

The 3,5% Horizon: Modeling the Pathway of Defense Spending towards Economic Growth

Miguel Andrade¹

Luís Guia²

João Leal³

Non-technical summary

Following Russia's full-scale invasion of Ukraine and renewed US pressure on European NATO allies to assume a greater share of defense spending, the 2025 NATO Hague Summit set a new benchmark: by 2035, member states should devote 5% of GDP to defense and defense-related areas, including at least 3.5% to core military capabilities. For most European countries — and especially Portugal — this would represent a marked break with decades of declining military budgets.

This paper asks what it would cost, and what it would deliver, for European economies to meet that target. Using NiGEM, the authors estimate the economic effects of raising defense spending to 3.5% of GDP by 2035 across 16 NATO member states, with particular attention to Portugal as a small, open euro-area economy.

The analysis considers several dimensions:

- a) Whether countries increase spending individually or in coordination.
- b) Whether additional spending is concentrated on consumption (e.g., wages, day-to-day operations, and maintenance costs) or on investment (e.g., equipment, infrastructure, and R&D).
- c) How the increase is financed.
- d) And whether households and firms respond forward-looking or only gradually.

The results show that higher defense spending supports output, with stronger and more persistent gains when spending is directed toward investment. In Portugal, GDP rises by around 0.2% above baseline in 2025–2026 and by about 0.5% over 2027–2035 in the investment-heavy scenario. When all NATO countries expand spending simultaneously, Portugal and other smaller economies benefit from stronger export demand, although part of these gains is offset by higher interest rates as the ECB tightens monetary policy.

These gains also come with fiscal costs. In the simulations, Portugal's public debt rises by around 3 percentage points of GDP by 2035, and the need to stabilize public finances eventually requires higher taxes or spending cuts. As a result, household consumption falls by around 0.5% in the medium term relative to baseline. These are model simulations, not forecasts. Also, the authors identify some caveats. Among those, the model's treatment of public investment productivity is standard and does not capture potentially larger knowledge spillovers from defense R&D, dual-use technologies, or learning-by-doing, or the benefits arising from the creation

¹ GPEARI – Ministério das Finanças.

² GPEARI – Ministério das Finanças.

³ Portuguese Public Finance Council.

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of new industrial clusters, a lower dependency on key defense assets, and greater European autonomy in strategic value chains.

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The analyses, opinions and findings of this paper represent the views of the authors, and not necessarily those of the Portuguese Public Finance Council, GPEARI or the Ministry of Finance

**Gabinete de Planeamento, Estratégia, Avaliação e Relações Internacionais
Ministério das Finanças**

Rua da Alfândega n.º 5A • 1100 – 016 Lisboa

www.gpeari.gov.pt

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1. Introduction

Defense spending has returned to the top of Europe’s policy agenda. After the Cold War, many European countries scaled back military budgets and redirected resources toward other priorities—especially social protection—capturing the so-called “peace dividend”. This calculus has since changed.

The first warning shots came with Russia’s annexation of Crimea in 2014. This development prompted NATO Allies to commit to higher defense outlays under the 2%-of-GDP benchmark. Progress, however, was uneven: in 2023, only 11 of NATO’s 31 members met the 2% target. The shock of Russia’s full-scale invasion of Ukraine in February 2022—now in its fifth year as of 2026—made the costs of that underinvestment more visible, exposing gaps in readiness, training, and industrial capacity, and underscoring Europe’s continued reliance on the United States for credible security guarantees.

The urgency intensified further as pressure emerged on NATO Allies to shoulder a larger share of the defense burden. This culminated at NATO’s 2025 Summit in The Hague, where leaders adopted a significantly more ambitious spending framework: a commitment to invest 5% of GDP annually on defense and defense-related areas by 2035, including at least 3.5% for core defense requirements—troops, weapons, and equipment.

This rearmament push arrives at a fragile moment for Europe. The European economy has been through weak growth and a convergence of structural challenges—deglobalization, demographics, decarbonization, digitalization, and high public debt.

Against this backdrop, a growing literature argues that higher defense spending could also support a revival of Europe’s industrial base. Yet much of this work pays limited attention to small open economies such as Portugal, and it often glosses over the question of financing.

We address these gaps using NiGEM, a state-of-the-art multi-country macroeconomic model. Specifically, we: (i) quantify the gains from coordinated versus unilateral defense buildups; (ii) map spillovers within the euro area; (iii) incorporate financing constraints, a feature often elided in policy discussions, and debt-sustainability risks that can become binding for highly indebted EU Member States; and (iv) provide detailed estimates of the implications for the Portuguese economy.

2. Literature review

The most comprehensive recent overview of the macroeconomic effects of higher defense spending was presented by Ilzetzki (2025). It also provides a useful historical account of the “guns versus butter”⁴ debate. Synthesizing evidence from macroeconomics, public finance, economic history, and productivity studies, it finds a broad consensus—at least for high-income countries—that economies tend to expand to accommodate higher defense outlays through increased production, procurement, and employment. Where the literature diverges is on how large this expansion is, and on whether military spending crowds out or crowds in private consumption and investment. In what follows, we refer to this net effect on activity as the fiscal multiplier.

⁴ “Guns and Butter” is an economic concept that illustrates the trade-offs governments face when allocating resources between defense and social programs.

