ANNEX 1 - THE EFFECT OF FISCAL EXPANSION ON THE EXTERNAL BALANCES OF ROMANIA

Overview

Romania experienced a significant decline in its external net lending balance since 2017, that went hand-in-hand with a sizeable increase in fiscal deficits. While this co-movement might suggest that fiscal policy played a role in driving the rise in external deficits, it is not enough for establishing an exact causal effect, since the Romanian economy was also subject to other types of shocks beyond fiscal policy. In order to isolate such causal contribution of fiscal policy changes to the external balance, in this exercise we run simulations by DG ECFIN's general equilibrium macroeconomic model, QUEST, where we aim to replicate the observed changes in Romanian fiscal policy and ignore other economic disturbances.

The main result is that, through the lenses of the model, the post-2017 Romanian fiscal expansion contributed significantly to the decline in the trade balance, which by 2024 becomes 2.6 percentage points lower than it would have been without the modelled fiscal policy changes. This result is mainly driven by the relatively high import content of domestic spending, which leads to "import leakage" from increases in domestic demand. On the other hand, the impact on the net lending/borrowing balance of the economy [(15)] is less pronounced and mostly vanishes by 2024. The reason is the sizeable inflow of EU transfers to Romania during that period (an integral part of the modelled increase in government investment), which roughly offsets the effect of larger trade deficits on net lending. It follows that the modelled scenario cannot explain the 5.5 pp decline in net lending as observed in the data, which may have been caused by other, non-fiscal shocks. The results also underline the crucial role EU transfers played in supporting the fiscal and external balances of Romania. At the same time, they also demonstrate how nationally financed fiscal expansion contributes to the external deficit.

The model and simulation setup

The analysis aims to simulate the observed changes in Romanian fiscal policy since 2017 with the QUEST model [(16)]. The simulations apply a four-region model setup covering Romania, the euro area (EA), the rest of the European Union (EU-6), and the rest of the world. Steady state import shares and trade flows are calibrated based on input/output tables from the FIGARO database. Romanian monetary policy is modelled as pegging the exchange rate of the leu to the euro. The main scenario considers fiscal shocks, identified as observed changes since 2017 in government consumption, public investment, and transfers to households (as share of potential GDP), changes to the tax rate on labour income, as well as inflow of EU transfers which were the direct counterpart for some of the observed increase in government spending, especially on public investment (see Appendix for details). To the extent that EU transfers were not used just to lower national debt, but instead financed additional government investment that would not have happened without them (e.g. in line with RRF requirements), it makes sense to treat them as an integral part of the fiscal expansion scenario.

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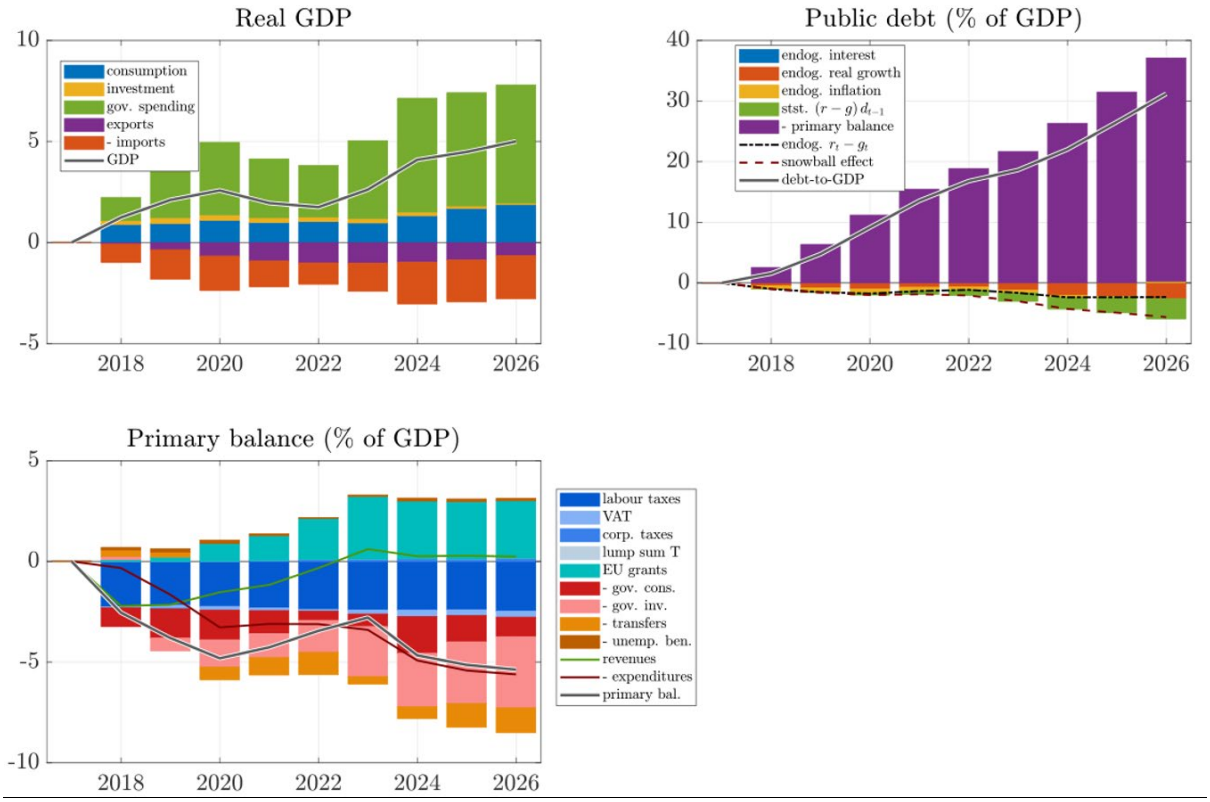
(15) Net lending/borrowing is the sum of the current account (CA) balance (which consists of the trade balance and the cross-border balance of primary and secondary incomes) and the capital account (KA) balance (which includes the balance of capital transfers where most of the investment grants from the EU are recorded).

