BOX 3: FISCAL DRAG IN THEORY AND IN PRACTICE: A EUROPEAN PERSPECTIVE[1]

Introduction

Fiscal policy influences economic outcomes not only through explicit changes in tax rates and public spending, but also through other mechanisms embedded in the tax system. One such mechanism is fiscal drag, which has regained prominence in recent years amid elevated inflation across Europe, particularly during the 2021-2023 period. Fiscal drag refers to the increase in personal income tax (PIT) liabilities that arises when nominal incomes grow while key tax parameters, such as tax bracket thresholds, allowances and deductions, remain fixed in nominal terms. In progressive tax systems, nominal income growth can push taxpayers into higher tax brackets or erode the real value of nominal allowances, raising effective tax rates.

In this sense, fiscal drag operates as an implicit tax increase, expanding the tax base and raising revenues without formal legislative action. In case a decision is taken to fully or partially index PIT parameters to wage or price developments, this would imply forgoing revenue that would otherwise accrue automatically. Indexation practices vary widely across countries. Some countries employ statutory or automatic indexation mechanisms that adjust brackets or allowances based on either inflation or wage growth. Other countries, including Malta, rely on discretionary adjustments introduced sporadically; in such cases, keeping PIT parameters fixed for extended periods could result in fiscal drag accumulating over time. Such differences in indexation mechanisms contribute to the wide heterogeneity across different PIT systems and the resulting tax burdens, progressivity and fiscal policy.

Against this backdrop, this box summarises the results in García-Miralles et al. (2025), recently published in the European Central Bank's (ECB) Working Paper Series, which provides a detailed and harmonised assessment of fiscal drag across 21 European Union (EU) countries, including Malta.[2] The paper uses EUROMOD, a tax-benefit microsimulation model for EU countries, and microdata from the 2020 EU Survey on Income and Living Conditions (EU-SILC), to enable consistent cross-country comparisons.

Fiscal drag is analysed along two complementary dimensions, focusing on the period spanning from 2019 to 2023. First, the paper estimates elasticities of PIT revenue to changes in the tax base – derived separately for 2019 and 2023 – to serve as an indication of the potential for fiscal drag to materialise in each country, given the design of its tax system. The second part of the paper relates to fiscal drag that materialised in practice over this period, estimating changes in PIT revenues between 2019 and 2023 that can be attributed to fiscal drag, and quantifying the fiscal drag that was potentially prevented through indexation of PIT parameters or other structural reforms.

---

[1] Prepared by Glenn Abela, Senior Research Economist within the Modelling Office, and Ian Debattista, Senior Economist within the Fiscal Affairs and Reports Office, at the Central Bank of Malta. The authors would like to thank Alexander Demarco, Aaron G. Grech, Rita Schembri and Owen Grech for their helpful comments. The views expressed are those of the authors and do not necessarily reflect the views of the Central Bank of Malta. Any errors are the authors' own.

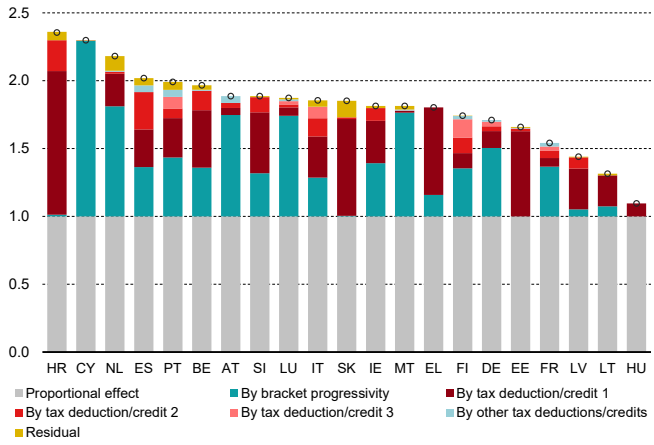
[2] García-Miralles, E., et al. (2025). Fiscal Drag in theory and in practice: A European perspective. *Working Paper* No. 3136, European Central Bank. This work was conducted jointly by representatives of 21 countries (including Malta) forming part of the European System of Central Banks' (ESCB) Network on Microsimulation Modelling, of which the authors of this box are members.

