EUROPEAN CENTRAL BANK

EUROSYSTEM

Occasional Paper Series

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The macroeconomic impact of the Next Generation EU instrument on the euro area

No 255 / January 2021

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Abstract

In response to the economic fallout from the coronavirus (COVID-19) pandemic, the European Council agreed on the Next Generation EU (NGEU) instrument. NGEU allows the European Commission to issue debt to finance grants and loans to EU Member States, with the disbursement of funds intended to be weighted towards the countries most affected by the crisis. This paper assesses the macroeconomic impact on the euro area of different uses of NGEU, using a large dynamic stochastic general equilibrium (DSGE) model of the euro area and global economy (EAGLE) that has been adapted to reflect the modalities of the NGEU instrument. Three uses of NGEU loans and grants are explored: (i) productive public investment, (ii) unproductive government spending, and (iii) replacing or repaying existing sovereign debt. The EAGLE results are cross-checked with a semi-structural model (ECB-BASE) and with the basic model elasticities (BMEs) of the forecasting models in use in the national central banks of the Eurosystem.

Keywords: EMU, euro area, COVID-19, NextGenerationEU, public investment.

JEL classification: C54, E62, E65, F54, F47

1 Executive summary

On 21 July 2020 the European Council agreed to establish the Next Generation EU (NGEU) instrument as an exceptional temporary recovery measure as part of a coordinated and, as far as possible, symmetric fiscal response to the economic fallout of the coronavirus (COVID-19) pandemic. NGEU allows the European Commission to issue debt to finance grants and loans to EU Member States between 2021 and 2026. The debt incurred by the EU will be repaid between 2028 and 2058. The scheme is intended to target support to the regions and sectors that were hit particularly hard by the pandemic.

The part of NGEU that is earmarked for euro area countries amounts to almost 5% of the euro area gross domestic product (GDP) for 2019. This paper assesses the possible macroeconomic impact on the euro area of different uses of NGEU. The impact is calculated using model simulations of different scenarios with a large dynamic stochastic general equilibrium (DSGE) model of the euro area and global economy (EAGLE) that has been adapted to reflect the modalities of the NGEU instrument. In addition, calculations with a semi-structural model (ECB-BASE) and the basic model elasticities (BMEs) of the forecasting models in use in the national central banks of the Eurosystem are included to allow cross-checking of the main results. In the absence of comprehensive spending plans, the disbursements of NGEU funds across countries and over time are based on assumptions, which are identical in all scenarios. The EAGLE scenarios explore the implications of three different uses of NGEU loans and grants[1]: (i) productive public investment, (ii) unproductive government spending, and (iii) debt transactions (i.e. replacing existing debt with NGEU loans and repayment with NGEU grants). In reality, of course, Member States can combine these uses to some extent. The scenarios are designed to show polar cases and should not be regarded as projections.

If used for productive public investment, NGEU funds could increase real output in the euro area by around 1.5% of GDP over the medium term. The magnitude and persistence of the positive output effect beyond the end of the NGEU disbursements depend crucially on the impact of the public investment projects on the economy's overall productive capacity. This consideration is important because the large size of the NGEU-funded stimulus will challenge many countries' institutional capacity to select and execute viable projects. The grants (including EU spending programmes) amount to more than the loans, and their impact on output is also relatively larger, even if both are used for the same purpose. One reason for this is that the loans – unlike the grants – add to the government debt of Member States, ultimately requiring some fiscal consolidation in the future. However, in the model simulations, the grants create a repayment obligation to be resolved through an EU-wide tax, which does not

[1] The possible impact of structural reforms, which should accompany the use of NGEU funds, is not considered in this paper, as their implementation and effects are subject to large uncertainties. The model simulations also do not capture the composition of NGEU's allocations in greater detail, in particular that parts of the funds are to be used for common EU-objectives related to climate change and digitalisation, nor are possible effects of the business cycle on the timing of disbursements taken into account.

affect Member States' government debt as recorded in the national accounts. In addition, since grants are provided to all countries, they lead to larger spillovers of the macroeconomic impact across countries than loans, which are assumed to be taken up only by a subset of countries with above-average borrowing costs.

The simulation results also show that using NGEU funds to increase fiscal transfers would not exploit the potential positive medium-term output effects. Since transfers lack any long-term productivity-enhancing effects and only lift demand in the short run, they lead mainly to additional debt. If high-debt countries have limited capacity to absorb NGEU funds for investment, the next best use would therefore be to reduce debt (in the case of grants) or replace debt with NGEU loans with lower interest payments. In that case, output in high-debt countries would still increase, driven by positive spillover effects from investment in less-indebted countries and by positive effects from reductions in sovereign risk premia.

2 Design of NGEU and country allocation of loans and grants

NGEU is a novel element in European policy coordination. Building on a proposal by the European Commission, the European Council agreed on 21 July 2020 to establish the NGEU instrument as an exceptional temporary recovery measure as part of a coordinated and, as far as possible, symmetric fiscal response to the economic fallout from the COVID-19 pandemic.[2] The package authorises the European Commission to borrow up to €750 billion (in 2018 prices) on behalf of the European Union. The funds can be used to provide loans of up to €360 billion and grants of up to €390 billion (see Table 1). The EU borrowing is to be repaid by 31 December 2058 at the latest. While the loans will be repaid by the beneficiary Member States, the European Council agreed that the repayment of EU debt incurred to finance grants will be covered by gross national income-based contributions by Member States and new EU own resources.

Table 1
NEGU: total allocations by instrument

(EUR billions)

	2018 prices	Current prices
Recovery and Resilience Facility	**672.5**	**725.4**
of which grants	312.5	337.1
of which loans	360.0	388.3
InvestEU	5.6	6.0
Horizon Europe	5.0	5.4
REACT-EU	47.5	51.2
Rural development program	7.5	8.1
Just Transition Fund	10.0	10.8
RescEU	1.9	2.0
Total NGEU	**750.0**	**809.0**
of which grants	390.0	420.7
of which loans	360.0	388.3

Sources: European Council conclusions of 21 July 2020 and own estimates.

