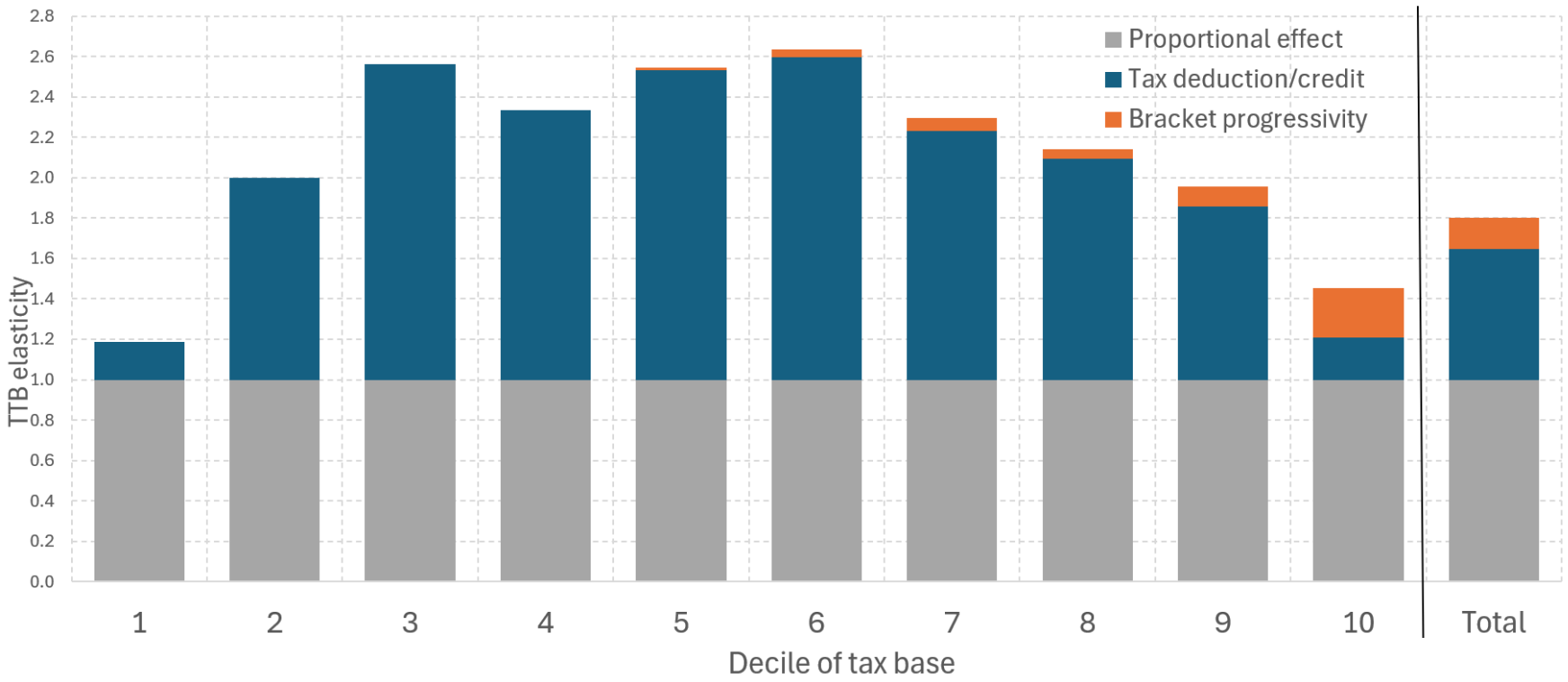
Actual fiscal drag

- **Dynamic approach:** include policy changes and observed income growth
- Compare changes in tax revenue (as % of GDP) in the period 2019 to 2023

Fiscal Drag in theory

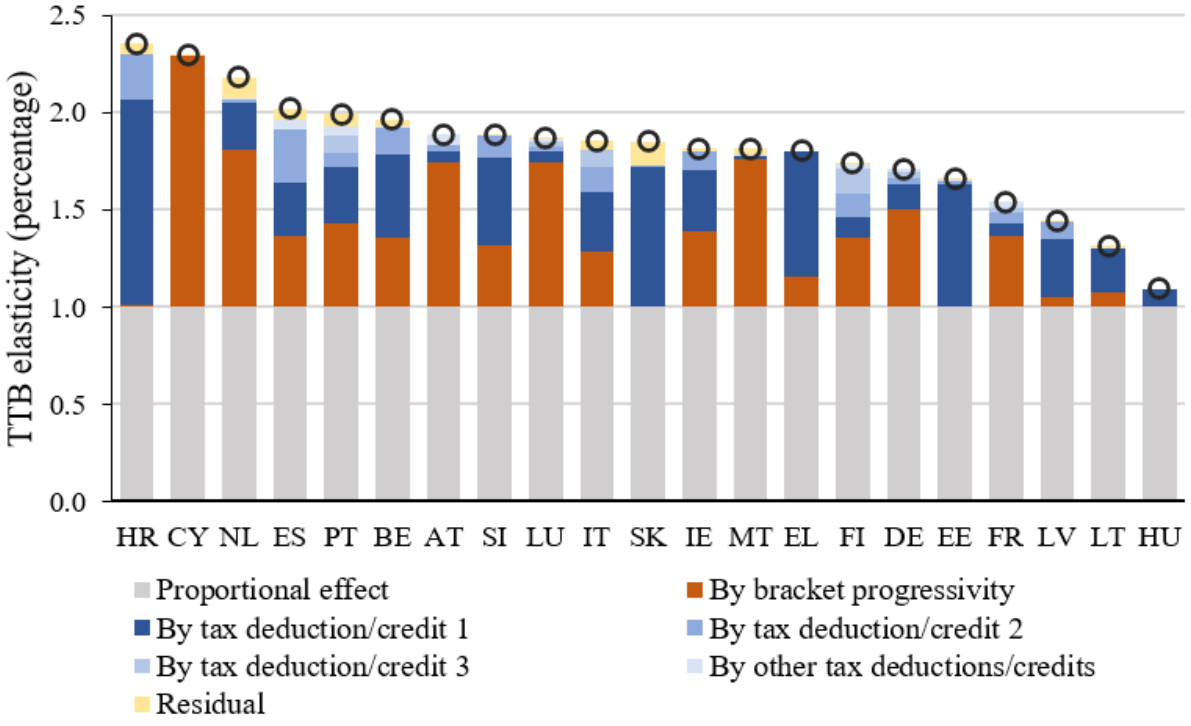
- TTBs by income decile and driver
- European context
- TTB by income source
- Impact on progressivity & inequality

Greece – TTB by income decile and driver (2019)



- Fiscal drag is driven by tax deductions/credits (c. 80%). Bracket progressivity accounts for 20% of fiscal drag.
- Individuals in the middle of the tax base distribution have relatively higher TTB.