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Two mechanisms are central to the size of that multiplier. First, how spending is financed. Secondly, how monetary policy responds. The trade-off between “guns and butter” is typically sharper—and GDP growth weaker, potentially even negative—when higher spending is funded through tax increases rather than debt (often framed as “tax smoothing”), and when independent central banks tighten policy in response to fiscal expansions. ECB (2025)⁵ reviews the empirical evidence and suggests that defense-spending multipliers tend to be larger (i) in recessions, when a higher share of non-Ricardian consumers can strengthen demand and public spending may crowd in private activity; (ii) when fiscal space is ample (e.g. lower debt/deficits or a more favorable interest rate–growth differential); (iii) in less open economies, where leakages through imports are smaller; and (iv) under fixed exchange rates, where monetary policy is less likely to offset the fiscal impulse.

Beyond cyclical effects, a separate strand of research focuses on whether defense spending can raise long-run productivity. Ilzetzki (2025) argues that such gains can be meaningful but hinge on the composition of spending, the extent of import leakage, and the expected duration of the buildup. Productivity effects are more likely if outlays are tilted toward public R&D, procurement favors European suppliers and smaller contractors with greater “dual use” potential, and governments adopt “dual sourcing” (contracting multiple suppliers for the same project) to curb market power and foster competition, learning, and spillovers. Consistent with this view, Antolin-Díaz and Surico (2025) find positive long-run effects of defense R&D on US GDP, while Moretti et al. (2025) suggest that defense R&D can crowd in private R&D, generating small but statistically significant productivity gains over time.

Following the announcement of a new NATO percent-of-GDP spending target, several institutions produced early assessments of its likely macroeconomic impact. EC (2025) reports stylized simulations using the QUEST macroeconomic model of a fully debt-financed, linear increase in defense spending of up to 1.5% of GDP, finding real GDP around 0.5% above baseline by 2028, with effects remaining positive—though smaller—into the medium term. The muted short-run response is attributed to forward-looking behavior (agents anticipate future taxes as debt rises) and to higher interest rates, as inflation pressures and higher debt increase risk premia. Real GDP remains above the baseline in the medium term (0.3% in 2034 in the main scenario). ECB (2025) similarly presents model-based results for a temporary increase in government consumption—rising from 2% of GDP in 2024 to 3% by 2028, remaining elevated for a decade, and then gradually returning to its initial level. Across models, the average two-year output multiplier is 0.93, but dispersion is wide. The analysis highlights (i) the role of expectations⁶ — anticipated taxes and interest rates can materially compress multipliers; (ii) the timing of spending, with backloaded paths producing smaller GDP effects than frontloaded ones; and (iii) the importance of intra-euro area spillovers, which depend on the instrument and the origin of imports⁷, with a higher share of investment producing larger spillovers.

A complementary policy discussion emphasizes that the macro effects cannot be separated from financing constraints. CFP (2025) highlights the difficulty of meeting higher defense needs when several EU Member States start from weak budgetary positions, central banks are shrinking balance sheets, and other spending priorities (e.g. climate change mitigation, ageing, healthcare) increase competition for global savings (from [savings glut to bond glut](#)). OECD (2025) similarly warns that market pressure may raise borrowing costs

⁵ De-link fluctuations in funding needs from the timing of taxation. Current taxation has distributional implications for current taxpayers, while future taxation raises questions of intergenerational equity. The counterpoint to a tax-smoothing strategy is that high public debt could lead to higher borrowing rates or even a sovereign debt crisis.

⁶ Under backward-looking expectations, there is consumption and investment crowding-in as the economy gradually becomes aware of the demand and income impulse, with financial conditions tightening only gradually. Under the forward-looking setting, expectations of future policy rate hikes are reflected in long-term interest rates sooner, and the resulting worsening of borrowing conditions adversely affects investment dynamics over the shorter horizon.

⁷ Government consumption is assumed to rely mostly on domestic production, with an import share of only around 10%. By contrast, government investment has a much higher import share of around 30%.

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for high-debt countries unless they cut non-defense spending or raise revenues, noting that past military build-ups have often moved from temporary borrowing toward subsequent tax increases (Marzian and Trebesch, 2025)⁸). At the same time, it argues that regional multipliers could be larger if European countries source equipment and inputs from one another and if supply constraints do not significantly push up costs.

Finally, it is important to distinguish the macroeconomics of military buildups from the economics of war itself. Conflict destroys infrastructure, deters investment, displaces workers, and erodes human capital. World Bank (2025) finds that conflicts impose a very heavy human and economic toll on emerging markets and developing economies. Medium-intensity conflicts are associated with a cumulative GDP per capita loss of 9 percent over five years, on average. These estimates may understate the true cost of conflict, since tensions and instability often weaken economies even before violence crosses a given onset threshold of fatalities.

3. Model and methodology

This study uses the NiGEM global macroeconometric model to quantify the macroeconomic effects of a higher defense-spending path. It focuses on 16 NATO member states, following the standard NiGEM fiscal-shock procedures in Pain et al. (2018). The simulations implement shocks to real government consumption (GC) and real government investment (GI) through 2050. Each country is assumed to converge to a defense-expenditure target of 3.5% of GDP by 2035 along a gradual transition from its observed 2024 level. Nominal spending paths are first computed in percent of 2024 GDP and then converted into real shocks using NiGEM's baseline GDP deflator; after 2035, the shock is gradually phased back toward baseline through a "grow-back-to-base" mechanism with a decay multiplier of 0.9.

Two alternative spending compositions are considered. Scenario 1 ("consumption-heavy") allocates two thirds of the additional budget to public consumption and one third to public investment; Scenario 2 ("investment-heavy") reverses this split. Fiscal and monetary-policy assumptions follow a closure designed to allow near-term deficits and debt to absorb the initial impulse: direct taxes (TAXR) are held fixed for four years, and policy interest rates are held at baseline for the first two years after the shock. Each scenario is simulated under two implementation modes: a unilateral case ("alone"), in which one country raises defense spending while partners are not subjected to the fiscal shock, and a coordinated case ("all together"), in which all 16 economies implement the increase simultaneously. The baseline solution uses NiGEM's rational-expectations framework, with a complementary adaptive-expectations variant used as a robustness check.