Potential fiscal drag as tax-to-base elasticities

Over time, fiscal drag builds up due to a combination of the progressivity embedded in the structure of a tax system and the degree to which the parameters of that system are adjusted in line with growth in the tax base. All else equal, more progressive tax structures result in a greater accumulation of fiscal drag if tax parameters are left unchanged, as average tax liabilities rise relatively more given an increase in the nominal tax base. To reflect this, we estimate tax-to-base (TTB) elasticities – the proportional change in tax revenue given a change in the tax base – as a measure of the responsiveness of tax liabilities in that country to changes in income when the PIT system is unchanged. Larger TTB elasticities hence signal higher 'potential' fiscal drag within a country's PIT system.

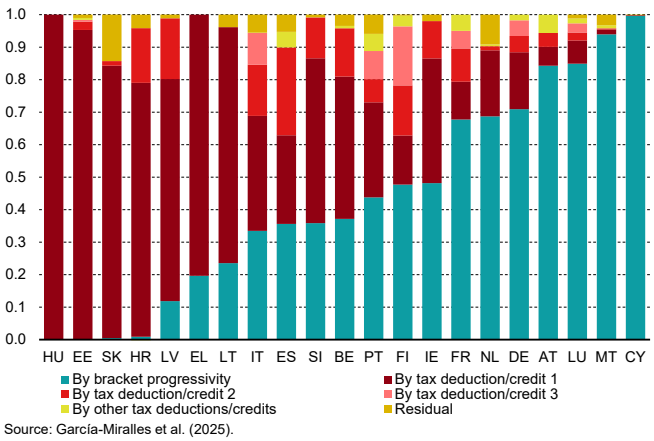
In our microsimulation setting, we estimate TTB elasticities from the change in tax revenue following a homogeneous 1% increase in the tax base. After deriving aggregate TTB elasticities for each country, we re-estimate these elasticities after indexing specific tax parameters, thus being able to determine which parameters are the primary drivers of potential fiscal drag in each PIT system. We first re-estimate TTB elasticities after indexing tax bracket thresholds by 1%, in line with the simulated growth in the tax base. Subsequently, we also index the parameters of the three most prominent tax benefits/deductions in each country's income tax framework. Lastly, we separately quantify the role of all other tax benefits and of any unexplained residual elasticity. Chart 3a plots aggregate TTB elasticities under the policy systems in place in 2019, for all 21 countries covered in the study, together with the contribution of each component of the PIT system. Chart 3b then focuses on

Chart 3a
TTB ELASTICITIES AND THEIR UNDERLYING DRIVERS, 2019
(per cent)



Source: García-Miralles et al. (2025).

Chart 3b
DECOMPOSITION OF ELASTICITIES INTO UNDERLYING MECHANISMS, 2019
(per cent)



Source: García-Miralles et al. (2025).

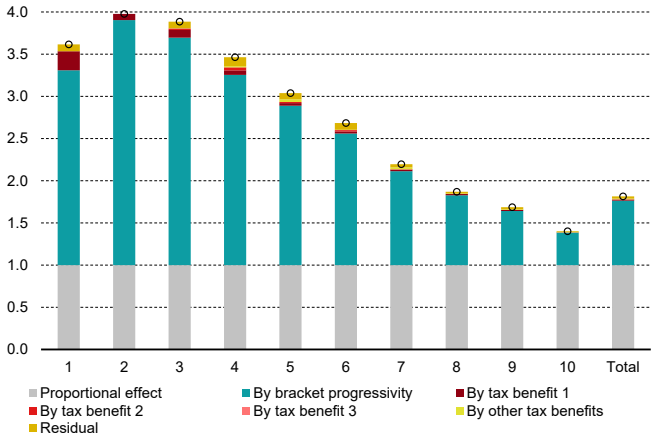
the contribution of each underlying mechanism by normalising their sum to 100%. Most estimated elasticities fall in the vicinity of 1.8, with just three countries exceeding a value of 2 and those for three others falling below 1.5. There is more cross-country heterogeneity in terms of the mechanisms that give rise to these elasticities. In slightly more than half of the countries, tax benefits account for the majority of the TTB elasticity above the proportional value of 1 (see Chart 3b). In many cases, one primary benefit accounts for nearly all this effect. In seven countries including Malta, however, it is the progressivity of tax brackets that primarily explains the aggregate TTB elasticity. Following Cyprus, Malta is the country with the highest contribution from bracket progressivity in our sample. If bracket thresholds were indexed in line with income, the estimated elasticity to taxable income in Malta's 2019 PIT system falls from 1.81 to 1.05. Indexing tax bracket thresholds would therefore have offset more than 90% of potential fiscal drag under the 2019 PIT system.