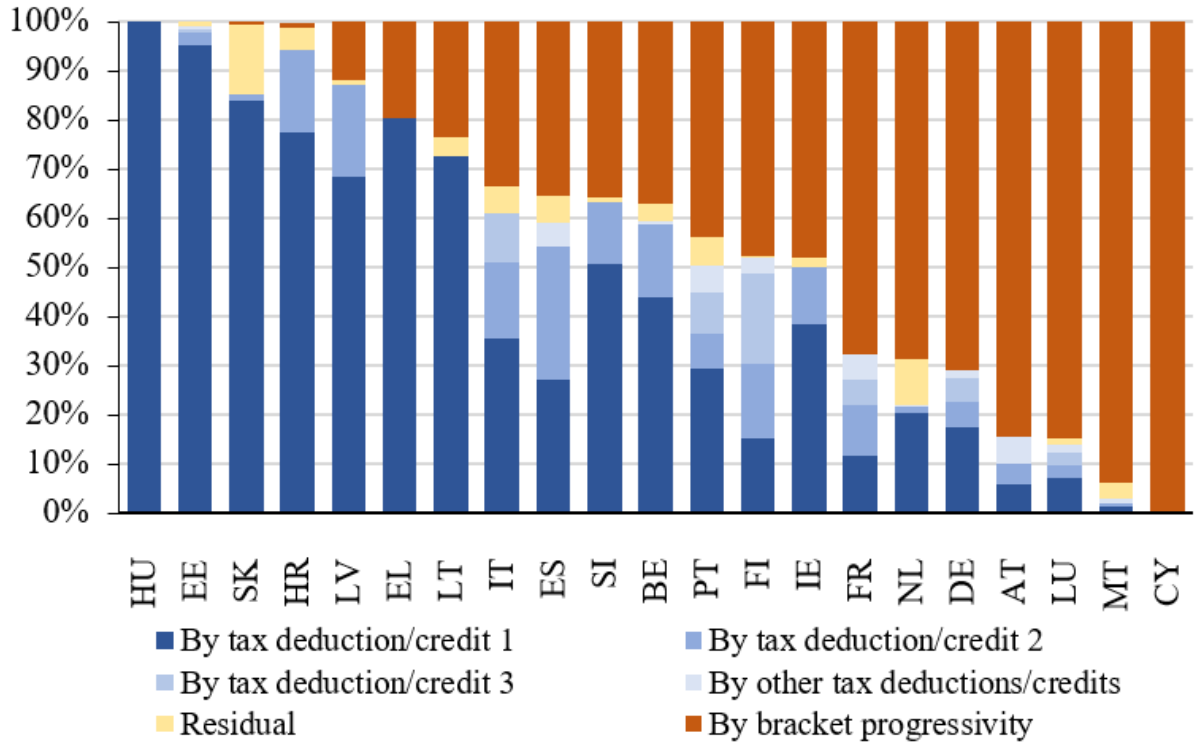
Greece in the European context



- TTB > 1: Progressivity of PIT systems
- Across most countries, TTB in the range of 1.7 – 2, despite the wide variety of tax designs
- TTB> 1 potentially leads to an increase in the effective tax rates

Greece in the European context

Relative contribution of various factors to TTB



- The driving factors of TTB vary considerably across countries.
- In half of the sample countries, fiscal drag is primarily driven by bracket progressivity, while in the other half by tax credits.
- Greece stands out for the role of tax credits/deductions.

Greece – TTB by income source (2019)

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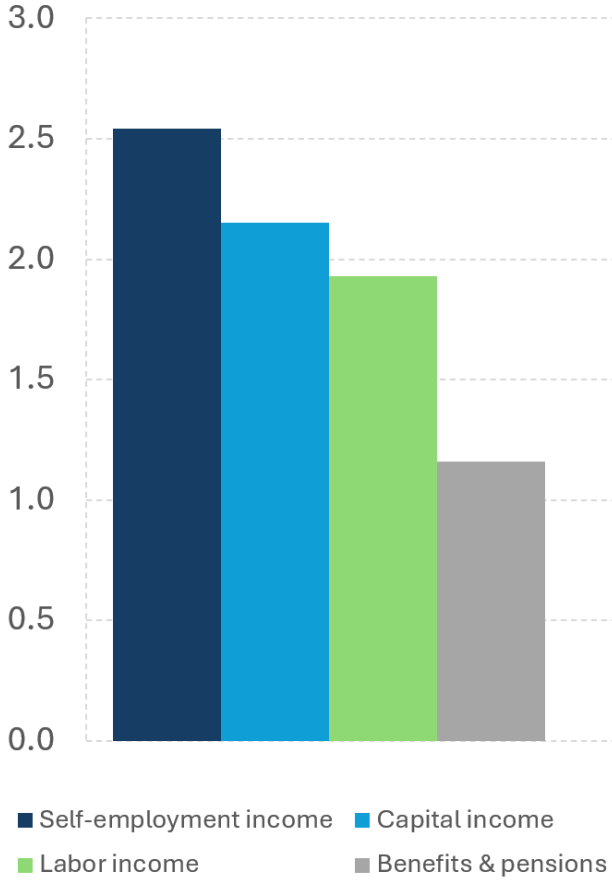
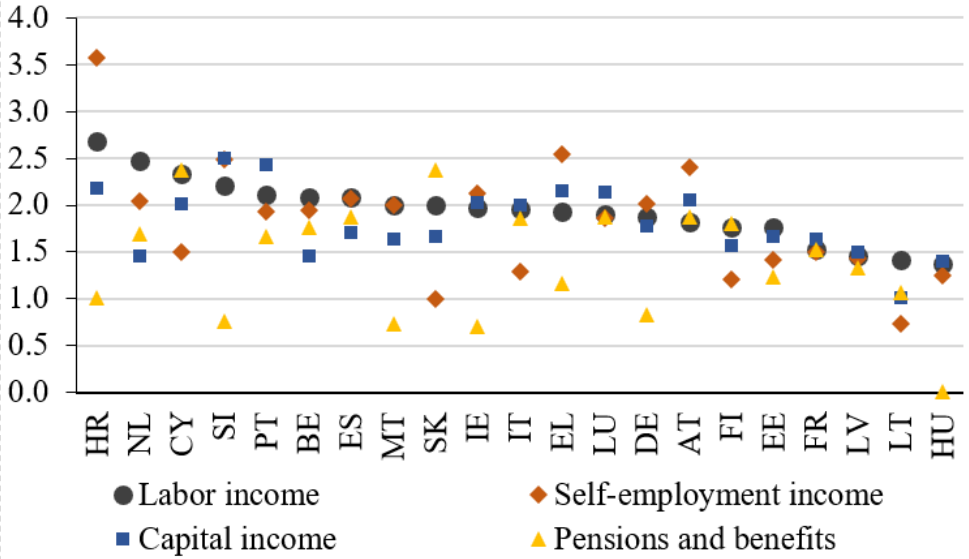
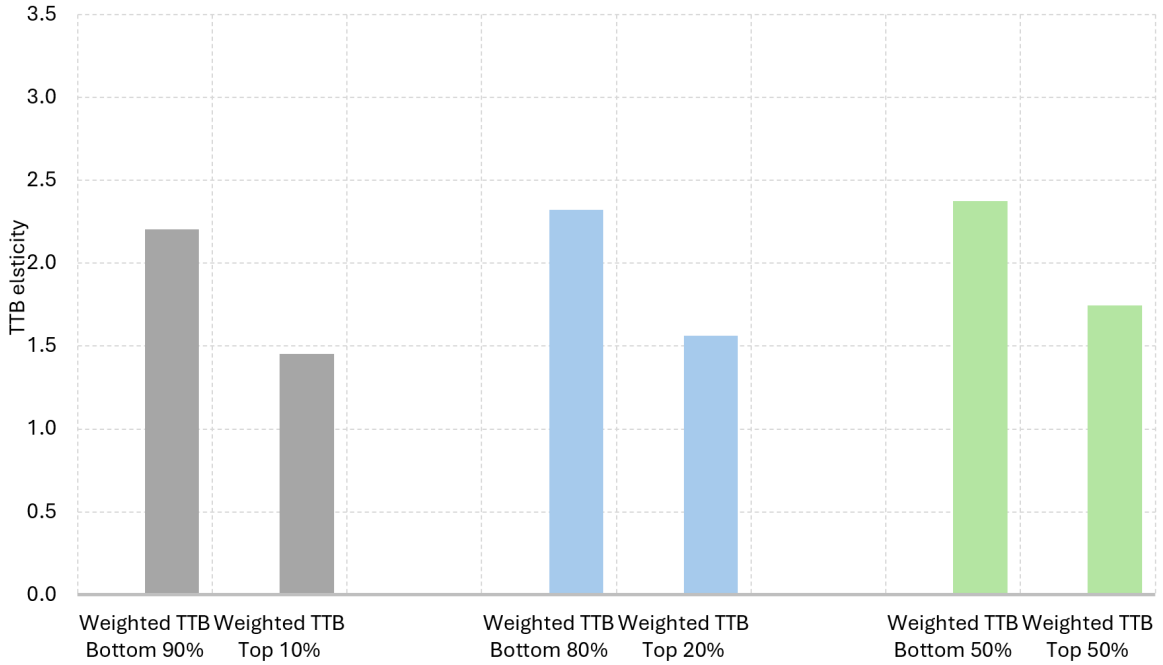
Income source matters