4. Results

4.1 Calibration of the defense-spending shock (nominal, % of 2024 GDP)

Given how far each country starts from the 3.5%-of-GDP target, the required nominal spending effort—measured against 2024 GDP—varies widely across NATO members. In the calibration used here, the largest required impulses are for Spain (cumulatively 18.6% of 2024 GDP), Canada (17), Belgium (16.7),

⁸ [Marzian, J. and C. Trebesch \(2025\)](#), "How to Finance Europe's Military Buildup? Lessons from History", Kiel Policy Brief, 184.

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Portugal (15.8) and Italy (15.3), while the smallest impulses are for Greece (3.9), Finland (8.1), Denmark (9.8), the United Kingdom (10.4) and Germany (10.5). This heterogeneity matters for coordinated simulations because spillovers scale with the size of partners’ demand impulses.

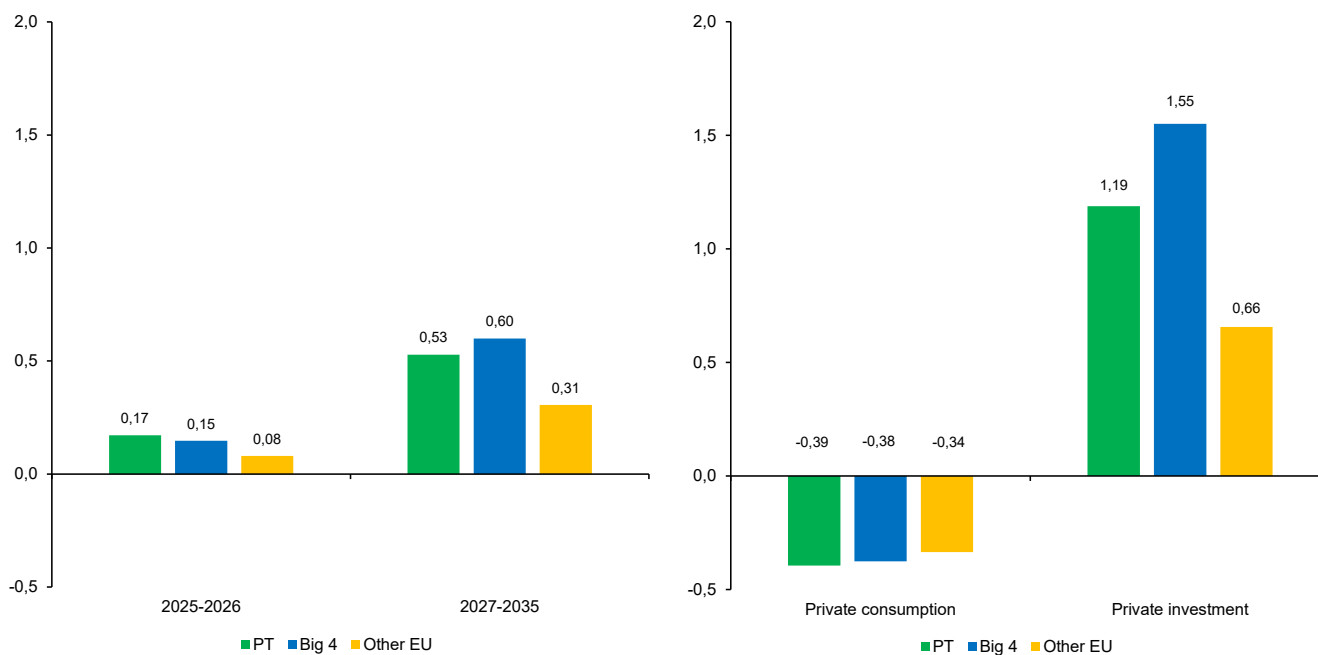
4.2. Baseline results across horizons

Scenario 2, unilateral action; differences relative to the NiGEM baseline

The results show output gains of a unilateral and investment-heavy increase in defense spending, particularly after 2027. On average, real GDP levels in Portugal rise by +0.2% in 2025–2026, strengthen to +0.5% 2027–2035, and average +0.5% per cent over 2025–2035. The “Big 4” (Germany, France, Italy and Spain) exhibit larger gains, moving from +0.1% in the short run to +0.6% in 2027–2035 and +0.5% on average over 2025–2035, while the “Other EU” country group record a smaller but still positive profile of +0.1 %, +0.3%, and +0.3%, respectively.

The GDP impact of a fiscal shock hinges on a small set of design and transmission choices: whether the instrument is current spending or investment; whether the shock is temporary or permanent; whether debt sustainability constraints become binding; how the central bank reacts via the policy rate; and whether households and firms form expectations in a forward- or backward-looking way. These channels also vary across countries because of differences in economic structure and institutions (e.g. labour-market rules and tax systems).

Figure 1 – Effect on real GDP and demand components
 (difference to NiGEM baseline, %)



Note: Values for “Big 4” and “Other EU” refer to a simple average across countries. Demand components (graph on the right-side) reflect the 2025-2035 horizon.