(16) QUEST is a New Keynesian open economy dynamic stochastic general equilibrium (DSGE) model. The framework includes the main features relevant for the analysis of fiscal policy and international trade, such as liquidity-constrained households with high marginal propensity to consume (raising fiscal multipliers), productive public capital (leading to supply side effects of government investment), and *direct* import content of domestic demand. The model distinguishes between a tradable and a non-tradable sector, and it also includes trade in intermediate inputs for both sectors, capturing linkages through cross-border value chains, and allowing for *indirect* import content through domestically produced goods. The model features imperfect substitutability of goods produced in different regions, and sluggish adjustment of import volumes in response to relative price changes. Trade flows and nominal exchange rates are modelled bilaterally, via integrated international goods and financial markets.

Results and transmission channels

The modelled fiscal expansion leads to a decline in the primary budget balance and to rising public debt. As shown in Graph A1.1, the primary balance declines by an average of 4 percentage points of GDP over the simulation horizon (relative to 2017, bottom left panel), which drives a steep increase in the debt-to-GDP ratio (purple bars in top right panel). This cumulative change in the budget balance is roughly in line with the data [17]. The main contributors to the increase in primary deficits are the decline in labour tax revenues and rising public investment spending (especially towards the end of the horizon), but higher government consumption and transfers to households also display a steady negative contribution, while the higher inflow of EU transfers mitigate the rise in budget deficits.

Graph A1.1: **The effects of a stylised fiscal expansion (relative to 2017)**



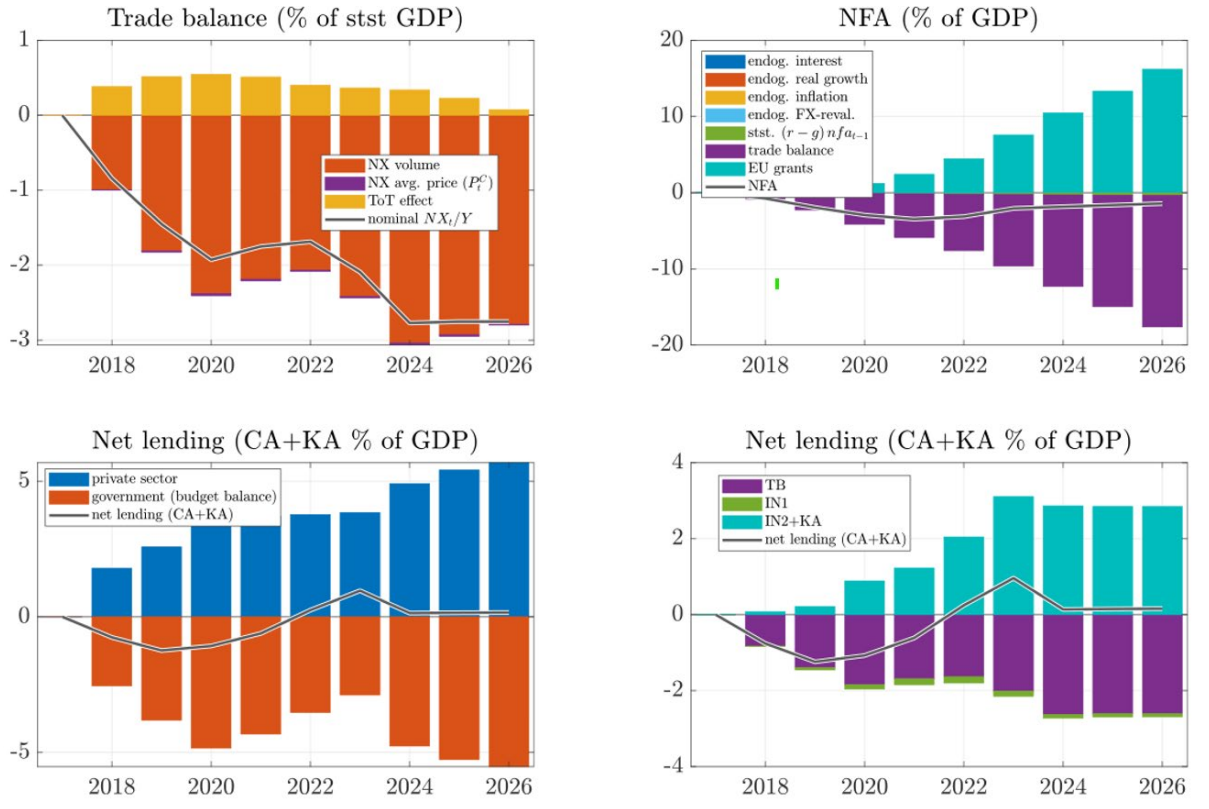
***Note**:* Real GDP is reported in terms of %-deviation, while public debt and the primary balance are in percentage point deviations (as a share of GDP), relative to a counterfactual scenario where fiscal instruments would have stayed unchanged at their 2017 level. Bars indicate *contributions* to the deviation in the main variable (which is shown by the black line). Consumption and investment in upper left panel are private.
Source: European Commission services.