- *Self-employment income* shows the highest elasticity (the second highest in the euro area after Croatia).
- *Pensions and social benefits* display much lower elasticities (among the lowest across EU countries).
- *Labor income* exhibits an elasticity close to the overall income tax elasticity (and other EU countries).
- *Capital income* displays a relatively higher TTB elasticity than typically observed in other EU countries.





Distribution of TTB elasticities (2019)- Progressivity



- A progressive tax implies that effective tax rates increase with income.
- The distribution of TTB elasticities suggests that, in theory, fiscal drag reduces the progressivity of the PIT system.
- This is often the result of low-income taxpayers being more affected by shifting to higher tax brackets and the phase-out of tax credits.
- Confirmed by a fall in the Kakwani index following a 1% increase in income (tax base).

Impact on inequality

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- **Inequality falls** despite the reduction in progressivity
  - The Gini coefficient, following a uniform 1% increase in income, marginally decreases
  - This reflects the fact that low-income individuals, many of whom have a zero-tax liability, are unaffected by the income increase, while middle and higher-income taxpayers face higher effective tax rates.
- **The inequality reduction capacity of the tax system increases**: Enhanced role of the tax system in mitigating inequality after the income increase, given constant tax parameters.
- The difference between gross and net income Gini— before and after income growth is marginally negative.
- The inequality-reduction effect of fiscal drag is a common result in the literature (Immervoll 2005 ; Paulus et al. 2020).

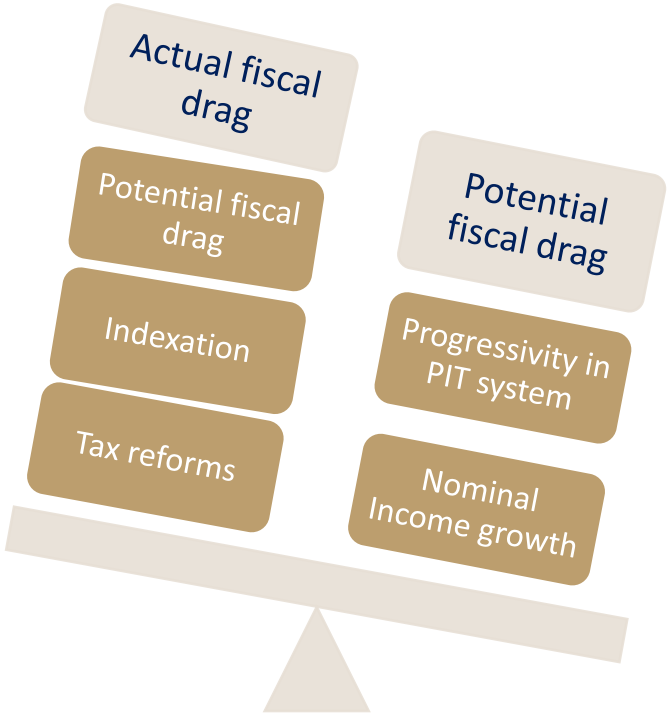
Fiscal drag in practice

- Counterfactual analysis
- Results
  - Tax revenue (% of GDP)
  - Average effective tax rate
  - European perspective
  - Progressivity and inequality impact