In line with most euro area countries, income tax revenues in Malta are most responsive to an increase in employment or self-employment income. We estimate that in 2019, a 1% increase in employment or self-employment income would have raised PIT revenues by 2%, all else equal. Taxes on capital income, and particularly those on pensions and benefits, are less elastic. A 1% rise in capital income – composed, in the case of Malta, of property rental income and income from financial investments – would have increased PIT revenues by 1.63%, whilst the elasticity with respect to pension and benefit income was 0.74.[3] The latter value was below 1 due to the presence of tax rebates for pensioners, introduced in 2017.

By 2023, the aggregate TTB elasticity of the Maltese system fell slightly to 1.74, down from 1.81 in 2019, due to a decline in the elasticity of capital income and further measures to lower the taxability of pension income. As from 2022, a capped share of pension income is excluded outright from the tax base. 40% of pension income derived in 2023 was exempt from PIT, up to a maximum of €5,987. This measure implies a larger segment of individuals for whom a simulated increase in pension income does not result in higher taxation, reducing the elasticity of income tax to pensions and benefits to 0.36. In most other countries, the overall TTB elasticity in 2023 is also similar to or below that for 2019.

Focusing once again on Malta's 2019 system, Chart 3c shows how the estimated aggregate TTB elasticity changes across

Chart 3c
DECOMPOSITION OF TTB ELASTICITY BY DECILE, 2019
(per cent; deciles of household taxable income)



Source: García-Miralles et al. (2025).

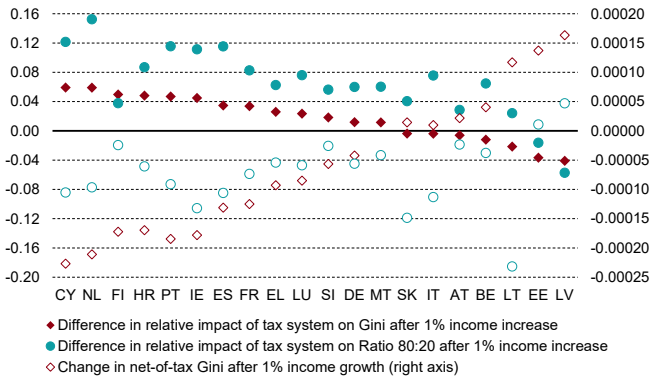
[3] In EUROMOD, tax on investment income in Malta is modelled as a flat 15% final withholding tax in all cases. Data on income from capital gains is not available and therefore simulations do not feature any capital gains taxes. A few relatively minor tax deductions cannot be modelled within EUROMOD, such as sports participation fees, childcare fees and fees paid to private homes for elderly and disabled.

the distribution of household taxable income, allowing for a more detailed assessment of the impact of the tax system's design at different levels of income.[4] We find that the elasticity is above the aggregate value and increasing over the first two deciles, reaching 4.0 in the second decile, remaining at a similar level in the third decile, and declining steadily thereafter, falling below 1.5 for the highest-earning 10% of households. At the bottom of the distribution, tax brackets are narrower and therefore the marginal tax rate rises significantly with income, contributing to relatively higher elasticities. It also indicates considerable potential for fiscal drag to affect taxpayers in the lower income brackets if tax parameters are not updated over time. Higher up the distribution, the possibility of bracket creep diminishes, leading to steadily falling elasticity estimates. The role played by benefits also diminishes towards the top of the distribution, as all tax benefits are either fixed in absolute terms or subject to some nominal maximum. Therefore, benefits matter less in relative terms in determining the tax liabilities of the highest earning households. A similar pattern of elasticities peaking in the lower deciles and declining approximately linearly thereafter is observed across most countries. However, in Croatia, Hungary, Greece and France, the highest elasticities are found in the middle of the distribution, mainly owing to the design of specific tax benefits in these countries.