Real GDP rises in response to the fiscal stimulus, being 4.1% higher in 2024. As the upper left panel in Graph A1.1 shows, this result is mostly driven by the increase in government spending (both on consumption and investment goods) that raises aggregate demand directly. At the same time, an indirect Keynesian multiplier channel operates via raising household incomes that stimulates private consumption, which is further supported by the labour tax cuts and higher transfers to liquidity-constrained households (even though rising government consumption also has

[17] The results indicate a 20 pp increase in debt-to-GDP between 2017 and 2024, which is somewhat larger than the 17pp observed in the data (from 35% to 52%), despite the cumulative primary balance changes being roughly the same. The reason is that nominal GDP has grown more in reality than in our simulations which only include the effects of fiscal shocks but ignore other disturbances (e.g. the inflationary period following the pandemic), that raised the denominator effect in the snowball term (red and yellow bars in the upper right panel of Graph A1.1).

a crowding out effect on private consumption as it raises the strain on the economy's limited resources). In addition to these demand side channels, more government investment into productive public capital and lower distortionary labour taxation has a beneficial supply side effect on economic output, easing the strain on resources and *crowding in* private investment.

Graph A1.2: **The external effects of a stylised fiscal expansion (relative to 2017)**



***Note**: All variables are reported in terms of percentage point deviation (as a share of GDP), relative to a counterfactual scenario where fiscal instruments would have stayed unchanged at their 2017 level. Bars indicate *contributions* to the deviation in the main variable (which is shown by the black line). For the trade balance contributions refer to export-import (NX) volumes, average price level change and terms-of-trade (ToT, relative price) changes. Net lending is the sum of the capital account (KA) and the current account (CA) balance, where the latter includes the trade balance (TB), and the primary and secondary income balances (IN1, IN2).*
***Source:** European Commission services.*

The trade balance declines, mainly due to import leakage from rising domestic spending. Graph A1.1 (upper left panel) shows how rising import and falling export volumes contribute negatively to the change in GDP. This is also reflected in Graph A1.2 (upper left panel) where falling net export volumes drive the decline in the trade balance. The key channel behind this is "import leakage" from increased domestic spending (expenditure *changing*), which happens both directly by importing final goods, as well as indirectly due to imported intermediate inputs used for domestically produced goods. This channel is rather strong as the total import content of domestic demand in Romania is around 30% [18]. The fall in net export volumes is amplified by a second channel due to an appreciating terms-of-trade (expenditure *switching*), as the rise in aggregate demand creates domestic inflationary pressures, making exporters less competitive abroad, and inducing substitution by domestic firms and households towards imports that become relatively less expensive [19]. Finally, the terms-of-trade gain makes a direct positive contribution to the trade

[18] See also Thematic Section: The Import Content of Final Demand and Industrial Sectors in Romania.

[19] The real exchange rate appreciates despite the nominal peg of the leu to the euro, but this appreciation is more gradual than it would be under a floating exchange rate regime. Nonetheless, the elasticity of trade volumes to relative price

balance (yellow bars), as it reduces the import bill and boosts export revenues through changes in relative prices, mitigating somewhat the negative effect of the volume component (dark orange bars). In the end, the trade balance becomes 2.6 percentage point lower by 2024 due to the modelled fiscal shocks, which is roughly three quarters of the decline observed in the data.

The inflow of EU transfers supported a net lending balance more favourable than implied by the trade deficit. As shown in the right panels of Graph A1.2, rising grants received from the European Union are a significant positive component of net lending/borrowing flows, cumulatively amounting to more than 10% of GDP by 2024, raising the Net Foreign Asset (NFA) position by this much (turquoise bars). Apart from mitigating the fiscal deficit, this offsets much of the negative effect of trade deficits on the external balance: after initially declining by around 1 percentage point of GDP, net lending/borrowing returns to its starting level (and temporarily even surpasses that) as the inflow of EU grants picks up pace with Next Generation EU [20]. Importantly, we consider EU transfers an integral part of the modelled fiscal expansion scenario, as it is likely that some of the increase in government spending (the effect of which we have already considered) would not have occurred without them. This assumption is also in line with the additionality requirement in RRF.