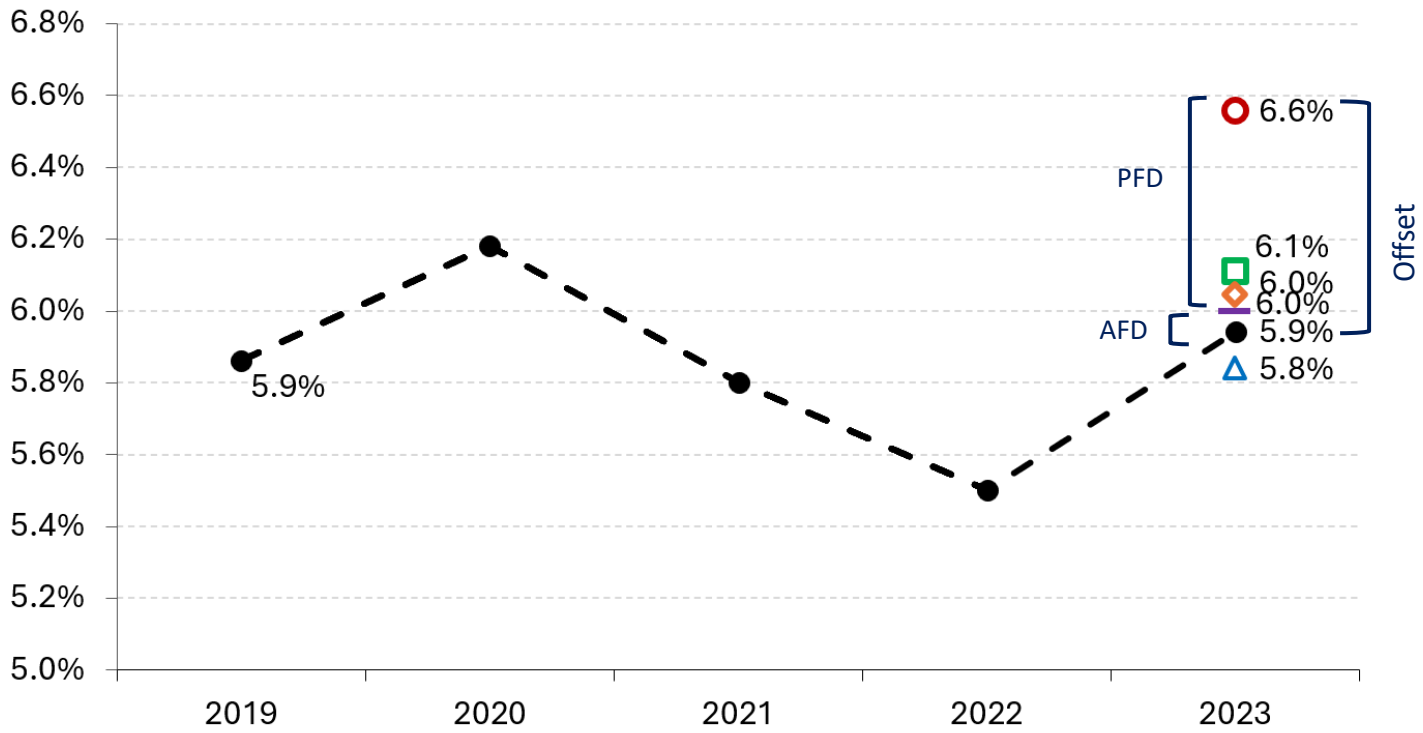
Counterfactual analysis

- Compare observed tax revenue in 2023 (Baseline) to
- Four counterfactuals – with 2019 legislation - for 2023:
  1. No indexation of tax parameters
  2. Indexation with lagged HICP
  3. Indexation with contemporaneous HICP
  4. Indexation with nominal tax base growth
- **Actual Fiscal Drag** : Difference in 2023 tax revenue between baseline and average of three indexation scenarios under 2019 rules.
- **Potential Fiscal Drag :** Difference in 2023 tax revenue between no indexation and average of three indexation scenarios under 2019 rules.

- To what extent did indexation practices and/or tax reforms **offset** the potential fiscal drag?



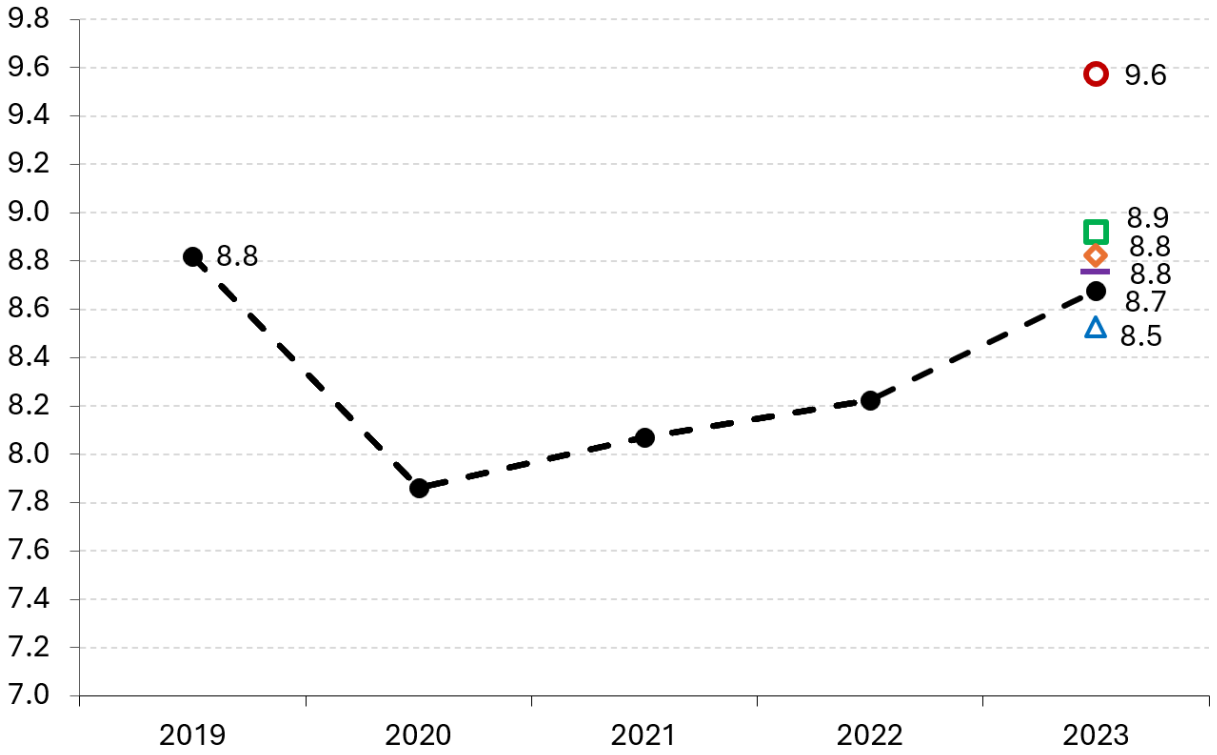
Tax Revenue (% of GDP) under various scenarios



Overcompensation of potential fiscal drag. The distance of the observed tax revenue in 2023 from the no indexation counterfactual (offset) is higher than PFD.

- **Baseline scenario**: observed tax revenue in 2023 (●)
- Counterfactual scenarios for 2023 incomes under 2019 legislation:
  - **Scenario 1**: No indexation (○)
  - **Scenario 2**: Full indexation with lagged HICP (◊)
  - **Scenario 3**: Full indexation with contemporaneous HICP (Δ)
  - **Scenario 4**: Full indexation with nominal tax base growth (□)
  - **Average of indexation scenarios** (-)
- **Actual Fiscal Drag (AFD)**
- **Potential Fiscal Drag (PFD)**