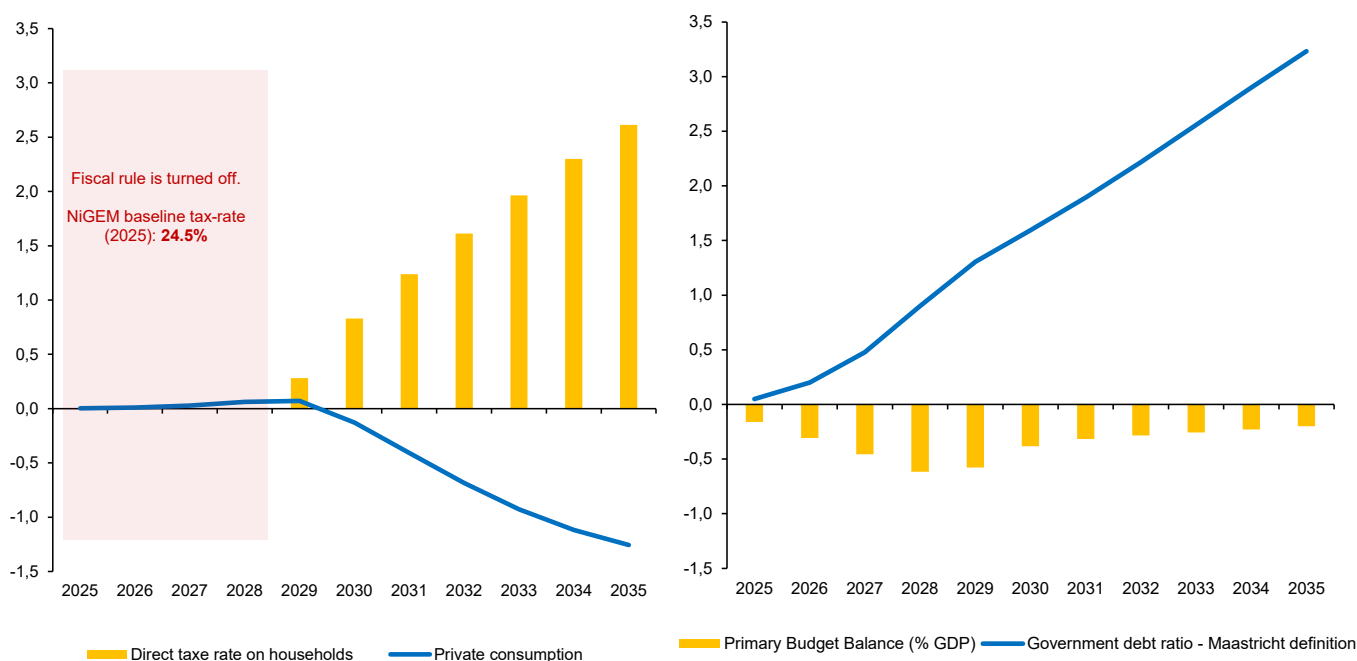
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Fiscal multipliers confirm that shifting spending toward investment delivers larger output gains, and that the “efficiency” of the stimulus is front-loaded—strongest early on and fading over time. In our results, Portugal’s multiplier reaches 0.4 by 2035—below the “Big 4” (0.5) but above “Other EU” countries (0.3)—reflecting the relatively larger role of domestic demand and the stronger private-investment response in bigger economies (especially Italy). Initial fiscal conditions also matter as countries with more fiscal space can absorb higher spending with less need for corresponding tax increases to guarantee government solvency.

That financing requirement shows up most clearly in consumption. As public-sector funding needs rise, direct taxes increase to preserve medium-term sustainability, weighing on household spending. In Portugal, the household direct tax rate rises by 2.6 pp in 2035 (effective rate of 26.2% in that year), and consumption turns materially negative compared to the baseline in the medium run (−0.5% in 2027–2035), averaging −0.4% over 2025–2035. The “Big 4” follow a similar profile (roughly flat early on, then −0.5% later; −0.4% overall). “Other EU” countries also see a medium-run decline, though slightly smaller (about 0% early; −0.4% later; −0.3% overall), pointing to a broad-based—if uneven—consumption compression as taxes adjust.

Besides this tax-induced crowding-out effect, domestic demand is also affected by interest rates. The assumption is that the monetary policy rate does not move in 2025–2026. Since the impact on euro area inflation is limited under unilateral action, monetary policy reaction remains small. The endogenous policy rate reaction is only noticeable when the “Big 4” increase spending, even though the differences continue to be small.

Figure 2 – Effect on private consumption and fiscal variables in Portugal
 (difference to NiGEM baseline, %, p.p.)



Private investment responds strongly and positively under the investment-heavy mix, despite the pressure in interest rates and a decline in private consumption. The crowding-in matches the broader persistence of output gains in the medium-run due to higher capital deepening. In Portugal private investment rises by +0.3% in 2025–2026 compared to baseline and to +1.4% in 2027–2035. As previously mentioned, the “Big 4” show stronger response (+0.4% early; +1.8% later; +1.6% overall), while “Other EU” members record

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more moderate gains (+0.2% early; +0.8% later; +0.7% overall). These results are not indifferent to the design of the public-sector solvency rule, by which only direct taxes on households' income react to moving the budget balance to a sustainable path.

The expansion under uncoordinated action does not benefit from increased export volumes. Unilateral increases in spending reduce spillovers through trade: Portugal's exports are 0% in 2025–2026, –0.1% in 2027–2035, and –0.1% over 2025–2035; the "Big 4" are 0%, –0.1%, and –0.1%; and "Other EU" is effectively neutral. Imports, however, rise materially with domestic demand: Portugal's imports increase by +0.3% in 2025–2026, +1.2% in 2027–2035, and +1% overall; the "Big 4" record +0.5%, +1.5%, and +1.4%; and "Other EU" +0.2%, +0.7%, and +0.6%. The simulations highlight how export performance could be impaired by changes in bilateral real exchange rates.