Finally, the analysis turns to the potential impact of fiscal drag on redistribution and income inequality. We consider whether the impact of the income tax system on these metrics changes after our standard 1% increase in taxable income, if parameters are left unindexed. Effects on income inequality are derived by calculating the effect of income taxes on the Gini index, as well as the 80:20 ratio, which is the ratio of income earned by the top 20% of the distribution against that of the bottom 80%. Effects of fiscal drag on tax system progressivity are quantified through changes in the Kakwani index (Kakwani, 1977).[5]

The results show that, in most countries, 2019 PIT systems were more income-equalising in the presence of fiscal drag (see Chart 3d). In 13 countries including Malta, the distribution of net-of-tax income becomes more equalised after a simulated increase in income, signalled by a decrease in the after-tax

Chart 3d
IMPACT OF FISCAL DRAG ON INCOME INEQUALITY, 2019
(percentage points; index points)



Source: García-Miralles et al. (2025).
Note: For MT, markers for changes in the net-of-tax Gini and Ratio 80:20 overlap due to near-identical values.

[4] For households with no tax liability, which are concentrated in the lower end of the distribution, the TTB elasticity is undefined. Results in our charts are therefore based on elasticities for households with a positive tax liability in the baseline (i.e., prior to simulating a 1% increase in taxable income).

[5] The Kakwani index is measured as the difference between an index measuring the concentration of tax liabilities and the Gini coefficient of income inequality. It ranges between -1 and 1, with higher values indicating a more progressive tax system. See Kakwani, N. C. (1977), Measurement of tax progressivity: An international comparison, *The Economic Journal, 87*(345), pp. 71–80.

Gini coefficient in absolute terms. The *relative* change in the Gini coefficient after the imposition of PIT also increases in the same set of countries.[6] Equivalent measures based on the 80:20 ratio, which emphasises relatively more the extremes of the distribution, broadly paint the same picture, with income growth leading to lower income inequality in most countries.

Meanwhile, fiscal drag is found to reduce the progressivity of PIT systems in all countries. Although in theory fiscal drag can also increase progressivity, depending on the exact design of individual tax system components, in Malta's case we find that it results in a proportionately larger increase in tax liabilities in the lower segments of the income distribution, in line with the fact that TTB elasticities generally decline as income increases.[7] In the absence of indexation, fiscal drag therefore increases effective tax rates relatively more at low to middle incomes. In the case of Malta, the Kakwani index declines by 0.002 points, or close to 1%, after the simulated increase in taxable income – a figure in line with most other countries. This result suggests that lower-earning taxpayers account for slightly more of the total tax liability once incomes increase. Notably, this is not inconsistent with the observed fall in after-tax income inequality, since many low earners continue to pay no income tax (ignoring possible flat rate liabilities, e.g. on income from financial assets) even following the simulated increases in income. Therefore, though the PIT system becomes less progressive *among taxpayers*, this does not offset the fact that taxpayers as a whole face a higher average tax rate, and so their disposable income increases by relatively less than that of non-taxpayers, which lowers overall income inequality.

Fiscal drag in practice through counterfactual microsimulations

This section examines how fiscal drag materialised across the set of 21 countries between 2019 and 2023, a period characterised by strong nominal growth in the tax base, largely driven by the high inflation observed between 2021 and 2023. Building on the preceding section, the analysis focuses on fiscal drag in practice by comparing realised PIT revenues with a set of counterfactual scenarios. The objective is to provide a detailed and harmonised cross-country assessment of how PIT systems responded to inflationary pressures and to what extent governments offset fiscal drag through policy interventions. In doing so, the analysis distinguishes between revenue increases arising mechanically from nominal income growth interacting with unindexed tax parameters, and changes in PIT revenue attributable to deliberate indexation measures and structural reforms.

To this end, five counterfactual scenarios are estimated for 2023, together with a baseline scenario that reflects actual PIT revenue by applying 2023 income levels to 2023 PIT legislation. A no-indexation scenario applies 2023 incomes to PIT parameters held fixed at their 2019 nominal values. Three full-indexation scenarios are then simulated, in which all monetary PIT parameters are uprated in line with growth in taxable income, lagged inflation, and contemporaneous inflation, respectively. Finally, an intermediate scenario is constructed to

[6] The absolute change in the Gini coefficient of after-tax income, before and after simulated income growth, can be affected by the impact of the income growth itself on the Gini coefficient. The alternative measure used, therefore, measures the percentage difference between the pre-tax and post-tax Gini coefficient, and compares this metric before and after the simulated growth in the tax base.

[7] Immervoll (2005) shows that while the erosion of tax credits always reduces tax progressivity, it is not necessarily the case when tax deductions and tax bracket thresholds lose their relative value. See Immervoll, H. (2005), Falling up the stairs: the effects of "bracket creep" on household incomes, *Review of Income and Wealth 51*(1), pp. 37–62.

isolate the contribution of discretionary reforms by holding all monetary parameters at their 2019 levels while incorporating all other policy changes implemented over the period.