Average effective tax rate (%) under various scenarios



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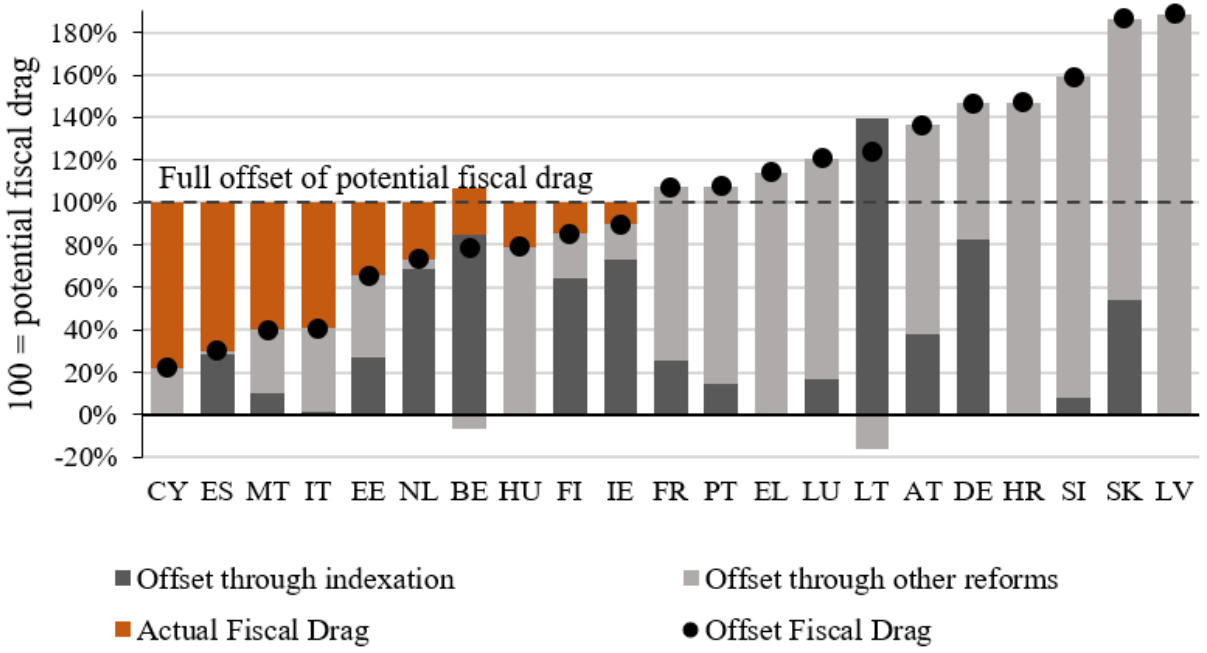
  - **Scenario 4**: Full indexation with nominal tax base growth (□)
  - **Average of indexation scenarios** (-)
- The average effective tax rate falls from 2019 to 2023
  - Expected, due to overcompensation of fiscal drag

European Perspective



- EU countries differ significantly in the degree of offsetting potential fiscal drag in 2023 personal income tax revenue
- CY, ES, MT, IT, EE,NL, BE, HU,FI, IE: allowed fiscal drag to occur partially
- FR, PT, EL, LU, LT, AT, DE, HR, SI, SK, LV: fully indexed PIT systems and/or tax policy reforms *overcompensated* fiscal drag

Progressivity and Inequality impact

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	Baseline Scenario	Scenario 2	Scenario 3	Scenario 4
Gini index: tax base (pre-tax) (%)	0,3778	0,3766	0,3766	0,3766
Gini index: tax base (post-tax) (%)	0,3474	0,3500	0,3504	0,3499
Δ (Gini) (in percentage points)	*-0,0304*	*-0,0266*	*-0,0261*	*-0,0267*
Kakwani index	0,3211	0,2817	0,2876	0,2796

Source: EUROMOD and Bank of Greece calculations.

Notes: Y: income, L: tax legislation, SSC: social security contributions.

Baseline Scenario (tax schedule reform, tax rate reduction, SSC reduction) | **Scenario 2 [Y: 2023, indexation HICP_t-1, L: 2019]** | **Scenario 3 [Y: 2023, indexation HICP_t, L: 2019]** | **Scenario 4 [Y: 2023, indexation: % Δ (tax base 2019-23), L: 2019]**.

- Tax reforms implemented in 2019-23 (restructuring of the tax schedule and the reductions in tax and social contribution rates) are estimated to have improved the redistributive capacity of the tax system more effectively than the indexation counterfactual scenarios considered, thereby enhancing the system's progressivity and contributing more to post-tax inequality reduction.

Conclusions

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- Fiscal drag in theory
- Fiscal drag in practice
- Policy implications

Fiscal drag in theory

- In 2019, the Greek personal income tax system embedded a strong degree of built-in progressivity, generating a **notable potential for fiscal drag**:
  - The estimated TTB (1.8) is broadly in line with the EA average but implies that personal income tax revenues would rise more than proportionately with respect to tax base growth.
  - The erosion of tax credits accounts for the overwhelming share (80%) of fiscal drag.
  - Self-employment and labour income exhibit the highest elasticities.
  - Elasticities are systematically higher among middle-income groups.
  - A uniform rise in incomes reduces the progressivity of the PIT system but leads to a slight decline in inequality, largely because many low-income individuals continue to have zero tax liabilities even after income increases.

Fiscal drag in practice

- A **data driven measure** that compares how the actual fiscal drag compares to the extreme cases of full and no indexation of tax parameters
- The policy reforms implemented in Greece in 2019-23 managed to fully compensate for the effects of fiscal drag, lowering the average effective tax rate while maintaining revenue stability and outperforming alternative counterfactual scenarios (involving an indexation of tax parameters) in redistributive outcomes.

Policy implications

- Fiscal drag can have significant effects on tax revenue collection, average tax rates and income distribution, with crucial implications for inequality and optimal tax design.
- Given limited fiscal space, policymakers are called upon to strike the right balance between the need to ease the tax burden on taxpayers and the goal of safeguarding tax revenues.
- Quantifying fiscal drag and incorporating it into the formulation of medium-term fiscal strategies can enhance the accuracy of revenue forecasts and support the design of better-targeted policy interventions.
- At the same time, the mechanisms through which fiscal drag operates across the income distribution require the adoption of tailored policy responses. This insight is key to determining whether indexation of tax parameters should be pursued or not.
- Recent experience in Greece shows that enhancing the progressivity of tax policy can offset fiscal drag, while also contributing to a fairer distribution of the tax burden.

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Thank you!