Public finances evolve in line with the assumed near-term fiscal accommodation followed by gradual adjustment. The primary balance deteriorates in Portugal by –0.2 pp in 2025–2026 and –0.4 pp in 2027–2035 (overall –0.3 pp), with similar but slightly smaller deteriorations in the "Big 4" and "Other EU". As a result, compared to a no-policy change scenario, in 2035, gross government debt rises by 3.2 pp in Portugal, 2.6 pp in the "Big 4" and 2.2 pp in the "Other EU" by 2035.

4.3. Coordinated shock versus unilateral action

Scenario 2 "together" minus Scenario 2 "unilateral"

Coordinating a simultaneous rise in spending raises some boats – not all - while shifting the mix of channels through which it affects economic activity. The coordinated action of several countries generates spillovers through trade. The role of EU trade in shaping fiscal expansions is emphasized in Pfeiffer et al. (2021) who developed an augmented QUEST model, linking the 27 EU Member States and the rest of the world and including trade not only of final goods and services but also intermediate inputs to quantify the macroeconomic spillover of NGEU (Next Generation EU) investments.

Overall, we find that it tends to strengthen external demand spillovers but also generate a more uniform monetary and exchange-rate response that compresses domestic demand. For real GDP, Portugal experiences a short-run coordination drag of –0.1 pp in 2025–2026, but a medium-run gain of +0.1 pp in 2027–2035, resulting in a net gain of +0.1 pp over 2025–2035 compared to the previous scenario. "Other EU" shows a similar result (–0.1 pp early; +0.2 later; +0.1 overall), whereas the "Big 4" remain negative in short-run (–0.1) and neutral in the overall and 2027–20235 period, suggesting that for the largest euro-area economies the tighter financial-conditions channel dominates the trade-spillover benefit. These results are thus more modest when compared with the previous study, where the authors found that the EU-wide GDP effects were around one-third larger when considering the effects of foreign-induced demand and exchange-rate dynamics.

As expected, monetary policy is tighter, in line with the broad stimulus across all countries that raises economic activity and wage and price inflation. The ECB sets the policy interest rate at 3.3% in 2035 when Germany acts alone. This rate goes up 41.3 basis points when all countries simultaneously undergo spending increases.

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Figure 3 – Spillover effect on real GDP under coordinated action

(difference to Scenario 2 baseline, %, pp)

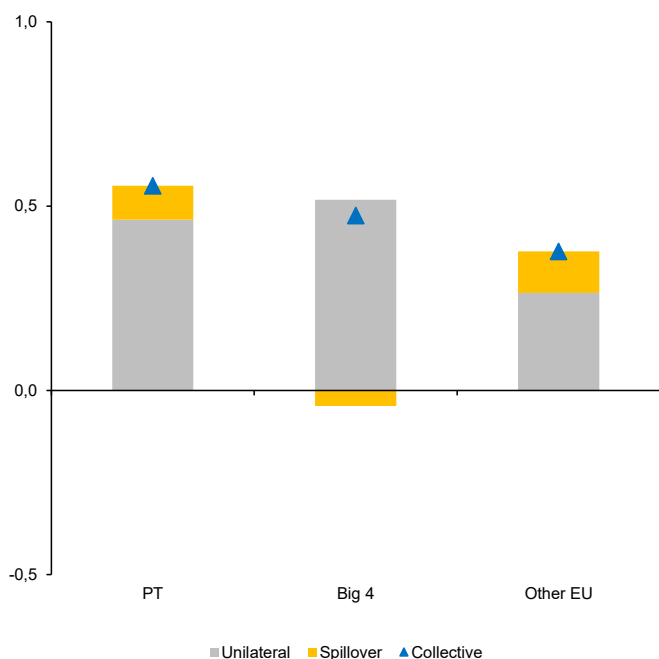
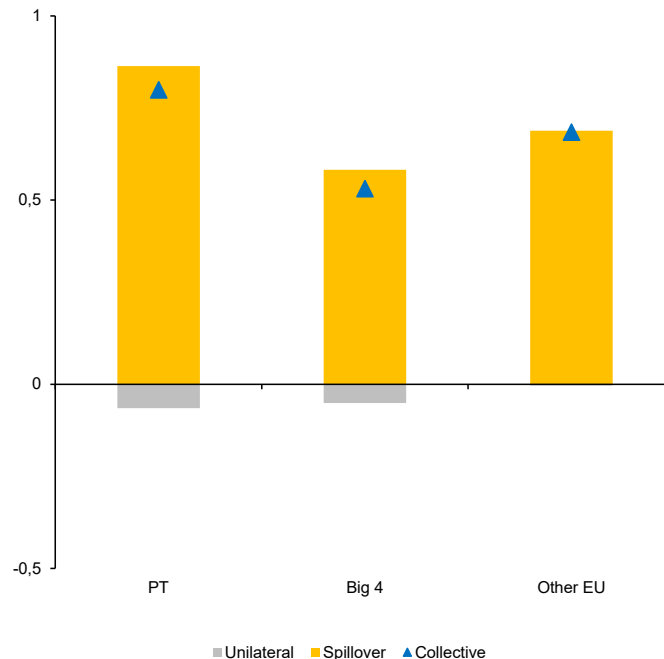


Figure 4 – Spillover effect on exports under coordinated action

(difference to Scenario 2 baseline, %, pp)



Note: Values reflect the 2025-2035 horizon.