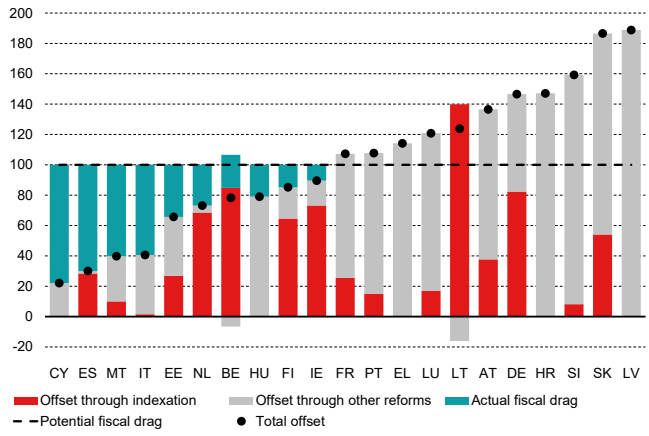
The results presented in Chart 3e provide a comparative overview of how much fiscal drag actually materialised across EU countries between 2019 and 2023. In this context, potential fiscal drag is defined as the mechanical increase in 2023 PIT revenue that would have occurred had all tax parameters remained fixed in nominal terms since 2019, as opposed to the average PIT revenue under the full-indexation scenarios. Each bar decomposes potential fiscal drag – which is normalised to 100% – into three components: the share offset through indexation measures, the share offset through other discretionary reforms, and the residual share that materialised as actual fiscal drag. The substantial cross-country heterogeneity reflects differences in PIT system design, inflation dynamics, and the timing and scope of policy responses to the period of high inflation.

Less than half of potential fiscal drag was offset in Cyprus, Spain, Malta and Italy. By contrast, Finland and Ireland came close to fully offsetting fiscal drag over the period, while more than half of the countries in our sample more than compensated for it, resulting in PIT revenues in 2023 that were lower than those implied by a fully indexed PIT system. Chart 3e further highlights marked differences in the composition of offsetting measures. Even among countries with similar overall outcomes, policy approaches varied considerably. The Netherlands and Ireland, for example, relied primarily on indexation of monetary parameters, whereas other countries, such as Estonia and Hungary, offset fiscal drag mainly through non-indexation reforms.

In Malta's case, the PIT system does not incorporate any form of automatic indexation of monetary parameters. In particular, tax brackets, identified above as the principal mechanical channel through which fiscal drag operates, remained unchanged in nominal terms throughout the period under consideration. In an environment of elevated inflation and strong nominal income growth, this setting implied a relatively high susceptibility of the Maltese PIT system to fiscal drag.

Notwithstanding the absence of formal indexation, several PIT parameters were amended through discretionary policy interventions between 2019 and 2023. These changes were not governed by systematic uprating rules and took the form of tax allowances,

Chart 3e
OFFSET AND REALISED FISCAL DRAG, 2023
(per cent of potential fiscal drag)



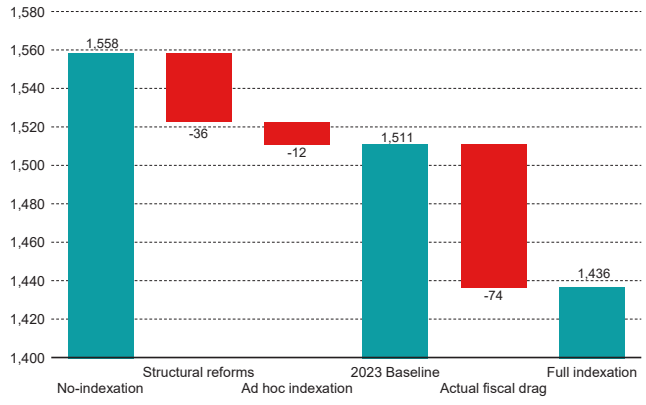
Source: García-Miralles et al. (2025).

credits and rebates. Over the period, the maximum tax credit for private pension contributions was increased substantially, rising by approximately 50%. In addition, the nominal value of tax rebates distributed to households in the form of cheques was raised, while the maximum rebate applicable to pensioners' tax liabilities was adjusted annually, with eligibility criteria remaining unchanged. Aside from these discretionary adjustments, two reforms to the PIT system's structure were implemented: the phased introduction of exemptions for pension income in 2022, and the reduction in the flat rate applied to part-time employment income.