210.320.2412 – M. Flevotomou
210.320.2402 – N. Ventouris

MFlevotomou@bankofgreece.gr
NVentouris@bankofgreece.gr

Bank of Greece, Eurosystem
21 E. Venizelos Ave., GR-102 50 Athens, Greece

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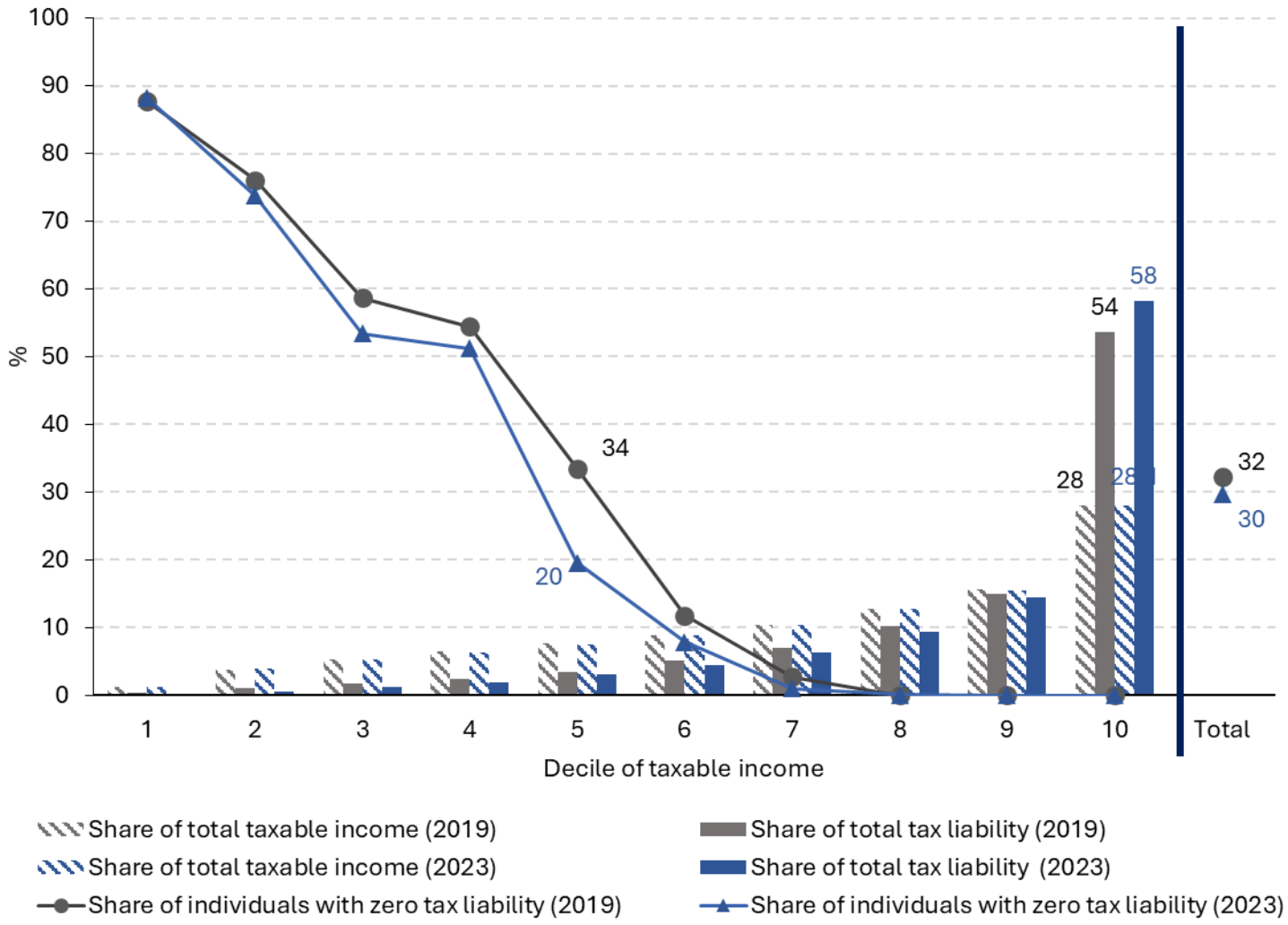
Appendix: PIT data

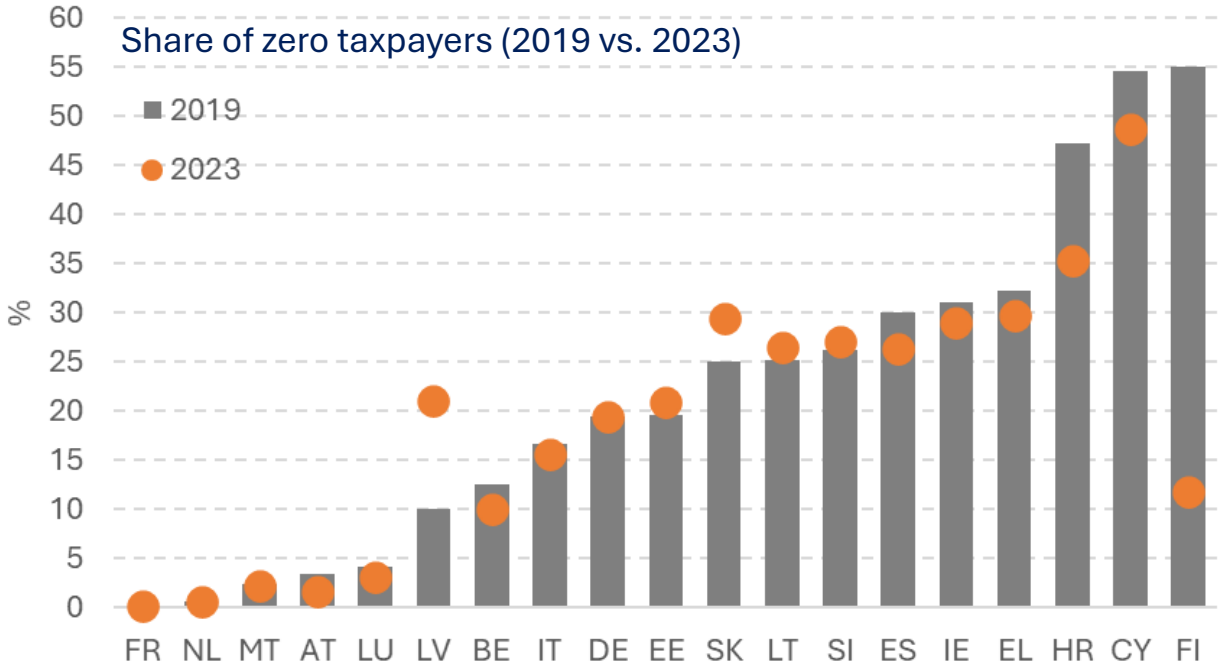
- Who pays PIT in Greece?
- Share of zero taxpayers
- Concentration of tax base & tax liabilities at the top 20% of the tax base distribution
- Share of tax base by income source

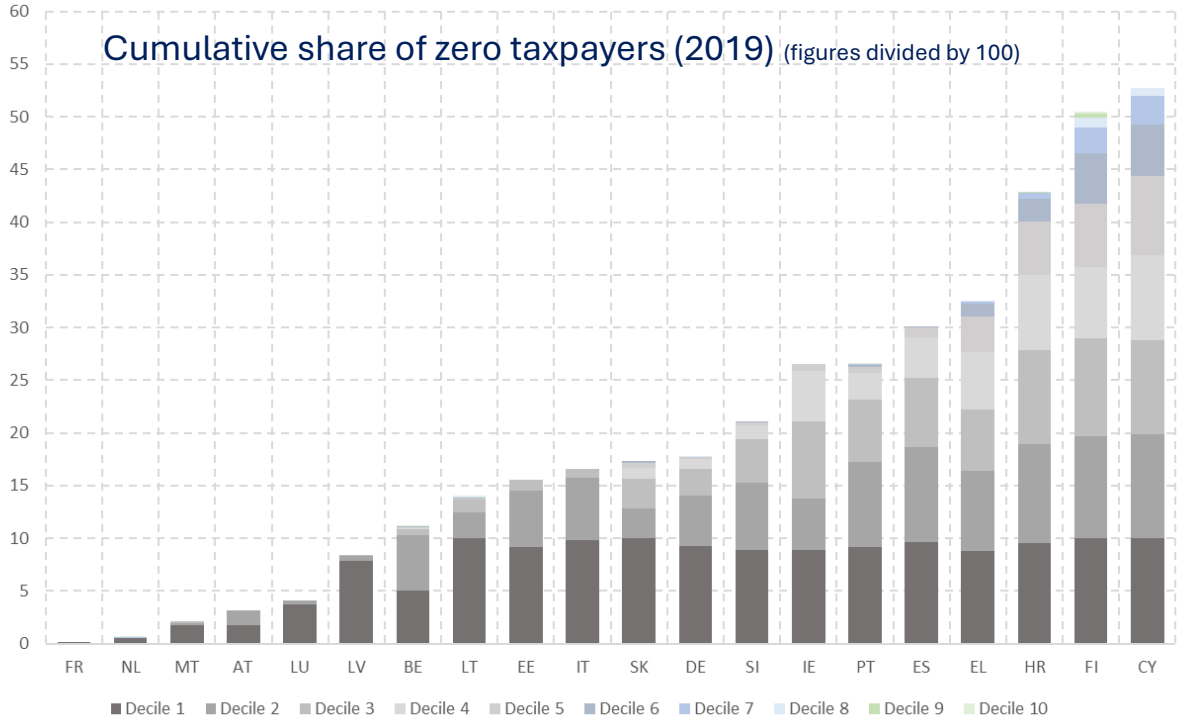
Who pays PIT in Greece?