The saving-investment (S-I) balance of the private sector increases, offsetting much of the fiscal deficits. Another way to look at net lending/borrowing of the total economy is as the sum of sectoral net lending balances for the government and the private sector (see bottom left panel in Graph A1.2). While EU transfers mitigate the fiscal deficits, the budget balance still declines (just not as much as without EU grants), roughly in line with observed data. At the same time, the fiscal expansion leads to S-I surpluses in the private sector as the GDP-boom, transfer handouts and tax cuts raise the disposable income of households. This extra income is not fully spent on higher consumption and investment (which is also visible on the top left panel of Graph A1.1), but some of it is saved in the form of higher government (or foreign) bond holdings [21].

Table A1.1: **The effects of a stylised fiscal expansion (relative to 2017)**

	2018	2019	2020	2021	2022	2023	2024
GDP (level, % dev)	1.24	2.11	2.58	1.95	1.75	2.62	4.10
CPI inflation (pp dev)	0.56	0.62	0.23	−0.13	−0.20	−0.08	−0.03
Terms-of-trade (% dev)	0.35	0.83	1.05	1.02	0.89	0.76	0.63
Trade balance	−0.82	−1.40	−1.84	−1.69	−1.63	−2.01	−2.63
Net lending	−0.76	−1.24	−1.08	−0.61	0.25	0.96	0.14
NFA position	−0.47	−1.49	−2.55	−3.27	−3.26	−2.46	−1.92
Primary balance	−2.54	−3.80	−4.81	−4.27	−3.44	−2.79	−4.66
Public debt	0.76	3.38	7.36	11.97	15.64	17.84	20.50

Note: Unless indicated otherwise, values are express percentage point deviations in terms of GDP share, relative to a counterfactual scenario where fiscal instruments would have stayed unchanged at their 2017 level.
Source: European Commission services.

changes is low in the short run. At the same time, the FX-peg (i.e. not tightening in response to inflation) also implies a relatively looser monetary policy that benefits domestic demand and raises import leakage.

[20] The distinction between the current account (CA) and net lending/borrowing is important in this case, since the latter also includes the capital account (KA), i.e. the balance of capital transfers. A large portion of EU grants, financing investments, is recorded as capital transfers in KA, and only a smaller portion is categorised as current transfers in the secondary income balance (IN2) within the CA.

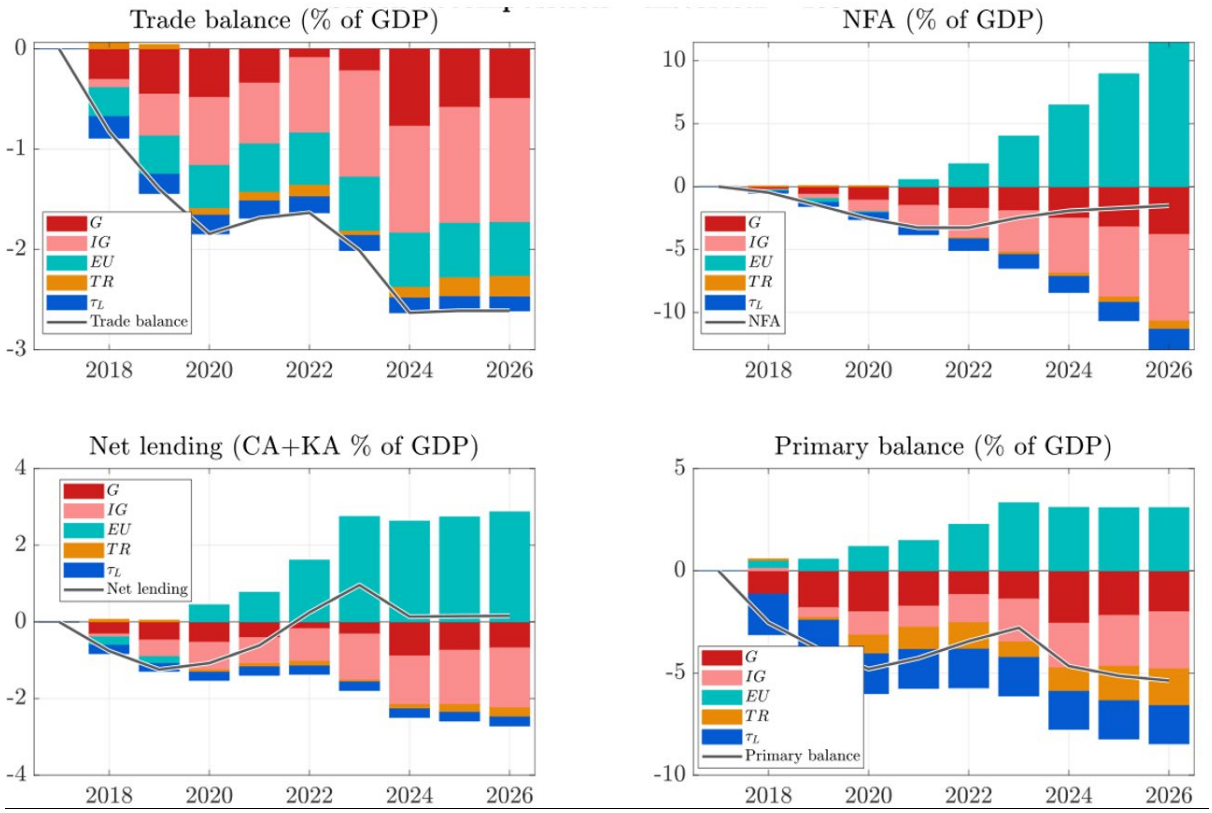
[21] In QUEST the portfolio choice of households between government and international bonds is not modelled. By assumption, all government bonds are held by domestic households, who can residually also save/borrow in international bonds (thereby potentially intermediating between the government and foreigners). This international bond is the sole component of the net foreign asset (NFA) position, the dynamics of which is governed by the balance of payments.