The Recovery and Resilience Facility (RRF) constitutes the core of the NGEU – around 90%. The purpose of the RRF is to support investment and reform in Member States to pave the way for a sustainable, resilient recovery, while promoting the EU's green and digital priorities. The remaining part of the NGEU will mainly be used to reinforce EU-wide spending programmes under the 2021-27 Multiannual Financial Framework. To receive financial support under the RRF, Member States must prepare national recovery and resilience plans setting out their reform and investment agenda for the years 2021-23. These plans should strengthen the growth potential, job

2 The Commission published its proposal for a recovery plan on 27 May 2020. The Council published its agreement on 21 July 2020.

creation and economic and social resilience of the Member State concerned. The financial support will be disbursed in instalments when milestones and targets identified in these plans are reached.

The financial support to be provided to euro area countries under the NGEU amounts to almost 5% of euro area GDP for 2019 and is weighted towards more vulnerable countries. Countries are entitled to draw loans up to 6.8% of their gross national income (GNI), as a rule. The grants should be committed upon approval of the recovery and resilience plans in 2021-23. In 2021-22, 70% of the funds will be allocated according to a backward-looking key, which will allocate more resources to countries with a lower GDP per capita, a larger population and a higher unemployment rate in the period 2015-19. For the 30% of funds to be allocated in 2023, the European Council agreed that past unemployment developments in the Commission's formula will be "replaced, in equal proportion, by the loss in real GDP observed over 2020 and by the cumulative loss in real GDP observed over the period 2020-2021". The allocation key for 2023 thus remains subject to uncertainty related to GDP outcomes in 2020 and 2021 and will only be calculated in 2022. Finally, to assess the fiscal and macroeconomic implications of NGEU, it is important to consider the extent to which NGEU-financed spending will be additional to already planned national expenditure. As a rule, the additionality principle of EU-financed expenditure should be observed. However, countries could present some already-planned spending as falling under recovery and resilience plans and thus effectively open the door to using some NGEU funds for debt reduction.

The analysis is based on the following general assumptions for allocation.

- Allocation of 70% of RRF grants in 2021-22 is based on the agreed backward-looking allocation key.
- Allocation of 30% of RRF grants in 2023 is based on the agreed formula, with 15% based on projected GDP loss in 2020 compared with 2019 and 15% based on projected GDP loss in 2021 compared with 2019, as calculated in the Commission's Spring 2020 Economic Forecast.
- Allocation of other grants is assumed to be the same as for RRF grants.
- In scenarios involving the use of loans, it is assumed that the loans will be taken up by countries with sovereign borrowing costs above the expected cost of the NGEU loans and that these countries will draw the full amount of 6.8% of their GNI. This would entail around €30 billion of loans remaining unused.

The agreed distribution of funds will imply sizeable financial support for the euro area countries facing the greatest economic and fiscal challenges as a result of the pandemic, most notably Spain and Italy (see Table 2).

Table 2

Expected disbursement of NGEU funds

(EUR billions; current prices)

	2021	2022	2023	2024	2025	2026	2021-26
Grants							
Euro area	25	48	73	86	62	34	328
Germany	2	4	7	8	6	4	31
Spain	6	12	18	21	15	8	80
France	3	6	10	12	9	5	45
Italy	7	13	20	23	17	9	89
Loans							
Euro area	39	72	66	59	26	0	263
Germany	0	0	0	0	0	0	0
Spain	13	24	22	20	9	0	88
France	0	0	0	0	0	0	0
Italy	19	35	32	29	13	0	127

Sources: European Council conclusions of 21 July 2020; European Commission and own estimates.

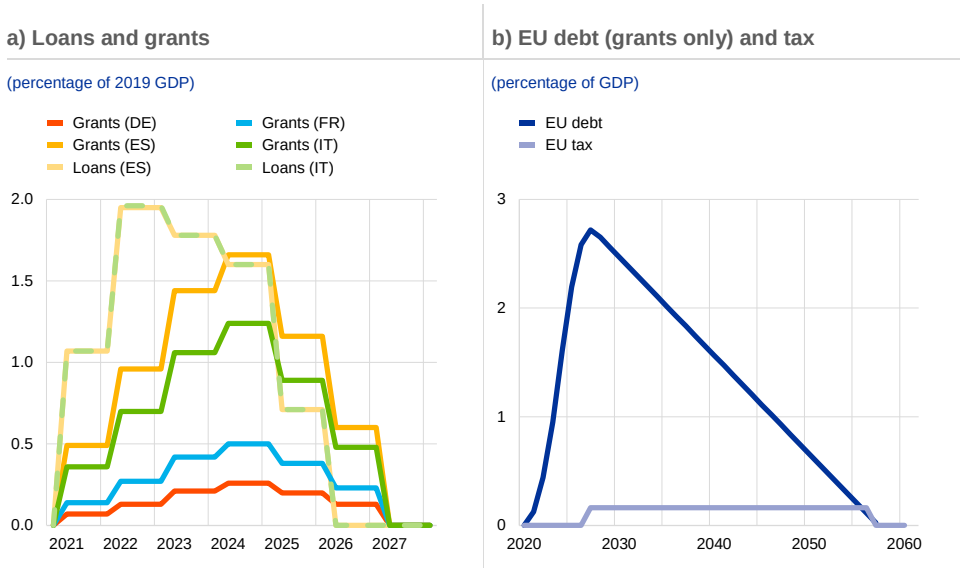
The timing of the fiscal support is subject to even larger uncertainty. While all loan agreements and grant commitments should be concluded by the end of 2023, it is not clear how quickly countries will be able to use the funds for investment or other eligible spending. It will likely take longer to identify and implement suitable investment projects. The Council agreement only stipulates that all funds should be disbursed by the end of 2026. Since the recovery and resilience plans are not yet available and the 2021 draft budgetary plans generally do not contain comprehensive and homogeneous information about the uptake of NGEU funds, our analysis relies on the expected disbursement profiles published by the European Commission in the context of its original NGEU proposal.[3] We assume that loan and grant disbursements will follow loan agreements and grant commitments in the euro area and in individual countries with the same delay that was assumed in the Commission proposal for the EU as a whole. The disbursements of NGEU funds are used as a proxy for the national spending financed by these funds. This is a conservative assumption because the disbursements may follow actual spending with a delay. Historical experience suggests that low absorption capacity in some countries may lead to delays compared with the assumed disbursement profile (see European Court of Auditors, 2020).