- The distribution of tax liability & taxable income has remained broadly unchanged between 2019 and 2023.
- More than 50% of total PIT is paid by the richest 10th income decile. The bottom half of the income distribution pays less than 10% of total PIT liability.
- 28% of total taxable income is earned by the richest 10th income decile. The bottom half of the income distribution earns just 24% of total taxable income.
- The share of zero taxpayers has marginally decreased from 32% to 30% (relatively large decrease in the middle of the distribution)



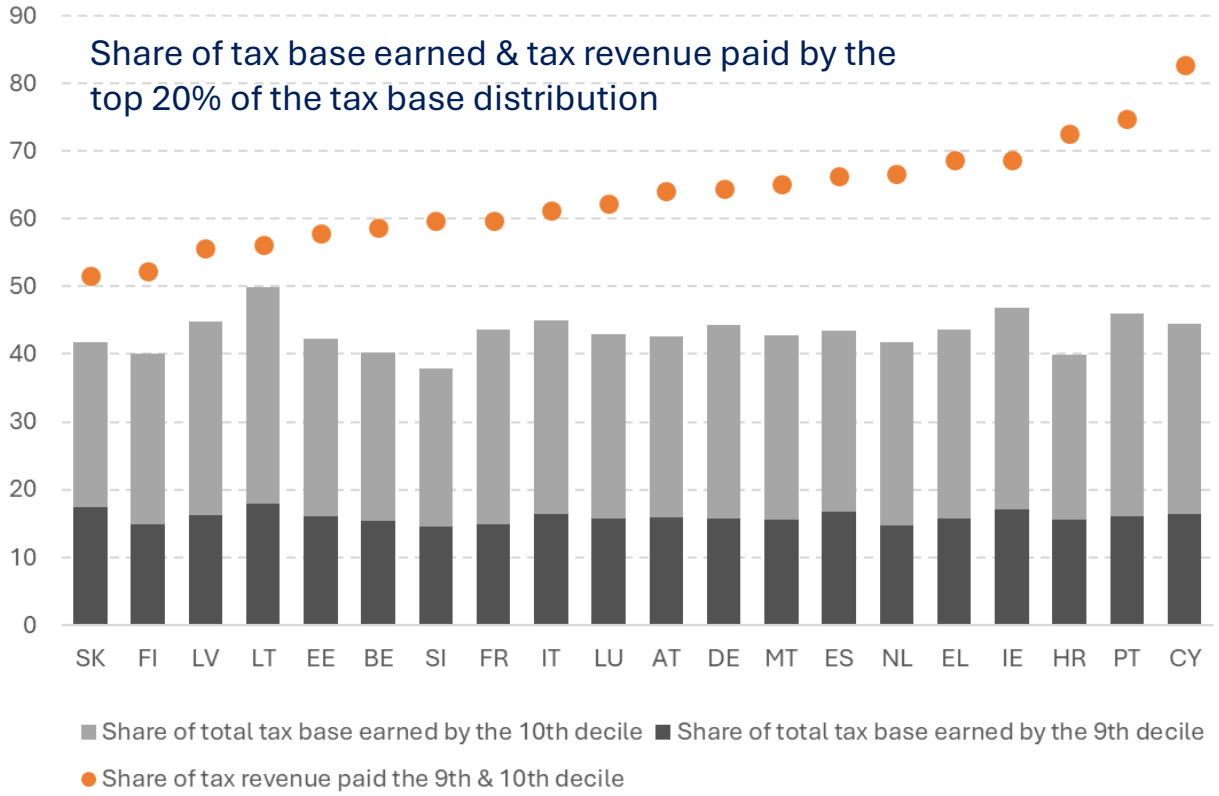
Share of zero taxpayers (2019 vs. 2023)

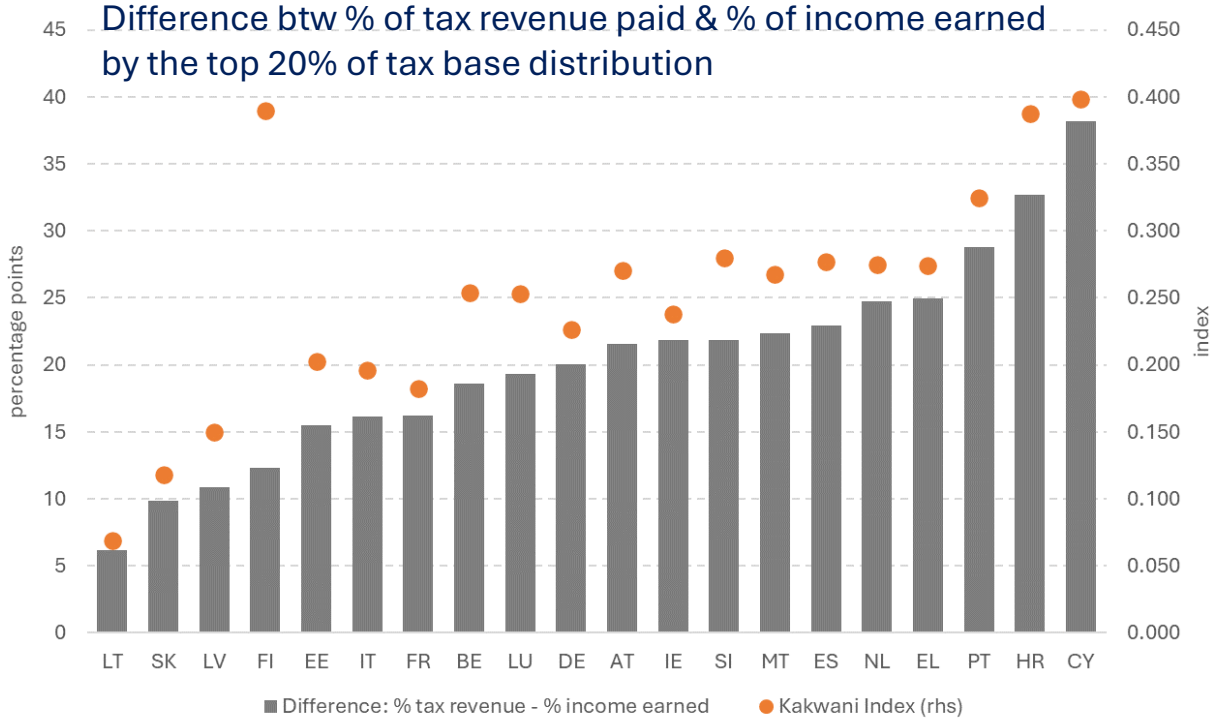




- In most countries, the share of zero taxpayers decreased.
- FI has marked the largest decrease in the share of individuals with zero tax liability between 2019 and 2023 (followed by HR).
- In approximately half of the countries analyzed, over 90% of taxpayers in the 1st decile do not pay PIT (→ the TTB for this segment is relevant to only a small fraction of taxpayers and should be interpreted with caution.)