In conclusion, according to the simulations, the net effect of the modelled fiscal expansion on the net lending balance of Romania is small. It follows that the additional decline in net lending/borrowing as observed in the data may have been caused by other, non-fiscal shocks, that brought down the private sector's fiscally-induced surplus to the actually observed lower levels (e.g. the terms-of-trade loss incurred during the energy crisis, or a looser monetary policy than implied by the current simulations, see Graph A1.7). At the same time, the results also demonstrate the crucial role played by the inflow of EU transfers in supporting the fiscal and external balances of Romania, implying that without them, a purely *nationally financed* fiscal expansion contributes significantly to the external deficit.

The composition of fiscal expansion

The composition of fiscal expansion is highly consequential for the macroeconomic effect. Fiscal multipliers or the amount of import leakage depend a lot on how a given increase in the budget deficit is split between various fiscal instruments. To analyse the contribution of each type of fiscal measure to our results, we ran alternative simulations with each individual shock added one-by-one. The results are displayed in Graph A1.3.

Graph A1.3: **The external effects of a stylised fiscal expansion (relative to 2017), contributions by individual fiscal instruments**

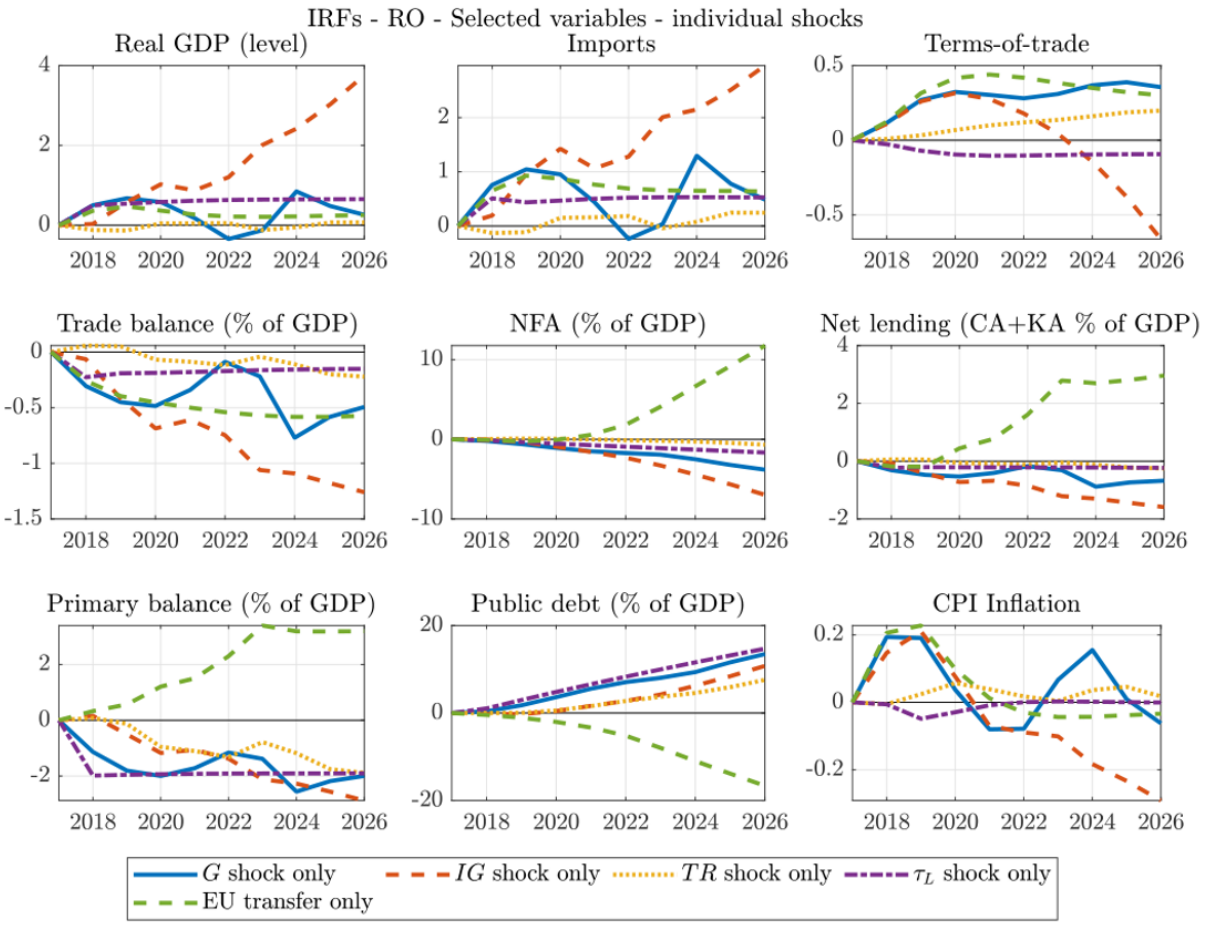