[3] See "The EU budget powering the recovery plan for Europe", Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, COM/2020/442 final.

3 Simulations with the EAGLE model

This section provides simulations using the EAGLE model – a micro-founded multi-country DSGE model. The model features nominal price and wage rigidities, capital accumulation and international trade in goods and bonds, which makes it particularly suited to account for cross-border spillovers.[4] All regions trade with each other by exchanging intermediate goods, with estimates of bilateral trade flows based on recent historical averages. The model also features a rich fiscal block, which includes public investment that contributes to a productive public capital stock.[5]

Chart 1
NGEU transfers, EU debt and EU tax



Source: ECB staff calculations.
Note: EU debt refers to the part of the NGEU grants budget that applies to the euro area.

The calibration used for these simulations has been specifically chosen to fit the modalities of the NGEU. First, the model is calibrated with the euro area split into five blocks – Germany, Spain, France, Italy and the rest of the euro area[6] – while the sixth block covers the rest of the world.[7] This allows heterogeneous country allocation of NGEU funds among the largest euro area countries (see Chart 1a) and spillovers across countries to be taken into account. Second, the model has been adapted to include an entity that pays out grants to Member States and runs up a debt to finance them, which represents the part of the NGEU budget that applies to the euro area (hereinafter referred to as the EU budget). The EU loans to cover the grants, including

4 For a description of the EAGLE model, see Gomes, S. et al. (2012). The calibration of price and wage rigidities is based on the European Commission, see Albonico, A. et al. (2019).

5 See Clancy, D. et al. (2016) for an EAGLE model with productive public capital, following Leeper, E.M. et al. (2010).

6 All simulations have been run with all six blocks. The results for the "rest of the euro area" block (usually close to the euro area average) and some of the individual country results have not been shown for chart clarity.

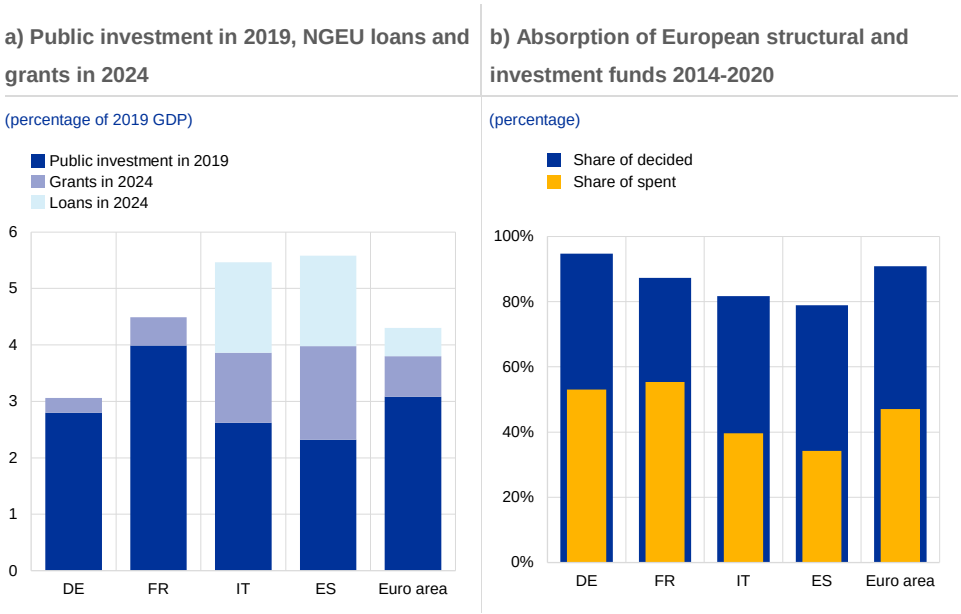
7 For more details on the specification and calibration of this version of EAGLE, see Alloza, M. et al. (2020).

interest, are assumed to be repaid by an indirect tax levied uniformly for 30 years across the European blocks in the model, representing an EU tax (see Chart 1b).[8] This extension allows NGEU grants to be modelled differently from NGEU loans, which are added to the national debt and subsequently repaid through national (lump sum) taxes.

The scenarios presented below are intended to assess the implications of different possible uses of NGEU funds and should not be interpreted as projections. The reference scenario assumes full use of the NGEU loans and grants for productive public investment. This implies a strong increase in public investment across the euro area within two years, with the public investment-to-GDP ratio more than doubling in the countries taking up NGEU loans (see Chart 2a). Such a rapid scaling-up of public investment will place high demands on the institutional capacity of countries to ensure the successful selection and execution of investment projects. The fact that the disbursement of the structural and investment funds from the 2014-2020 EU budget has been strongly backloaded (see Chart 2b) will pose an additional challenge. These funds can still be spent within two years of the end of the budget, which would imply an overlap with the first two years of NGEU.

Chart 2

Public investment, NGEU funds, absorption EU funds



Source: European Commission and ECB staff calculations.
Note: Absorption of European structural and investment funds (ESIF) until mid-2020.

The first alternative scenario assumes that NGEU funds are used for fiscal transfers instead of investment. Since the transfers are made to the general population – instead of being targeted at hand-to-mouth consumers – they have the lowest stimulating effect of the fiscal instruments in EAGLE. In the second alternative scenario, NGEU funds are used to reduce (in the case of grants) or replace (in the

[8] This reflects the European Council's decision to explore a number of indirect taxes (e.g. carbon border tax, digital tax) as possible new EU own resources to finance the NGEU package.

case of loans) national government debt, instead of being used for additional fiscal spending. Finally, the EAGLE results are compared with those of other modelling tools in Section 4.