Concentration of tax base & tax liabilities at the top (2019)





- Across all countries, the top 20% of the distribution earns 40% of the tax base (on average).
- The share of tax revenues attributed to the top 20% varies from c. 50% (SK) to c. 80% (CY).
- The gap between the two metrics shows considerable heterogeneity across countries, indicating different *progressivity* of various tax systems.

Share of tax base by income source (2019)

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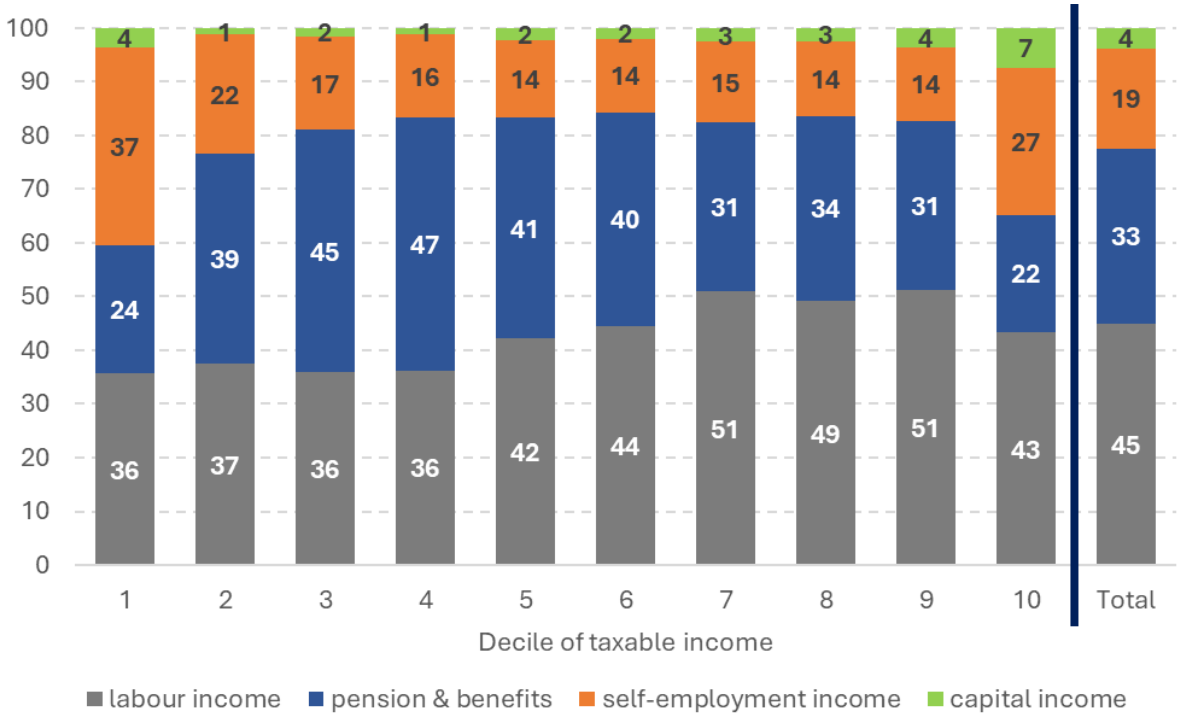
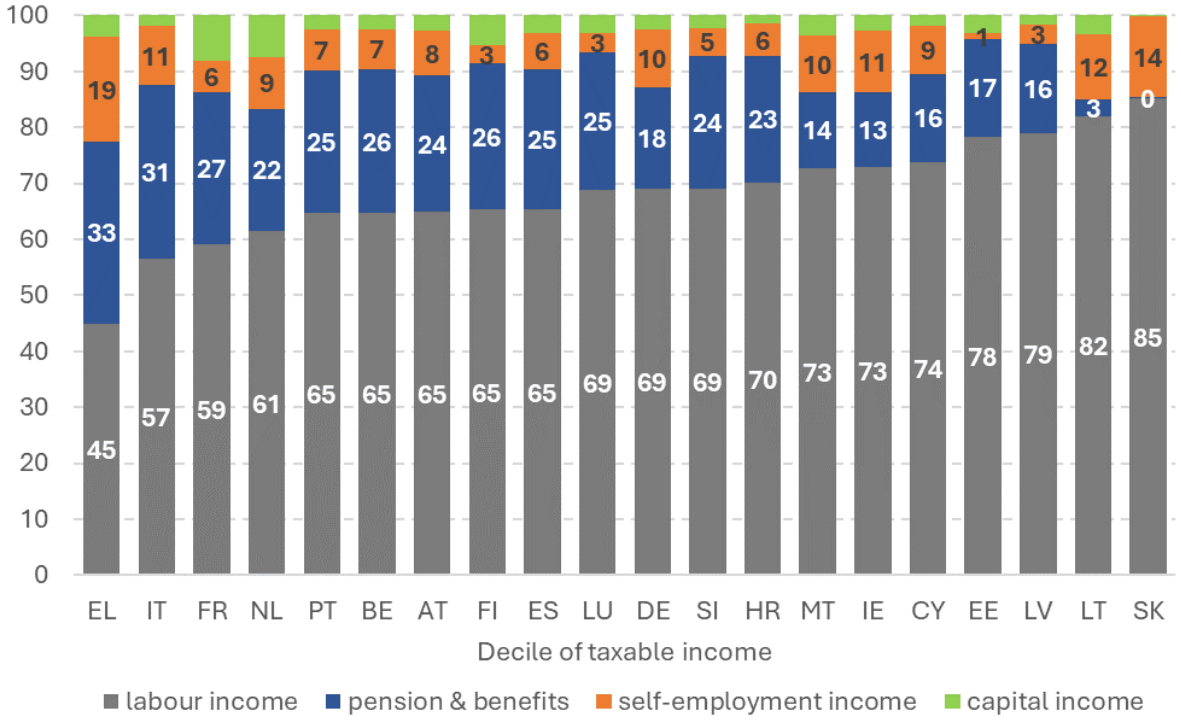
Composition of taxable income (distributional analysis) – Greece



Composition of taxable income (EU countries)



- In all countries, labor income is the main component of the tax base, despite significant differences in magnitude.
- EL has the lowest share of labor income & the largest share of self-employment and pensions/benefits income in the EU.
- EL: the 1st decile has the largest share of self-employment income
- EL: 'wage earners are *rich* and self-employed are *poor*': On average, the largest share of labor income is concentrated in the top half of the tax-base distribution, *whereas* the largest share of self-employment income is concentrated in the bottom half of the tax-base distribution.