Coordination thus acts as a headwind on the components of domestic demand which are more sensitive to financing conditions. That coordination penalty is particularly evident for private investment: in the case of Portugal, the stimulus is reduced in about 37.9% in the period 2025-2035, almost identical in the case of the “Big 4” (38.4%), while in the case of “Other EU”, the reduction in the boost is even more pronounced: 59.3%. This decrease of the impulse occurs in all periods, but it is especially stronger in the short-term period (2025-2026), when the coordinated action causes a negative impact in relation to NIGEM baseline in almost every country.

By contrast, the external channel is where coordination shows its most visible upside. Portugal’s exports rise by +0.1 pp in 2025-2026 and by +0.9 pp over 2025-2035 (driven by +1 pp in 2027-2035, the stronger reaction across the EU countries), larger than the rise in imports (neutral early; +0.5 pp overall). The “Big 4” and “Other EU” also gain strongly on exports (+0.6 pp and +0.7 pp overall, respectively), even though some economies show some deterioration in the short run, fueled by the appreciation of real exchange rates.

Fiscal multipliers show a heterogeneous reaction. As we move towards 2035, multipliers are higher in Portugal and “Other EU” but are below for all the “Big 4” countries, given they receive a greater penalty from tighter monetary conditions and exchange-rate appreciation. This leads to lower output per unit of cumulative spending impulse.

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Figure 5 – Coordination effect on monetary channel in Portugal
 (difference to Scenario 2 baseline, %, pp)

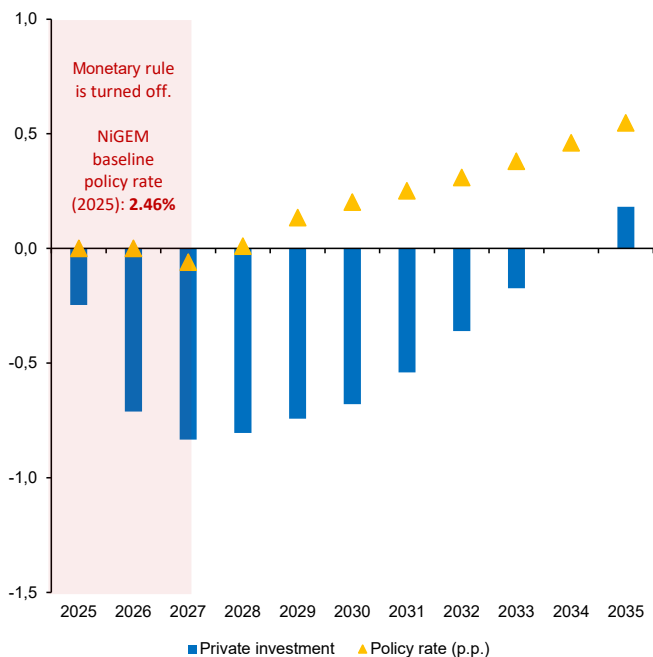
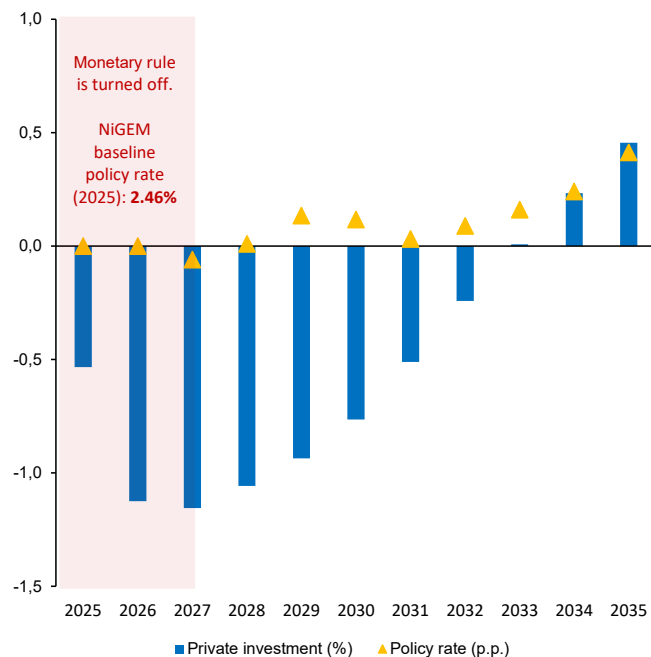


Figure 6 – Coordination effect on monetary channel in Germany
 (difference to Scenario 2 baseline, %, pp)



Coordination slightly changes the timing and scale of fiscal adjustment rather than overturning its direction. Even though the necessary rise in direct tax rates remains almost unchanged to move fiscal policy back into a sustainable footing, the primary balance improves relative to unilateral action by +0.1 pp over 2025–2035 in Portugal (“Big 4” +0.1 pp; while the impact is null for “Other EU”, consistent with stronger nominal and real activity improving the denominator and revenue base. Thus, debt pressure is less intense under coordination: by 2035, Portugal’s debt ratio is lower by 0.7 pp over (“Big 4” -0.4 pp; “Other EU” -0.3 pp), indicating that the gains in nominal GDP exceed the costs of larger financing needs when interest-rate conditions tighten.

4.4. Composition effect

Scenario 1 “consumption-heavy”, unilateral, minus Scenario 2 “unilateral”

Shifting the spending mix away from investment and toward public consumption materially reduces the macroeconomic payoff. Relative to the unilateral Scenario 2, real GDP levels are lower by 0.2 pp in Portugal over 2025–2035, and by 0.1 pp in both the “Big 4” and “Other EU”. This reflects the supply-side effects of public investment that raise productive capacity and generate more persistent output gains. It also tends to generate larger trade spillovers: moving toward a consumption-heavy path reduces import demand relative to the investment-heavy mix, limiting the scope for intra-European trade linkages to translate into stronger exports.