All scenarios assume a binding effective lower bound for monetary policy for the first three years. Euro area countries share a common nominal exchange rate and a common nominal interest rate. The central bank sets the euro area short-term nominal interest rate, according to a standard Taylor-type rule, by reacting to euro area consumer price inflation and real activity. During the first three years of the simulations, the monetary policy rule is switched off, i.e. the common interest rate does not change in response to the implied changes in macroeconomic developments. Subsequently, monetary policy follows the Taylor rule.

In all simulations, the fiscal stimulus exactly matches the NGEU funds received.[9] The (debt-based) fiscal rule is switched off during the period in which NGEU funds are received (five years for loans and six years for grants).[10] Afterwards, the stability of the government debt-to-GDP ratio is ensured via an endogenous reaction in non-distortionary taxes to deviations of the debt ratio from its steady-state value. The EU debt is repaid through a uniform indirect tax increase over 30 years, starting in 2028.

3.1 Reference scenario: NGEU funds used for productive government investment

Using all the grants and loans for productive public investment leads to a large increase in output that is sustained beyond the horizon of NGEU. This simulation, which assumes that all NGEU funds are used for productive public investment (without delays), reflects the maximum possible macroeconomic impact that the NGEU instrument could have. In the short term, public investment boosts demand for final goods and, in turn, demand for labour and capital. This lifts labour income and returns on the private capital stock, which in turn stimulates domestic consumption and investment (see Chart 3). Over a longer-term horizon, public investment boosts the productivity of the domestic economy through the build-up of the government capital stock.[11] Since the public capital stock is modelled in EAGLE as a separate factor in the production function of intermediate goods, increasing it amplifies the productivity of private capital. As a result, domestic output features a persistent increase, which for the euro area for grants and loans combined peaks at around 1.5% of GDP in 2025. At the same time, the increase in public capital reduces firms' marginal costs, thereby

9 In EAGLE, other expenditures and tax rates are assumed to follow an autoregressive process.

10 The debt-to-GDP ratio returns to its initial steady-state value, which is calibrated to current debt ratios, rather than to the 60% of GDP reference value in the Stability and Growth Pact (SGP). Accordingly, the results here should be interpreted as the deviation from a fiscal policy without the NGEU, and not necessarily as an SGP-compliant debt path.

11 The output elasticity of public capital is set at 0.1, as is common in this set of models and in line with empirical estimates of production function output elasticities (see De Jong, J. et al. (2017)). If the inclusion of climate change-related goals in the NGEU package leads to a replacement of brown with green capital, which increases the depreciation rate of public capital, the elasticity would be lower.

reducing inflation (and inflation expectations).[12] The total effect on inflation is determined by the interplay between the short-term demand effect and the longer-term disinflationary effect, with the relative importance depending on the degree of flexibility of price adjustment.[13]

The impact of grants is larger than that of loans. NGEU loans are larger and more frontloaded than grants in the two large countries assumed to take them up (Spain and Italy), and accordingly boost output more. However, grants have a larger impact on output per euro in the four largest countries and in the euro area as a whole, and in the euro area as a whole. One reason is that grants and loans have different fiscal implications, as the former are not included in the national debt whereas the latter are. Using grants to finance public investment leads to a fall in the debt-to-GDP ratio on account of the positive denominator effect. This creates fiscal space that allows for additional stimulus once the NGEU funds have been received. The opposite holds for loans, as the positive denominator effect does not fully compensate for the direct impact of the loans on national debt. The increase in the government debt ratio leads to a crowding-out of private investment and creates a need for fiscal consolidation after the NGEU disbursement horizon. Another reason for the smaller output effect of loans versus grants is that loans are only taken up by a subset of Member States. As the country allocation of grants is more widespread, the fiscal stimulus financed by grants has larger spillover effects than the stimulus financed by loans.

3.2 Alternative scenario 1: NGEU funds used for fiscal transfers

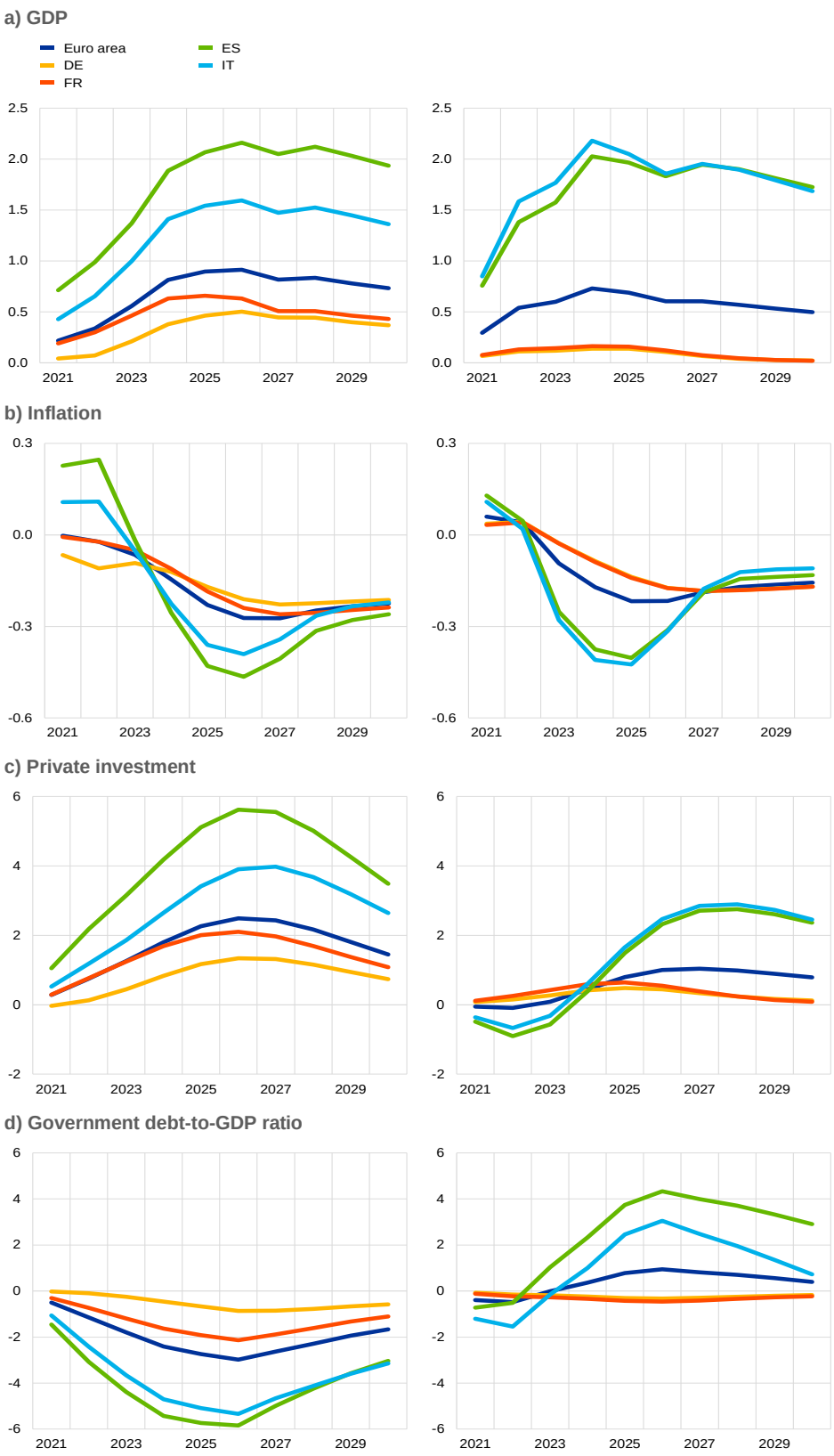
Using the NGEU funds for transfers is associated with a much smaller boost to output than for productive public investment. This simulation assumes the NGEU-funded fiscal transfers are not specifically targeted at cash-constrained consumers, which implies a low stimulating effect (see Chart 4). Instead of increasing by 1.5% of euro area GDP in 2025, as in the reference scenario, domestic output increases by a mere 0.25% of GDP for grants and loans combined. Since transfers have no positive impact on the productive capacity of the economy, besides relatively small short-lived demand effects, the impact on output is not only much more muted but also less persistent than in the reference scenario. The positive effect on output is larger for grants than for loans, with the same driving forces as in the reference scenario.