***Note**:* All variables (depicted by black lines) are reported in terms of percentage point deviation (as a share of GDP), relative to a counterfactual scenario where fiscal instruments would have stayed unchanged at their 2017 level. Bars indicate contributions to the deviation in the main variable, by the 5 individual fiscal shocks we consider. 'G' refers to government consumption shocks, 'IG' to public investment shocks, 'EU' to foreign grants, 'TR' to fiscal transfer shocks to households, while 'tau_L' to changes in the labour tax rate.
Source: European Commission services.

The main contributors to rising trade deficits are shocks to government consumption and public investments. While their role in the widening budget deficit is roughly comparable to other fiscal instruments (see bottom right panel in Graph A1.3), government consumption and

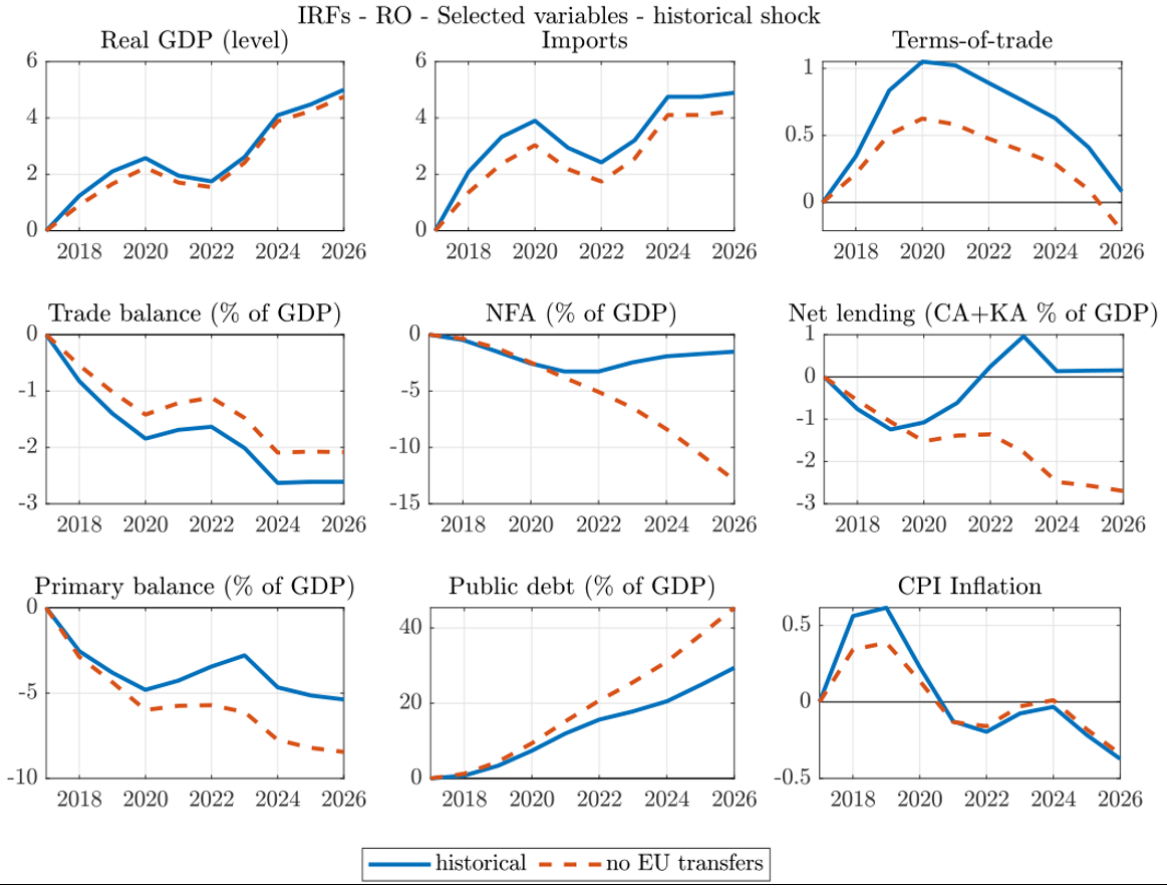
investment shocks contribute disproportionately more to the declining trade balance (top left panel). Higher government spending directly leads to import leakage, which drags down the trade balance. In contrast, transfer handouts and labour tax cuts raise domestic demand less than one-to-one, as some of these handouts are saved by households. As Graph A1.4 illustrates, this also implies that the stimulus to aggregate demand and the corresponding inflationary and real appreciation pressures are larger for government spending shocks. Importantly, however, after the initial boost to demand, government investment shocks will exert downward pressure on inflation and the terms-of-trade, as the gradually increasing public capital stock raises the supply potential of the economy. This also true for cuts in the distortionary labour tax rate, which lowers gross nominal wages and acts as a positive shock to labour supply. The majority of the long-term GDP effect is driven by these beneficial supply-side effects, especially that stemming from productive public investments.