The weakening is also visible in the fiscal multipliers, which fall sharply. In Portugal, the multiplier drops from 0.4 to 0.3; in the “Big 4”, from 0.5 to 0.4, while remaining unchanged in the “Other EU”. In other words, composition is not just about the level of GDP—it is about how much output the economy delivers per unit of cumulative spending. The investment-heavy mix raises long-run capacity through capital accumulation and

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productivity gains, whereas the consumption-heavy mix has a smaller supply-side effect and therefore leaves the economy on a lower medium-term growth path.

Figure 7 – Composition effect on fiscal multiplier in Portugal
 (difference to Scenario 2 baseline, pp)

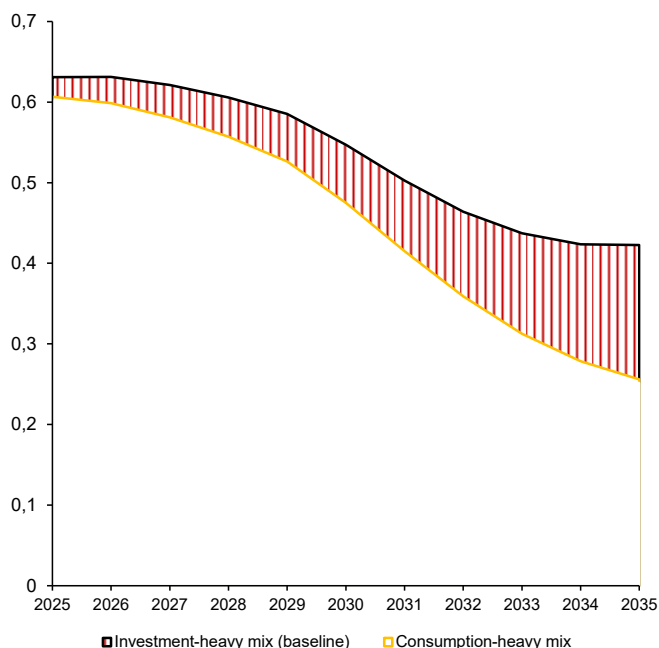
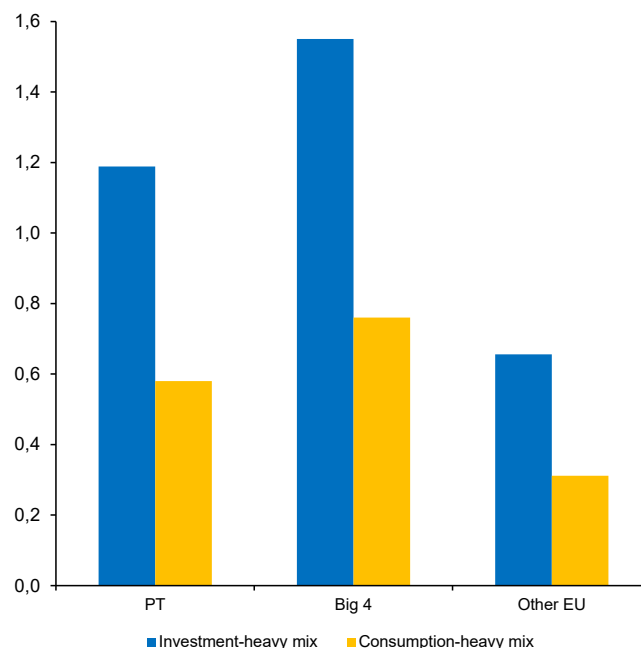


Figure 8 – Composition effect on private investment across 2025-2035
 (difference to Scenario 2 baseline, %, pp)



4.5. Expectations effect

Adaptive expectations minus rational expectations, evaluated on the Scenario 2 “unilateral”

Households and firms’ decisions to consume and invest rely heavily on their expectations about the future and how they are formed. Results presented in the previous section were based on rational or forward-looking expectations in a range of markets (e.g. financial markets, wage bargains, housing market), constituting the opposite framework in relation to backward-looking expectations, where agents assume that the future will evolve according to past and present data. This form of expectations implies a slower adjustment as agents react to the surprises in data, which would generate a crowding-in of consumption and investment, particularly in the short run as financial conditions would only tighten gradually.

To assess the sensitivity of the results, and particularly the evolution of private investment, we turn to adaptive expectations. Results point to a weaker macro transmission, especially beyond the first two years, although differences are not sizeable. The effect is most prominent for private investment, suggesting that agents fail to foresee the positive impacts generated by a higher accumulation of capital stock, leading to a situation of underinvestment and lower growth in the future.

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5. Conclusion

This paper has provided a model-based quantification of the macroeconomic consequences of raising defense spending to 3.5% of GDP by 2035 for 16 NATO economies, with particular focus on Portugal.

The headline result is that the effort is feasible—real GDP gains are positive and durable—but it involves trade-offs that policy discussions too often elide. Across scenarios, we estimate a fiscal multiplier between 0.3 and 0.5 for Portugal, depending on the composition of spending and the mode of implementation. These are not trivial gains, but nor do they imply that the fiscal cost is self-financing.