12 For the price effects of productive government spending on private sector productivity in a small DSGE model, see Di Giorgio, G. et al. (2018).

13 In an empirical estimate of fiscal policy at the effective lower bound, the strength of the supply-side effect of public investment is found to be related to the timing of the finalisation of the investment (see Bonam, D. et al. (2020)). The effect of government investment on prices is also found to be related to its impact on relative sectoral productivity in the tradeable versus non-tradeable sectors (see Galstyan V. and Lane, P. (2009)).

Chart 3
Reference scenario for grants (left-panels) and loans (right-panels)

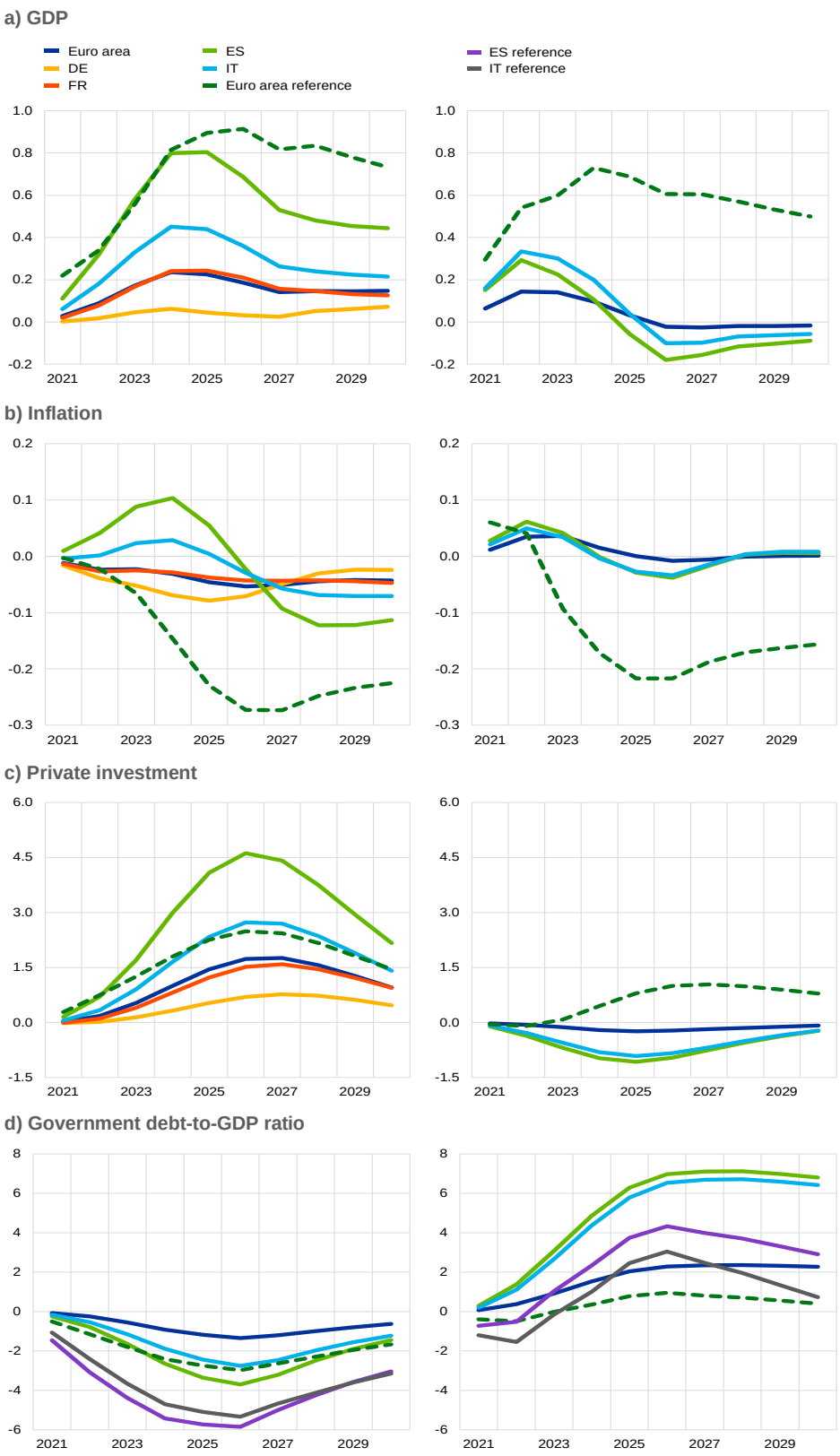
(percentage difference from steady-state; inflation and government debt-to-GDP ratio: annualised percentage point difference)



Source: ECB staff calculations using EAGLE.