Graph A1.4: **The effects of alternative fiscal expansions with different compositions**



Note: IRFs refer to impulse-response functions. Lines depict percentage deviations, except for variables expressed as a share of GDP (where they depict pp deviations), relative to a counterfactual scenario where fiscal instruments would have stayed unchanged at their 2017 level.
Source: European Commission services.

Graph A1.5: **The effects of historical fiscal expansions with or without EU transfers**



Source: European Commission services.

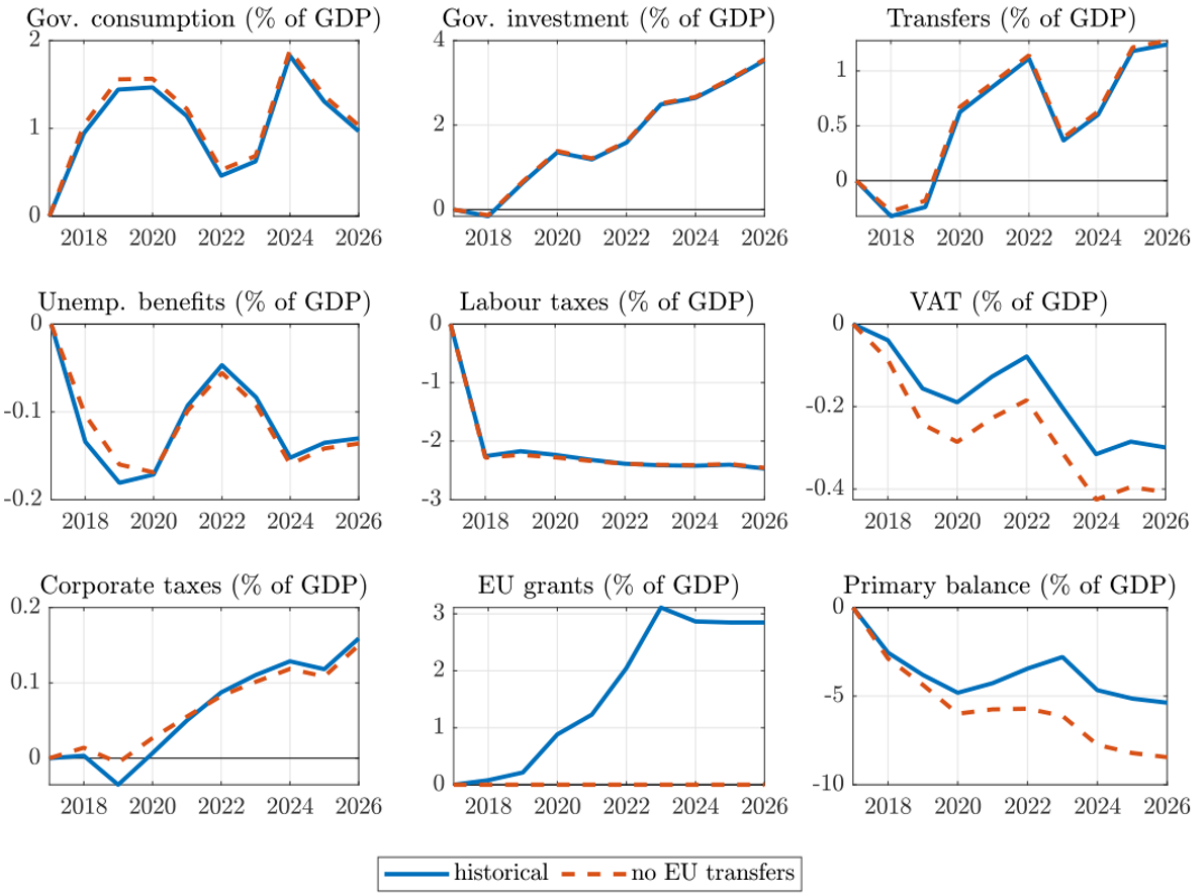
The role of EU transfers is crucial in supporting the fiscal and external balance of the economy. As shown in Graph A1.5, in the hypothetical scenario where Romania implements the same fiscal measures and increase in government spending, but without receiving the corresponding EU transfers (red dashed line), the budget balance and the economy's net lending/borrowing declines much more sharply than in our main fiscal expansion scenario (blue solid line)[(22)]. By 2024 these differences would imply a cumulatively 10 percentage points higher public debt-to-GDP ratio and a 6-percentage point lower NFA position relative to our main scenario. The marginal effects of EU transfers (the difference between the blue solid and red dashed lines in Graph A1.5) are also illustrated in Graph A1.4 (green dashed lines), or in Graph A1.3 (turquoise bars).