Three transmission channels account for most of the results. The first is a standard demand impulse: higher government expenditure lifts activity on impact, more so under an investment-heavy composition because public capital spending crowds in private investment through an accelerator mechanism, gradually raising productive capacity. This explains why the medium-run GDP gains in our investment-heavy baseline—averaging +0.5% above baseline for Portugal over 2027–2035—exceed the short-run ones. The second channel is the import leakage: under unilateral action, imports rise strongly with domestic absorption while exports remain flat or slightly negative, draining the stimulus abroad and compressing net trade. This leakage is structurally more acute for smaller, more open economies, consistent with Portugal’s multiplier sitting below those of the larger euro-area economies. When action is coordinated, a third channel emerges: partner demand expands simultaneously, producing foreign-demand spillovers that meaningfully lift exports. Portugal’s export gains over 2025–2035 are around one percentage point larger under coordination than under unilateral action— a result consistent with the foreign-demand spillover mechanism.

Coordination, however, also activates channels that work in the opposite direction. The broad simultaneous expansion tightens monetary policy more than any single country’s action would and compresses interest-sensitive domestic demand—most visibly private investment. For the largest euro-area economies, these financial-conditions penalties can fully offset the export gains, leaving their net GDP position broadly unchanged relative to acting alone; for smaller, less interest-sensitive economies like Portugal and its “Other EU” peers, the coordination premium remains modestly positive. These results suggest that the stimulus is more effective when monetary conditions do not tighten in response. Fiscal adjustment adds a further binding constraint: as debt rises to absorb the initial spending impulse, direct taxes must eventually increase to restore medium-term sustainability. In Portugal, the unilateral action implies that the household tax rate rises by 2.6 percentage points in 2035, generating a medium-run consumption drag of -0.5% that partially offsets the GDP gains and sharpens the political-economy challenge facing governments. These values deteriorate by 0.1 percentage points in the case of the coordination action.

Of all the design choices that shape the macroeconomic payoff, the composition of new spending emerges as the most policy-relevant lever. Shifting from equipment, R&D, and infrastructure towards personnel and operations reduces Portugal’s multiplier from 0.5 to 0.3 in the consumption-heavy scenario; private investment, rather than being crowded in, provides far less offset to the consumption drag. Thus, spending compositions tilted towards capital formation are associated with materially larger output gains than those concentrated on public consumption.

Three caveats bear on the interpretation of these results. First, our simulations cover 16 NATO economies, which means omitted allies imply omitted spillovers; the coordinated-scenario gains and adjustment costs are therefore likely to be understated. Second, the calibrated shocks are structured scenarios, not forecasts: real procurement bottlenecks, defense-industrial capacity constraints, and political choices will cause actual paths to deviate from the smooth convergence assumed here. Third, the model’s treatment of public investment

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productivity is standard and does not capture potentially larger knowledge spillovers from defense R&D, dual-use technologies, or learning-by-doing; to the extent these operate more strongly than assumed, the medium-run gains from the investment-heavy scenario may be conservative. In particular, one could have to consider the benefits arising from the creation of new industrial clusters, a lower dependency on key defense assets, its potential dual use, and greater European autonomy in strategic value chains. In addition, a future pooling of financing needs for major defense assets at the European level (e.g. seeing them as European Public Goods), might reduce fragmentation risks and financing costs and thus the burden on private investment.

We identify three possible directions for future work. The first extension would be to broaden country coverage and incorporate defense-specific import content, which would help refine coordination-spillover estimates. A second would test alternative fiscal rule scenarios—varying the speed and instrument mix of the consolidation response—to better characterize financing choices available for policy makers. A third would deepen the supply-side channel, incorporating endogenous R&D, domestic capacity constraints, and heterogeneous returns to public capital, in order to more cleanly separate the short-run demand effects documented here from the longer-run productivity effects that the existing literature identifies as potentially important.

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Appendix

Table 1 – Nominal shock
(% nominal 2024 GDP)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Portugal	0,2	0,4	0,6	0,8	1,1	1,4	1,6	1,9	2,2	2,6	2,9
Spain	0,2	0,5	0,7	1,0	1,3	1,6	1,9	2,3	2,6	3,0	3,5
Germany	0,1	0,3	0,4	0,6	0,7	0,9	1,1	1,3	1,5	1,7	1,9
France	0,1	0,3	0,4	0,6	0,8	1,0	1,2	1,4	1,6	1,8	2,1
Italy	0,2	0,4	0,6	0,8	1,1	1,3	1,6	1,9	2,2	2,5	2,8
Belgium	0,2	0,4	0,7	0,9	1,2	1,5	1,7	2,0	2,4	2,7	3,0
Finland	0,1	0,2	0,3	0,4	0,6	0,7	0,8	1,0	1,2	1,3	1,5
Greece	0,0	0,1	0,1	0,2	0,3	0,3	0,4	0,5	0,5	0,6	0,7
Netherlands	0,2	0,3	0,5	0,7	1,0	1,2	1,4	1,7	1,9	2,2	2,5
Czechia	0,1	0,3	0,5	0,6	0,8	1,0	1,3	1,5	1,7	2,0	2,3
Denmark	0,1	0,2	0,4	0,5	0,7	0,8	1,0	1,2	1,4	1,6	1,8
Hungary	0,1	0,3	0,5	0,6	0,9	1,1	1,3	1,6	1,9	2,2	2,5
Romania	0,1	0,3	0,4	0,6	0,8	1,0	1,3	1,5	1,8	2,1	2,4
Sweden	0,1	0,3	0,4	0,6	0,8	0,9	1,1	1,3	1,6	1,8	2,1
United Kingdom	0,1	0,3	0,4	0,5	0,7	0,9	1,1	1,3	1,5	1,7	1,9
Canada	0,2	0,4	0,6	0,9	1,2	1,4	1,8	2,1	2,4	2,8	3,2