Chart 4
Fiscal transfer scenario for grants (left-panels) and loans (right-panels)

(percentage difference from steady-state; inflation and government debt-to-GDP ratio: annualised percentage point difference)



Source: ECB staff calculations using EAGLE.

3.3 Alternative scenario 2: NGEU funds used for debt replacement and debt repayment

NGEU funds could be used to reduce existing debt or its interest payments instead of financing additional government spending. This simulation assumes that the NGEU loans are used to replace existing government debt and the NGEU grants are used to repay existing government debt. Since EU debt is assumed to have no sovereign risk premium, using NGEU funds in this way should allow high-debt countries to benefit from lower financing costs. To simulate this scenario, the model is extended with a country risk premium on government bonds for high-debt countries.[14]

Using NGEU loans to replace outstanding government debt has a small but persistent positive effect on output. Through a reduction in the financing costs for the private sector, swapping outstanding government debt with NGEU loans has a positive effect on output that would be sustained for the duration of the loans (see Chart 5 right-panels). However, the effective reduction in the risk premium of a loan-for-debt swap is very limited in terms of size, as the NGEU loans (almost 7% of GDP for Spain and Italy) account for only a small share of the total debt of these countries.[15] The effects on output are therefore small compared with the effect of an increase in public investment. Compared to the use of NGEU funds for fiscal transfers, the magnitude of the output effect of a loan-for-debt swap is similar, but more persistent.

When high-debt countries use grants to repay existing debt (while the other countries use them for public investment), the effect on output is considerably higher than for loans (see Chart 5 left-panels). High-debt countries benefit not only from the reduction in their sovereign risk premium, but also from the positive spillover effects of the investment stimulus in the other countries. The higher output originating from spillovers brings an additional reduction in the debt-to-GDP ratio through the denominator effect, thus somewhat supporting the reduction in the risk premium. The combined output effect of using NGEU funds for debt repayment and replacement in high-debt countries and for public investment in low-debt counties peaks at around 0.5% of GDP for the euro area as a whole.

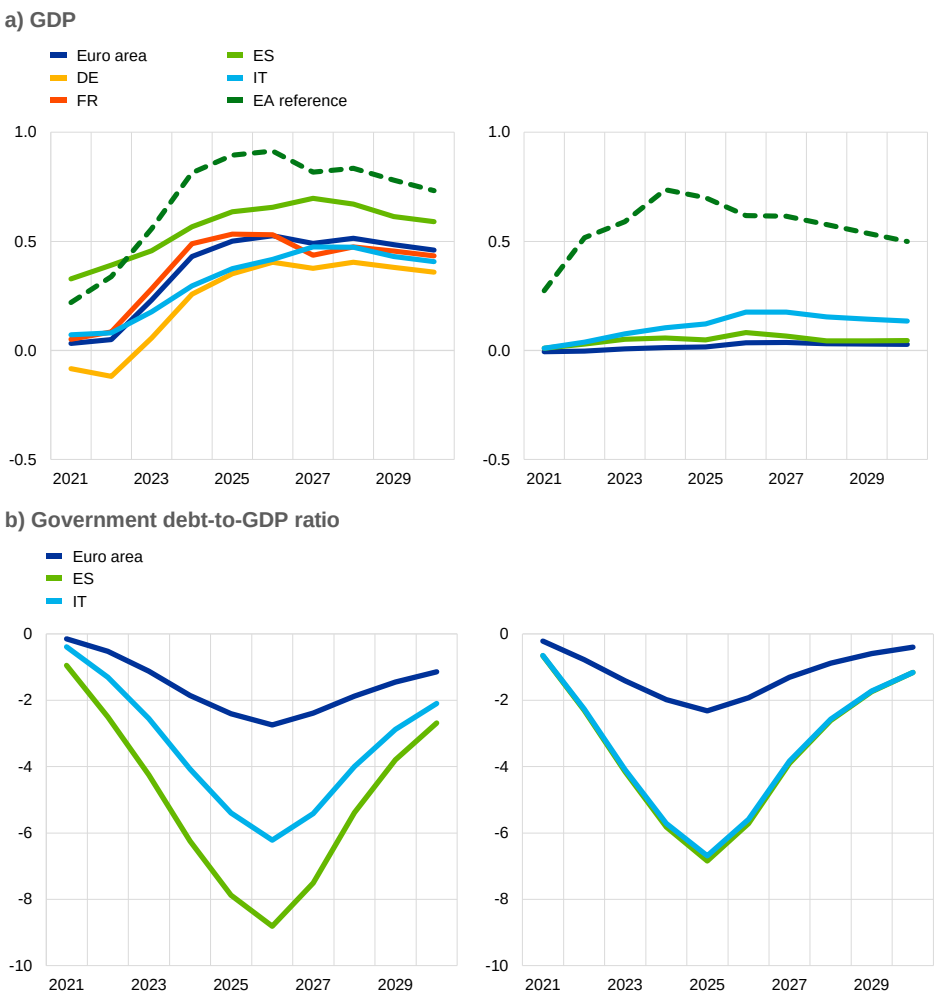
[14] Consistent with the assumptions on the distribution of NGEU funds, of the four largest euro area countries, Spain and Italy are considered to be high-debt countries. The modelling of the risk premium is based on Burriel, P. et al. (2020).