(22) While they have beneficial effect on net lending, the trade balance is actually somewhat *lower* with EU transfers than without them. The reason is that in present value terms these transfers constitute a "gift" from foreign taxpayers to domestic ones, to the extent that Romania's current and future contributions to the EU budget are smaller than the grants it receives. These grants lower public debt, which requires smaller primary surpluses and a smaller tax burden on domestic households in the future, stimulating their consumption (and the corresponding import leakage) already in the present.

Appendix – Fiscal instruments

The fiscal shocks modelled in our main scenario are identified from the data as observed changes since 2017 in government consumption, public investment, and transfers to households (as share of potential GDP [23]), a permanent 4 percentage point cut to the labour income tax rate (labour tax revenues as a share of the gross wage bill), as well as the observed inflow of EU transfers. Graph A1.6 depicts how the simulated GDP share of various fiscal instruments changes in response to these shocks.

Graph A1.6: **Fiscal instruments**



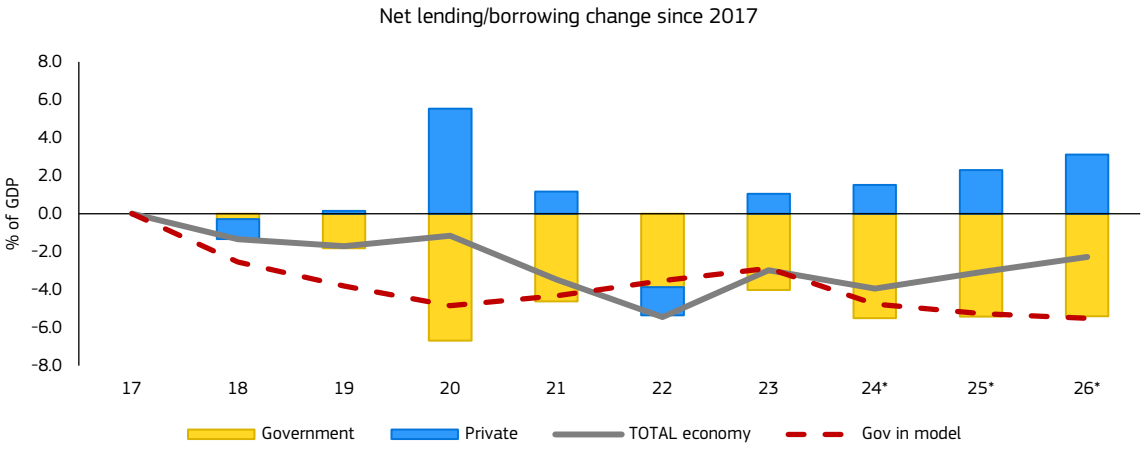
***Note**:* Lines depict percentage point deviations (in terms of GDP share), relative to a counterfactual scenario where fiscal instruments would have stayed unchanged at their 2017 level. Fiscal shocks to government consumption, government investment and transfers were identified from the data based on changes in their ratio to potential GDP. The average labour tax rate (labour tax revenues as a share of the gross wage bill) is lowered permanently by 4 percentage points after 2017.
Source: European Commission services.

As referred to before, the simulated response of the government's net lending/borrowing tracks the changes observed in the data since 2017 relatively well, yielding roughly the same cumulative effect by the end of our horizon. This is shown in Graph A1.7 that is the data counterpart of the bottom left panel in Graph A1.2. The main difference between these figures lies in the net lending of the private sector that is lower in the data, also pulling down the net lending of the total economy. But recall that the simulation results include only the effect of the modelled fiscal shocks, while the data reflects the effects of *all* kinds of disturbances that hit the Romanian economy. The scenario does not consider non-fiscal shocks that occurred during 2017-2024 that

[23] Potential GDP chosen to avoid endogeneity issues created by the impact of fiscal measures.

may have affected the private sector's fiscally induced surplus to the actually observed lower levels, such as a looser monetary policy than implied by the FX-pegging of the leu or the terms-of-trade loss incurred during the energy crisis, etc.

Graph A1.7: **Net lending/borrowing by sector (data vs model)**



Note: Bars depict the observed percentage point changes relative to 2017 (in terms of GDP share), of the net lending/borrowing balances of the Romanian government and private sector. The grey solid line is the sum of those bars, yielding the observed change in the net lending of the total economy. The model-simulated change in the government's net lending balance (in response to the modelled fiscal shocks) is shown by the red dashed line, that tracks observed changes relatively well and yields roughly the same cumulative effect by the end of the horizon shown.
Source: European Commission services