Chart 3f illustrates in detail how the fiscal drag that accumulated between 2019 and 2023 affected Malta's PIT revenue in 2023, and how it was shaped by different policy measures. In nominal terms, PIT revenue increased from €984 million in 2019 to €1,511 million in 2023, or from 6.7% to 7.4% of GDP. This divergence indicates a rise in the effective tax burden relative to economic activity during a period of elevated inflation and nominal income growth. Applying 2023 income levels to the 2019 PIT legislation without indexation yields a counterfactual PIT revenue of €1,558 million in 2023, equivalent to 7.6% of GDP. This exceeds observed PIT revenue by 0.2 percentage points of GDP, underscoring the role of discretionary policy measures in partially offsetting the mechanical increase in tax revenue. By contrast, averaging across the three full-indexation counterfactuals produces PIT revenue of €1,436 million, or 7.0% of GDP, in 2023.

Potential fiscal drag that accumulated between 2019 and 2023 thus amounted to around €122 million (€1,558 million less €1,436 million), of which €48 million, or 40%, was offset through policy interventions. Approximately three-quarters of offset fiscal drag is attributable to structural reforms, almost entirely driven by the introduction of pension income exemptions. In monetary terms, these reforms account for €36 million in foregone revenue relative to the no-indexation counterfactual. The remaining amount offset of €12 million is explained by discretionary adjustments to tax credits, allowances and rebates. The difference between actual tax revenue and the average tax revenue under full indexation suggests that uncompensated fiscal drag since 2019 increased tax liabilities in 2023 by approximately €74 million.

Chart 3f
PERSONAL INCOME TAX REVENUE IN MALTA, 2023
(EUR millions)



Source: García-Miralles et al. (2025).

Conclusion

García-Miralles et al. (2025) characterises fiscal drag in the PIT systems of 21 EU countries over the period 2019-2023, including Malta, using an EU-wide microsimulation model based on representative household microdata. Using TTB elasticities as an indication of the potential for fiscal drag to arise in each country's tax system if growth in taxable income is not matched by tax parameter indexation, the paper finds that the aggregate TTB elasticity in most countries' income tax systems was slightly below 2 in 2019. In Malta's case, this value stood at 1.81. The excess elasticity over the proportional value of 1 is accounted for by the progressivity of the tax bracket structure, with benefits and allowances playing a smaller role. The second part of the paper employs a set of counterfactual simulations to estimate how much changes to the tax system over the same period prevented the accumulation of fiscal drag, and how much fiscal drag was allowed to materialise, quantifying its effects on tax revenue collected in 2023. Malta was one of ten countries where changes to the tax framework over this period did not fully offset fiscal drag.

In line with most EU countries, Malta's PIT system is considerably progressive. A progressive income tax system is widely accepted as a standard tool for governments to redistribute incomes and achieve a more balanced distribution of disposable incomes. However, progressivity can also be rapidly eroded when nominal incomes increase, unless maintained through appropriate indexation policies. This becomes especially salient in periods of elevated inflation, such as that experienced across Europe over the 2021-2023 period. Facing higher effective tax rates due to fiscal drag in such a period would further depress real disposable income growth. Our results on elasticities across the income distribution additionally show that relatively lower-earning taxpayers would see the highest relative increases in tax liabilities if tax parameters are not sufficiently indexed.

Regular reviews of tax parameter values are therefore important to maintain the progressive nature of Malta's PIT system, particularly as it features no statutory indexation. Although during the period covered by this study, fiscal drag was not fully offset by discretionary measures, the nature of the most important measures (such as pension tax exemptions and flat-rate cheque rebates) likely increased the progressivity of the system, a finding documented in an extension of this work by Abela & Debattista (2025).[8] Moreover, the latter study shows that adjustments to tax brackets effective at the start of 2025 substantially compensated taxpayers for the absence of indexation accumulated since 2016. At the same time, adjusting tax parameters on an ad hoc basis preserves fiscal flexibility, thereby retaining some fiscal space for the Government to better respond to unexpected shocks.

[8] Abela, G., & Debattista, I. (2025). Fiscal drag in Malta 2017–2025: A microsimulation analysis (*Research Bulletin* 2025, Article 2, pp. 15–24). Central Bank of Malta.