[15] For illustration: with a government debt-to-GDP ratio of 100% and a risk premium of 400 basis points, replacing 7% of GDP in sovereign debt with loans represents a direct effective reduction of the average risk premium of 28 basis points (0.07*400). In addition, a small reduction in the overall risk premium could be expected owing to the downward shift in the debt-to-GDP ratio.

Chart 5

Debt repayment /replacement scenario for grants (left-panels) and loans (right-panels)

(percentage difference from steady-state; government debt-to-GDP ratio: annualised percentage point difference)



Source: ECB staff calculations using EAGLE.

4 Comparison with other models

This section provides a complementary analysis of the simulations presented above with additional models.[16] Most notably, it includes macroeconomic simulations produced using the semi-structural model ECB-BASE and BMEs. The former is a large-scale model of the euro area that serves as a blueprint for a new ECB multi-country semi-structural model, which is intended to become a workhorse model for forecasting and policy simulations at the ECB. In general, ECB-BASE attempts to combine a good empirical data fit with a solid structural specification.[17] In addition, it contains a rich representation of the government sector, including the presence of government investment, which is crucial for the analysis in this paper. The BMEs, in turn, summarise the effects of changes in assumptions (including fiscal assumptions) on macroeconomic variables. Although developed in the context of the Eurosystem and ECB projections, they have frequently been used to assess policy initiatives. The major strength of the BMEs is that they incorporate country-specific expertise from the models of national central banks in a simple form.[18] At the same time, the simplicity of BMEs also constitutes a shortcoming for this exercise. In particular BMEs are mainly useful for assessing small shocks (given the linear approximation around the baseline) and their short or medium-term effects (given that the elasticities are limited to 12 quarterly periods).[19]

All three tools confirm the boost to real output for the NGEU horizon.[20] According to all three tools, the additional government investment will have significant effects on output, in particular in 2021-25 (see Chart 6a). Concretely, the additional spending associated with the recovery instrument is expected to lift real output in the euro area by around 1.5% of GDP by 2025 (see Annex A for additional variables).[21]

16 The European Commission (2020a and 2020b) analyses the macroeconomic effects of NGEU using the QUEST-model. These simulations differ in a number of assumptions, e.g. with regard to the time profile of the disbursements of the funds, and present the results for (groups of) EU countries rather than individual euro area countries, but they also show that effective use of the funds has a significant impact on output.

17 The ECB-BASE model is described in detail in Angelini, E. et al. (2019).

18 BMEs and their advantages and limitations are discussed more in detail in European Central Bank (2016).

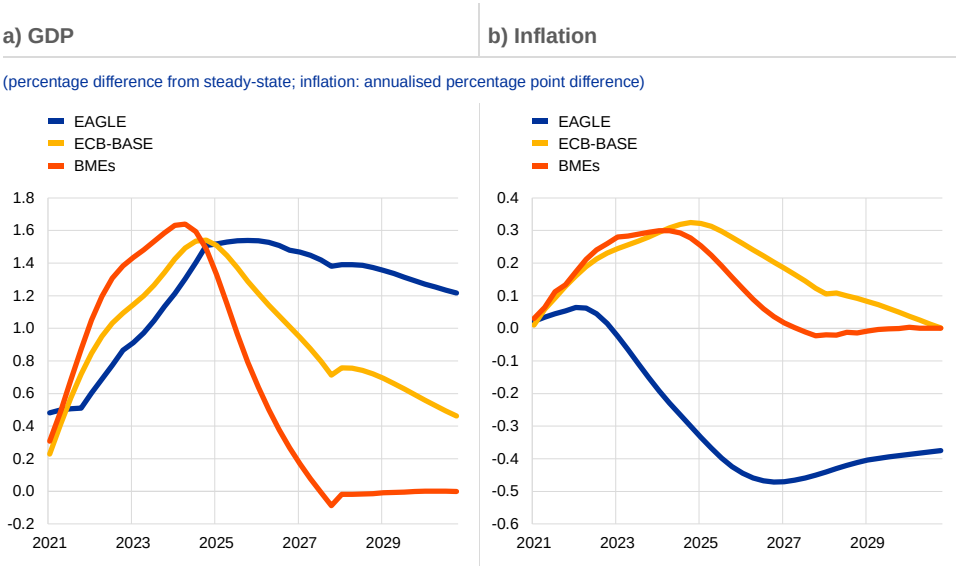
19 To overcome the three-year horizon limitation, the BME-based simulations in this note are constructed by conducting a sequence of one-period shocks, the impulse response functions (IRFs) of which are then aggregated. The linear nature of the tool implies additivity of IRFs and hence makes the aggregation feasible. Still, the length of IRFs, limited to three years, makes the tool unsuitable for assessing any long-run effects.

20 For the EAGLE simulations, the use of NGEU funds for investment is simulated separately for loans and grants, as in the reference scenario, but simultaneously to model their combined impact. In the ECB-BASE model and the BMEs a debt-financed public investment shock of the total envelope is simulated for the euro area and for the individual countries respectively.

21 The results of a simulation of the output effects for Spain using the Banco de España's Quarterly Macroeconomic Model also show a more adverse impact when NGEU grants are used to finance current expenditure instead of public investment.

Chart 6

Effects of grants and loans in the euro area, according to various models



Source: ECB staff calculations using EAGLE, ECB-BASE and BMEs.

The main differences arise from the specific characteristics of the tools. In particular, long-run output effects are the strongest according to EAGLE. This is attributable to the high productivity of government investment, which is akin to government investment establishing an infrastructure network or digital network that magnifies the productivity of the total private capital stock. In ECB-BASE, the government investment is effectively as productive as private investment, which results in less pronounced long-run effects compared with EAGLE. A limitation of BMEs is that they do not feature any long-run effects and thus do not incorporate supply-side effects by construction. An implication of the different strength of supply-side effects is that ECB-BASE and BMEs, unlike EAGLE, do not feature a large deflationary impact in the medium-term (see Chart 6b). Moreover, both tools are backward-looking and do not reflect downward pressures on inflation in the future, which also has implications for the short run. This stands in contrast to EAGLE, which is a forward-looking tool and one in which expectations play a major role in determining current inflation.[22] In addition, the large country heterogeneity in the disbursement of NGEU funds means that the inflation and output effects are sensitive to spillovers, including the substitutability between traded and non-traded goods and between domestic tradable goods and imported goods. These effects are captured to a greater extent in the multi-country EAGLE simulations than in the other tools.

[22] Not captured in EAGLE is a possible decline of the term-premium as a result of the deflationary pressures from the use of loans and grants in the reference scenario, which could add to the positive demand effect.

5 Conclusions

The agreement in the European Council to establish the NGEU instrument as a European response to the economic fallout from the COVID-19 pandemic offers the possibility for a sizeable increase in output growth and economic resilience.

The NGEU loans and grants that are earmarked for euro area countries amount to almost 5% of euro area GDP, with a higher share of the funds earmarked for vulnerable countries.

Using NGEU for public investment could increase real output in the euro area by around 1.5% of GDP over the medium term. The magnitude and persistence of this positive output effect depend crucially on the use of the funds for productive public investment projects. However, the magnitude of the NGEU-funded stimulus will, in many countries, challenge the institutional capacity to select and execute viable projects.

Alternative uses of NGEU funds have smaller positive effects than their allocation to productive investment. Using the funds to increase fiscal transfers would mean that the potential positive medium-term output effects are relinquished and would adversely affect the public debt outlook.

If high-debt countries have limited capacity to absorb NGEU funds for investment, the next best option would be to use grants to reduce debt or replace debt with NGEU loans with lower interest payments. In that case, output in high-debt countries would still increase, driven by positive spillover effects from investment in less-indebted countries and by positive effects from reductions in sovereign risk premia.

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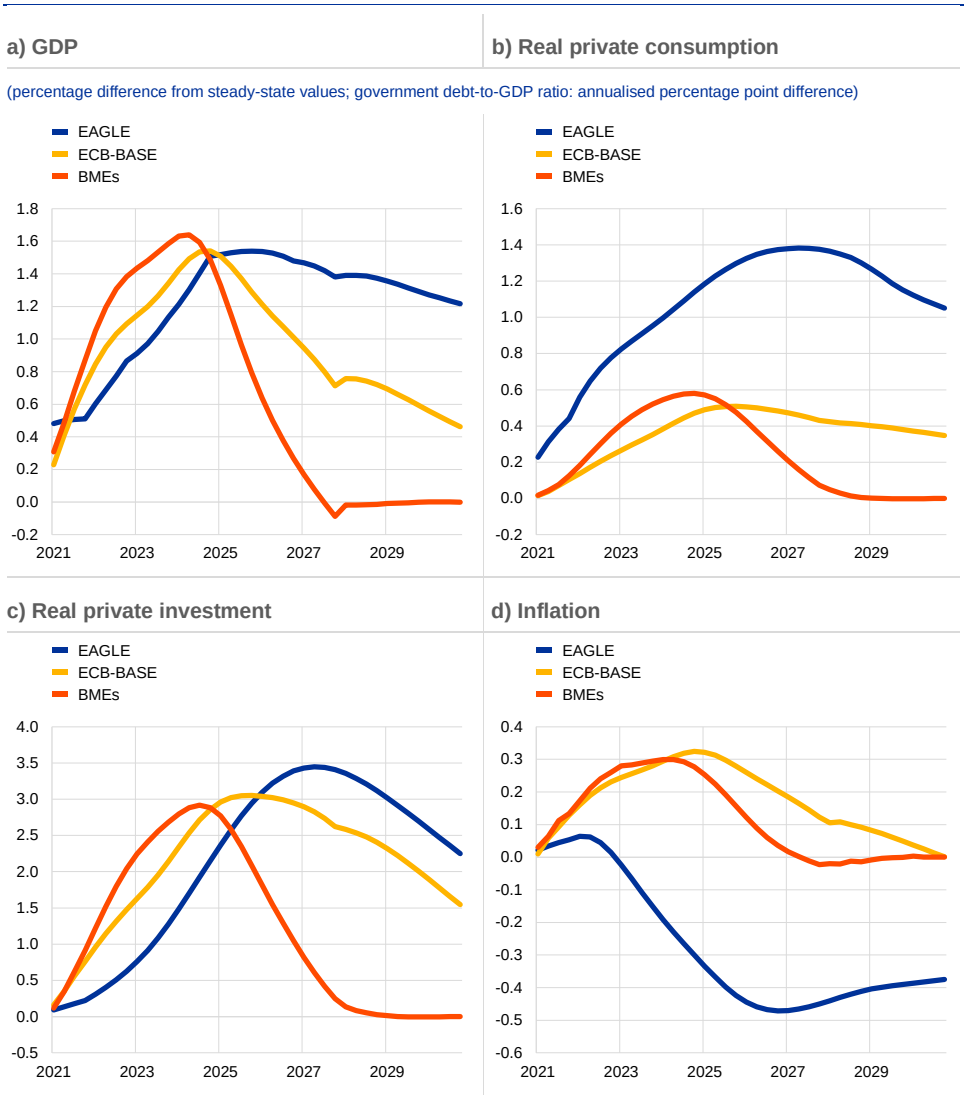
Annex A: comparison with various models

Chart A.1

Macroeconomic effects on the euro area of using NGEU funds for public investment



Source: ECB staff calculations using EAGLE, ECB-BASE and BMEs.
Notes: Real output, consumption and investment are expressed as percentage deviations from the baseline/steady-state values. Inflation (annualised consumption deflator inflation rate) and the government debt-to-GDP ratio are expressed as an absolute difference in percentage points from the baseline/steady-state values.

Acknowledgements
This paper benefited from helpful comments by Nadine Leiner-Killinger, Christophe Kamps, Massimo Rostagno, Frank Smets and Livio Stracca. Thomas Faria and José Pedro Garcia provided research assistance.

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PDF ISBN 978-92-899-4560-8, ISSN 1725-6534, doi:10.2866/109223, QB-AQ-21-002-EN-N